INFORMATION SHEET

PRESIDING: Commissioner Brown-Bland; Chair Mitchell; Commissioners Gray and Clodfelter
PLACE: New Hanover County Courthouse, Wilmington, NC
DATE: Tuesday, August 20, 2019
TIME: 9:30 a.m. – 12:37 p.m.
DOCKET NO.: G-9, Sub 743
COMPANY: Piedmont Natural Gas Company, LLC
DESCRIPTION: Application of Piedmont Natural Gas Company, Inc., for an Adjustment of Rates, Charges, and Tariffs Applicable to Service in North Carolina, Continuation of its IMR Mechanism, Adoption of an EDIT Rider, and Other Relief
VOLUME: 5

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FILED
AUG 26 2019
Clerk's Office
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WITNESSES
See attached.

EXHIBITS

See attached.

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DATE FILED: August 23, 2019	PREFILED PAGES:	269

PLACE: Dobbs Building, Raleigh, North Carolina

DATE: Tuesday, August 20, 2019

TIME: 9:30 a.m. - 12:37 p.m.

DOCKET NO.: G-7, Sub 743

BEFORE: Commissioner ToNola D. Brown-Bland, Presiding
Chair Charlotte A. Mitchell
Commissioner Lyons Gray
Commissioner Daniel G. Clodfelter

IN THE MATTER OF:

Application of Piedmont Natural Gas Company, Inc.,
for an Adjustment of Rates, Charges, and Tariffs
Applicable to Service in North Carolina,
Continuation of Its IMR Mechanism,
Adoption of an EDIT Rider, and Other Relief

VOLUME: 5

Noteworthy
Reporting Services, LLC

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/19/19 DOCKET NO.: G-9, SUB 743

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APPLICANT: X COMPLAINANT: _____ INTERVENOR: _____

PROTESTANT: _____ RESPONDENT: _____ DEFENDANT: _____

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APPEARANCE SLIP

DATE: 8/19/19 DOCKET NO.: G-9, Sub 743

ATTORNEY NAME and TITLE: Brian Heslin

FIRM NAME:

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CITY: STATE: ZIP CODE:

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APPLICANT: X COMPLAINANT: INTERVENOR:

PROTESTANT: RESPONDENT: DEFENDANT:

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APPEARING FOR: Fayetteville Public Works Commission

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PROTESTANT:____ RESPONDENT:____ DEFENDANT:____

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APPEARING FOR: Nucor Steel

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PROTESTANT:_____ RESPONDENT:_____ DEFENDANT:_____

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Signature: Joseph W Eason

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NORTH CAROLINA UTILITIES COMMISSION

APPEARANCE SLIP

DATE: 8/19/19 DOCKET NO.: G-9, Sub 743

ATTORNEY NAME and TITLE: Warren Hicks

FIRM NAME: Bailey & Dixon

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CITY: _____ STATE: _____ ZIP CODE: _____

APPEARING FOR: Carolina Industrial Group for Fair Utility Rates IV (CIGFUR)

APPLICANT: ___ COMPLAINANT: ___ INTERVENOR: ✓

PROTESTANT: ___ RESPONDENT: ___ DEFENDANT: ___

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NORTH CAROLINA UTILITIES COMMISSION
APPEARANCE SLIP

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CITY Raleigh ZIP 27609

APPEARING FOR: Carolina Utility Customers Association, Inc.

APPLICANT _____ COMPLAINANT _____ INTERVENER ✓
PROTESTANT _____ RESPONDENT _____ DEFENDANT _____

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APPEARANCE SLIP

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APPEARING FOR: using and consuming public, the State and its citizens

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PROTESTANT:____ RESPONDENT:____ DEFENDANT:____

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NORTH CAROLINA UTILITIES COMMISSION
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DATE August 19, 2019 DOCKET #: G-9, Sub 743

PUBLIC STAFF MEMBER Elizabeth Culpepper

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ELIZABETH D. CULPEPPER

Elizabeth A. Culpepper
Signature of Public Staff Member

NORTH CAROLINA UTILITIES COMMISSION
PUBLIC STAFF - APPEARANCE SLIP

DATE August 19, 2019 DOCKET #: G-9, Sub 743

PUBLIC STAFF MEMBER Megan Jost

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Megan Jost

Megan Jost

Signature of Public Staff Member

NORTH CAROLINA UTILITIES COMMISSION
PUBLIC STAFF - APPEARANCE SLIP

DATE August 19, 2019 DOCKET #: G-9, Sub 743

PUBLIC STAFF MEMBER William E. H. Creech

ORDER FOR TRANSCRIPT OF TESTIMONY TO BE **EMAILED** TO THE PUBLIC STAFF - PLEASE INDICATE YOUR DIVISION AS WELL AS YOUR EMAIL ADDRESS BELOW:

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William E.H. Creech

Signature of Public Staff Member

1A

Prior Testimony of
Daniel P. Yardley

Jurisdiction	Sponsor	Year	Topics	Docket
Federal Energy Regulatory Commission	Northern Distributor Group	1992	Cost of Service and Cost Allocation	RP92-1
	Northern Distributor Group	1995	Cost of Service and Rate Design	RP95-185
	Atlanta Gas Light, et al.	2001	Storage Cost Allocation	RP01-245
	Bay State Gas and Northern Utilities	2002	Rate Design	RP02-13
Florida	Peoples Gas System	2008	Cost Allocation and Rate Design	Docket No. 080318-GU
Massachusetts	Bay State Gas	1998	Capacity Assignment	D.T.E. 98-32
	Bay State Gas	2001	Contract Approval	D.T.E. 00-99
	Bay State Gas	2006	Declining Use Rate Adjustment	D.T.E. 06-77
	Bay State Gas	2007	Declining Use Rate Adjustment	D.P.U. 07-89
	Bay State Gas	2009	Revenue Decoupling	D.P.U. 09-30
Illinois	Nicor Gas	2017	Cost Allocation and Rate Design	Docket No. 17-00124
	Nicor Gas	2018	Revenue Decoupling, Cost Allocation and Rate Design	Docket No. 18-1775
New Hampshire	Northern Utilities	2005	Jurisdictional Gas Cost Allocation	DG05-080
National Energy Board of Canada	Alberta Northeast Gas, Ltd.	2012	TransCanada Pipeline Service Restructuring and Tolls	RH-3-2011
	Alberta Northeast Gas, Ltd.	2013	TransCanada Pipeline Shipper Renewal Rights	RH-1-2013
	Alberta Northeast Gas, Ltd.	2014	TransCanada Pipeline Service Service and Toll Design	RH-1-2014
New Jersey	New Jersey Natural Gas	1999	Rate Unbundling	Docket No. GO99030123
	Elizabethtown Gas, *et al.*	1999	Customer Account Services	Docket No. EX99090676
	Elizabethtown Gas	2002	Cost Allocation and Rate Design	Docket No. GR02040245
	South Jersey Gas Company	2003	Cost Allocation and Rate Design	Docket No. GR03080683
	South Jersey Gas Company	2004	Capacity Charge	Docket No. GR04060400
	New Jersey Natural Gas	2005	Revenue Decoupling	Docket No. GR0512020
	South Jersey Gas Company	2005	Revenue Decoupling	Docket No. GR0512019
	South Jersey Gas Company	2007	Annual Decoupling Adjustment	Docket No. GR07060354

Prior Testimony of
Daniel P. Yardley

Jurisdiction	Sponsor	Year	Topics	Docket
New Jersey *cont.*	New Jersey Natural Gas	2007	Cost Allocation and Rate Design	Docket No. GR07110889
	South Jersey Gas Company	2008	Annual Decoupling Adjustment	Docket No. GR08050367
	Elizabethtown Gas	2009	Revenue Decoupling, Cost Allocation and Rate Design	Docket No. GR09030195
	South Jersey Gas Company	2009	Annual Decoupling Adjustment	Docket No. GR09060340
	South Jersey Gas Company	2009	Cost Allocation and Rate Design	Docket No. GR10010035
	New Jersey Natural Gas	2010	Energy Efficiency Cost Recovery	Docket No. GR10030225
	South Jersey Gas Company	2011	Annual Decoupling Adjustment	Docket No. GR11060337
	New Jersey Natural Gas	2011	Energy Efficiency Cost Recovery	Docket No. GR11070425
	South Jersey Gas Company	2012	Annual Decoupling Adjustment	Docket No. GR12060475
	New Jersey Natural Gas	2012	Energy Efficiency Cost Recovery	Docket No. GR12070640
	New Jersey Natural Gas and South Jersey Gas Company	2013	Revenue Decoupling	Docket No. GR13030185
	South Jersey Gas Company	2013	Annual Decoupling Adjustment	Docket No. GR13050434
	South Jersey Gas Company	2013	Cost Allocation and Rate Design	Docket No. GR13111137
	South Jersey Gas Company	2014	Annual Decoupling Adjustment	Docket No. GR14050510
	New Jersey Natural Gas	2014	Energy Efficiency Cost Recovery	Docket No. GO14121412
	South Jersey Gas Company	2015	Annual Decoupling Adjustment	Docket No. GR15060642
	Elizabethtown Gas	2015	Infrastructure Cost Recovery	Docket No. GR15091090
	New Jersey Natural Gas	2015	Cost Allocation and Rate Design	Docket No. GR15111304
	South Jersey Gas Company	2016	Annual Decoupling Adjustment	Docket No. GR16060483
	Elizabethtown Gas	2016	Cost Allocation and Rate Design	Docket No. GR16090826
	South Jersey Gas Company	2017	Cost Allocation and Rate Design	Docket No. GR17010071
	South Jersey Gas Company	2017	Annual Decoupling Adjustment	Docket No. GR17060586
	South Jersey Gas Company	2018	Annual Decoupling Adjustment	Docket No. GR17060586
	New Jersey Natural Gas	2015	Cost Allocation and Rate Design	Docket No. GR1903____

Prior Testimony of
Daniel P. Yardley

Jurisdiction	Sponsor	Year	Topics	Docket
New Mexico	New Mexico Gas Company	2018	Rate Design, Weather Normalization Adjustment and Infrastructure Cost Recovery	Case No. 18-000038-UT
North Carolina	Piedmont Natural Gas Company	2013	Cost Allocation and Rate Design	Docket No. G-9, Sub. 631
Rhode Island	Providence Gas Company	1996	Cost Allocation and Rate Design	Docket No. 2076
Tennessee	Chattanooga Gas Company	2009	Revenue Decoupling, Cost Allocation and Rate Design	Docket No. 09-00183
	Piedmont Natural Gas Company	2011	Cost Allocation and Rate Design	Docket No. 11-00144
	Chattanooga Gas Company	2018	Cost Allocation and Rate Design	Docket No. 18-00017
Wisconsin	Wisconsin Power and Light	2001	Cost Allocation and Rate Design	Docket No. 6680-UR-111

1A

PIEDMONT NATURAL GAS COMPANY, INC.
ALLOCATED COST OF SERVICE STUDY

I. PURPOSE AND GUIDING PRINCIPLES

Piedmont Natural Gas Company, Inc. ("Piedmont" or the "Company") is proposing to change existing rates in connection with a proposed increase in base rate revenue requirements. An allocated cost of service study ("ACOSS") assesses the reasonableness of existing prices, and guides the development of price changes. In particular, the ACOSS examines all of a utility's common costs, and through appropriate cost assignments and allocations, establishes measures of investments, expenses and income by customer class. An ACOSS is necessary to determine the cost responsibility for each customer class because many of the Company's costs are common and are incurred to serve many classes of customers collectively.

The ACOSS calculates the total investment and operating costs incurred to serve each customer class, establishing class-specific total revenue requirements. The class-specific revenue requirements are compared to class revenues in order to establish class income and rate of return on investment. The class-specific rates of return are used to guide the apportionment of the base rate increase among all of Piedmont's customer classes in conjunction with the development of proposed rates. The ACOSS also determines the classification of costs among demand, customer and commodity components. The classification of costs within a rate classification is used to guide the development of the form of billing rates for that class. Although the ACOSS is not the only factor relied upon to design rates, it is an invaluable guide to ensuring that the process is fair and reasonable.

The primary principle that guides the ACOSS process is that of cost causation. Each step in the development of the ACOSS is consistent with the factors that drive or contribute to the incurrence of costs on the Piedmont system. For example, the

principle of cost causation requires that the costs incurred by the Company for billing be apportioned to classes on the basis of the number of bills issued or customers in each class.

II. SPECIFICATION OF PIEDMONT ACOSS

A. Overview

The ACOSS follows a three-part process, which consists of the functionalization, classification and allocation of Piedmont's total cost of service. First, cost functionalization involves the segregation of costs into categories based on the function that each cost is incurred to provide. In the ACOSS, the functions are production, transmission, storage and distribution – the direct functions associated with costs incurred by the Company. Second, cost classification further separates costs according to the primary cost causative forces exhibited on Piedmont's system. The cost classifications used in the ACOSS relate to fixed costs required to serve peak requirements (demand-related) and fixed costs associated with providing customers with access to and active status on the system (customer-related). The only costs that do not fall in one of these two categories are variable costs associated with commodity gas supply. For simplicity, these costs are included with fixed gas costs in the Piedmont ACOSS. Finally, cost allocation takes each classification of cost for each function and apportions that cost to each of the Company's customer classes. Cost allocation utilizes a variety of factors to apportion the various types of costs among classes in a manner that is consistent with principles of cost responsibility.

B. Customer Classes

The ACOSS includes 11 customer classes, which are: Residential Service (Rate Schedule 101), Small General Service (Rate Schedule 102), Medium General Service (Rate Schedule 152), Large General Sales Service (Rate Schedule 103), Large General Transportation Service (Rate Schedule 113), Interruptible Sales Service (Rate Schedule 104), Interruptible Transportation Service (Rate Schedule 114), Military Transportation Service (Rate Schedule T-10), Special Contracts, Municipal Special Contracts and Power Generation Special Contracts.

C. Data Sources

The primary data sources fall in two general categories: data related to the establishment of the total cost of service, and data used as the basis for allocating the

total cost of service among customer classes. The total cost of service or revenue requirement data utilized in the ACOSS are taken from schedules supporting Piedmont's base rate application in this proceeding. The Company's forecasts of sales, customers and revenues by class supporting the application as adjusted for pro forma changes are used as allocation bases for several categories of costs. The remaining allocation data are derived from special studies of facility investments. All of the data utilized in the ACOSS correspond to a common time period of Calendar Year 2018.

D. Cost Functionalization

The functionalization of costs refers to the segregation of costs among the primary functions provided by gas utilities to their retail customers. The chart of accounts prescribed by the North Carolina Utilities Commission ("NCUC") separates the majority of costs into the following four functions:

- *Production:* The production function includes costs associated with the upstream commodity gas supply, interstate pipeline transportation capacity necessary to deliver the supply to Piedmont's system, and upstream storage facilities. Additionally, the costs of any production facilities and the administrative costs associated with procuring natural gas and transportation are categorized as production-related.

- *Storage:* The storage function includes costs associated with on-system facilities that are able to receive injected supplies or delivered liquid natural gas for later withdrawals.

- *Transmission:* The transmission function includes costs associated with large diameter, high pressure facilities that deliver gas to smaller distribution facilities. Transmission facilities include transmission mains and compressors.

- *Distribution:* The distribution function includes costs associated with delivering supplies within areas that are close in proximity to gas loads, such as distribution mains. The costs associated with connecting customers to the distribution system are also considered distribution-related, which include costs associated with services, meters and regulators.

The functionalization of costs that do not fall into one of these four categories is not a primary objective of the Piedmont ACOSS given that Piedmont only provides tariff distribution service at the present time.

E. Cost Classification

Classification is the apportionment of costs among demand, customer and commodity categories. Each of Piedmont's rate base and expense accounts is classified consistent with the manner in which the associated costs are incurred. Costs that are associated with serving peak requirements on the system are classified as demand-related, e.g., costs associated with transmission accounts. Costs that are associated with providing customers access to and active status on the distribution system are classified as customer-related. Customer-related costs are incurred regardless of the amount of gas a customer consumes in any given period and include the costs of services, meters and regulators, and meter reading and billing expenses. Some categories of costs vary with more than one of these classifications.

Lastly, some categories of costs are appropriately classified based on how other related costs are classified. For example, distribution operations supervision and engineering expenses are classified based on the classification of all other distribution operations accounts.

The classification of distribution mains reflects the distinct cost causative factors that drive the Company's investments in these facilities. The first factor is the coincident peak demand on the system. Distribution mains are designed to deliver the maximum quantities that are required during a peak period from Piedmont's pipeline interconnects to the interconnection with each individual customer service. The second factor is the number of customers on the system. Distribution mains are also designed to deliver supplies in reasonable proximity to customers in order to minimize the length of pipe used to serve all customers in an overall efficient fashion.

The breakdown of distribution mains investment costs between the demand and customer-related components is determined through a minimum-size study. The premise underlying this study is that the size of distribution main installed in a given location is most affected by the peak load that will be served by the main, and that the length of distribution main is most affected by the number of customers that are served. The validity of this premise is supported by the system design criteria taken into consideration by the Company's distribution engineering staff.

The minimum size study evaluates the cost of replacing the existing distribution mains of the system under two different sets of assumptions. The first determines the cost of replacing existing distribution mains

with the same type, diameter and lengths of pipe as is currently installed. The second determines the replacement cost assuming that the entire system is replaced with two-inch diameter plastic pipe, which is the smallest, least-expensive size and type of pipe presently being installed. The customer component of distribution mains is equal to the ratio of the replacement cost using the smallest size pipe to the replacement cost using the installed sizes of pipe. Based on the results of this study, 43% of Piedmont's distribution mains investment is classified as customer-related.

F. Cost Allocation

Cost allocation is the apportionment of individual elements of the Company's classified cost of service among rate classes based on each class' responsibility for the cost being incurred. Cost allocation follows cost causation principles and requires the development of numerous allocation factors that reflect the different types of costs included in Piedmont's overall revenue requirements. Considerable effort is required to yield the set of allocation factors underlying the ACOSS.

The Piedmont ACOSS follows a system-utilization methodology, that is consistent with past practice. The demand allocator used in the ACOSS is the peak and average demand factor. Under this method, the fixed demand costs are allocated to both peak and off-peak loads.

The other allocation factors used in the ACOSS may be grouped into three categories as follows: (i) class summary statistics reflected in the base rate filing, such as the number of customers and sales by class; (ii) special studies that examine the costs associated with a specific type of investment or expense; and (iii) internal allocation factors, which are composite factors determined on the basis of how related cost items are allocated. All of the various factors must be developed assuming a consistent time period for the ACOSS to be accurate.

Four special studies were performed related to significant capital investment and operations and maintenance ("O&M") expense accounts. The studies are as follows:

- *Meter Investment Study:* The meter investment study establishes the aggregate investment in meters and associated regulators based on the type and replacement cost of various meters installed to serve each class.

- *Service Investment Study:* Piedmont's investment in distribution services is the largest investment on its books after the Company's investment in

mains. The service investment study establishes the aggregate investment in services based on the length and cost of services installed to serve each class as well as the associated replacement costs. The services study assigns larger diameter services to Piedmont's larger customers.

- *Labor Expense Study:* A study of the Company's payroll expense examines components of the Company's payroll costs. The labor study is used as the basis for allocating costs that vary with direct payroll costs, such as payroll taxes.

- *Write-offs Study:* The write-offs study examines historical write-offs by customer class.

Together, these special studies are utilized to allocate a substantial portion of the Company's total revenue requirements to customer classes.

Commodity gas costs represent a significant proportion of the Company's overall O&M expense. Commodity gas costs are recovered through the Company's Purchased Gas Adjustment ("PGA") clause. For purposes of the ACOSS, all commodity gas costs are allocated to classes on the basis of commodity PGA revenues.

III. RESULTS

Detailed results include the following information:

- Income Statement
- Customer-Related Rate Base
- Demand-Related Rate Base
- Customer-Related Net Plant
- Demand-Related Net Plant
- Customer-Related O&M Expense
- Demand-Related O&M Expense
- Depreciation Expense and Taxes Other than Income
- Revenues

The results of the ACOSS are provided as follows:

- ACOSS Per Books: Pages 7-24
- ACOSS After Accounting and Pro Forma Adjustments: Pages 25 – 42
- ACOSS After Adjustments for Proposed Revenues: Pages 43 – 60.

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
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Piedmont Natural Gas Company, Inc.
Income and Rate of Return - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport Rate 113
1	**Operating Revenues**	$ 890,971,779	$ 466,064,808	$ 221,197,303	$ 33,699,562	$ 12,446,645	$ 27,739,315
2	Operating Expenses:						
3	Cost of Gas	345,999,746	163,921,425	106,157,749	18,173,351	11,672,060	17,747,205
4	Operation & Maintenance	206,849,014	144,785,989	35,496,485	2,003,315	682,837	6,131,028
5	Depreciation Expense	115,752,686	60,208,030	21,523,561	1,874,369	638,586	6,208,790
6	General Taxes	29,415,586	14,903,057	5,314,689	472,571	163,406	1,596,239
7	Income Taxes - State	7,466,107	3,455,203	1,366,257	134,008	47,003	443,572
8	Income Taxes - Federal	28,265,034	13,080,637	5,172,348	507,323	177,943	1,679,264
9	Amortization of Investment Tax Credits	(118,395)	(54,791)	(21,666)	(2,125)	(745)	(7,034)
10	Total Operating Expenses	$ 733,629,778	$ 400,299,551	$ 175,009,424	$ 23,162,811	$ 13,381,089	$ 33,799,064
11	Net Operating Income	$ 157,342,001	$ 65,765,257	$ 46,187,879	$ 10,536,751	$ (934,444)	$ (6,059,749)
12	Interest on Customer Deposits	(796,448)	(361,540)	(144,451)	(14,193)	(4,927)	(48,795)
13		0	-	-	-	-	-
14		0	-	-	-	-	-
15		0	-	-	-	-	-
16	**Net Operating Income for Return**	$ 156,545,553	$ 65,403,718	$ 46,043,428	$ 10,522,558	$ (939,371)	$ (6,108,544)
17	**Rate Base**	$ 3,108,633,630	$ 1,438,629,423	$ 568,863,134	$ 55,796,207	$ 19,570,403	$ 184,688,154
18	**Return on Rate Base**	5.04%	4.55%	8.09%	18.86%	-4.80%	-3.31%

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Income and Rate of Return - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation Rate 114	Military Transportation Rate T-10	Special Contracts	Municipal Contracts	Power Generation Contracts
1	**Operating Revenues**	$ 3,737,444	$ 22,735,831	$ 2,258,127	$ 8,831,016	$ 9,473,806	$ 82,787,922
2	Operating Expenses:						
3	Cost of Gas	3,503,770	11,407,222	1,298,684	1,998,363	3,015,533	7,104,385
4	Operation & Maintenance	70,470	2,117,792	470,933	964,637	2,664,268	11,461,259
5	Depreciation Expense	38,192	1,147,913	545,375	947,025	3,063,397	19,557,449
6	General Taxes	8,338	255,495	143,261	243,219	804,715	5,510,595
7	Income Taxes - State	1,970	60,852	40,528	67,314	227,434	1,621,965
8	Income Taxes - Federal	7,458	230,373	153,430	254,837	861,017	6,140,404
9	Amortization of Investment Tax Credits	(31)	(965)	(643)	(1,067)	(3,607)	(25,721)
10	Total Operating Expenses	$ 3,630,165	$ 15,218,683	$ 2,651,569	$ 4,474,328	$ 10,632,758	$ 51,370,336
11	Net Operating Income	$ 107,279	$ 7,517,148	$ (393,442)	$ 4,356,687	$ (1,158,952)	$ 31,417,585
12	Interest on Customer Deposits	(214)	(6,620)	(4,464)	(7,403)	(25,048)	(178,793)
13		-	-	-	-	-	-
14		-	-	-	-	-	-
15		-	-	-	-	-	-
16	**Net Operating Income for Return**	$ 107,065	$ 7,510,528	$ (397,906)	$ 4,349,284	$ (1,184,000)	$ 31,238,792
17	**Rate Base**	$ 820,244	$ 25,336,798	$ 16,874,495	$ 28,027,384	$ 94,695,990	$ 675,331,398
18	**Return on Rate Base**	13.05%	29.64%	-2.36%	15.52%	-1.25%	4.63%

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Customer Related Rate Base - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Net Gas Plant In Service - Customer Related	$ 855,425,333	$ 668,936,988	$ 155,419,072	$ 5,045,353	$ 995,583	$ 6,028,873
	Rate Base Additions:						
2	Materials and Supplies	325,347	147,688	59,008	5,798	2,013	19,933
3	Pension / OPEB	62,230,194	43,562,143	11,085,173	599,011	201,543	1,778,144
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	26,106,208	18,273,295	4,479,976	252,836	86,180	773,791
6	Deferred Pipeline Integrity Costs	-	-	-	-	-	-
7	Other	-	-	-	-	-	-
8	Total Additions	$ 88,661,748	$ 61,983,126	$ 15,624,157	$ 857,645	$ 289,736	$ 2,571,867
	Rate Base Deductions:						
9	Accrued Vacation Liability	(7,568,919)	(5,298,366)	(1,348,265)	(72,856)	(24,513)	(216,272)
10	Customer Deposits	(2,882,237)	(1,308,363)	(522,749)	(51,362)	(17,830)	(176,584)
11	Accumulated Deferred Income Taxes	(187,867,143)	(85,280,455)	(34,073,331)	(3,347,825)	(1,162,207)	(11,509,929)
12	Deferred Revenue	(4,926,167)	(2,236,186)	(893,455)	(87,785)	(30,475)	(301,808)
13	Total Deductions	$ (203,244,466)	$ (94,123,370)	$ (36,837,801)	$ (3,559,829)	$ (1,235,025)	$ (12,204,593)
14	**Total Rate Base - Customer Related**	**$ 740,842,615**	**$ 636,796,744**	**$ 134,205,429**	**$ 2,343,170**	**$ 50,294**	**$ (3,603,852)**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Customer Related Rate Base - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Net Gas Plant In Service - Customer Related	$ 141,825	$ 2,600,165	$ 307,547	$ 795,380	$ 1,926,641	$ 13,227,906
	Rate Base Additions:						
2	Materials and Supplies	87	2,704	1,824	3,024	10,232	73,036
3	Pension / OPEB	21,017	625,893	135,300	280,084	767,916	3,173,970
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	8,894	267,284	59,436	121,746	336,255	1,446,514
6	Deferred Pipeline Integrity Costs	-	-	-	-	-	-
7	Other	-	-	-	-	-	-
8	Total Additions	$ 29,998	$ 895,882	$ 196,559	$ 404,853	$ 1,114,402	$ 4,693,520
	Rate Base Deductions:						
9	Accrued Vacation Liability	(2,556)	(76,126)	(16,456)	(34,066)	(93,400)	(386,043)
10	Customer Deposits	(774)	(23,957)	(16,155)	(26,791)	(90,644)	(647,028)
11	Accumulated Deferred Income Taxes	(50,470)	(1,561,518)	(1,052,988)	(1,746,245)	(5,908,241)	(42,173,934)
12	Deferred Revenue	(1,323)	(40,945)	(27,611)	(45,789)	(154,923)	(1,105,866)
13	Total Deductions	$ (55,124)	$ (1,702,546)	$ (1,113,210)	$ (1,852,891)	$ (6,247,208)	$ (44,312,870)
14	**Total Rate Base - Customer Related**	**$ 116,700**	**$ 1,793,501**	**$ (609,105)**	**$ (652,657)**	**$ (3,206,164)**	**$ (26,391,444)**

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Piedmont Natural Gas Company, Inc.
Demand Related Rate Base - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Net Gas Plant In Service - Demand Related	$ 2,910,018,335	$ 1,040,349,406	$ 527,516,786	$ 62,055,513	$ 22,298,664	$ 224,666,012
	Rate Base Additions:						
2	Materials and Supplies	1,106,776	502,410	200,735	19,723	6,847	67,808
3	Pension / OPEB	25,009,090	17,506,768	4,454,913	240,731	80,996	714,601
4	Stored Natural Gas	39,714,182	23,231,833	13,579,392	1,992,416	910,540	-
5	Cash Working Capital	11,152,450	7,806,267	1,913,825	108,011	36,816	330,560
6	Deferred Pipeline Integrity Costs	45,365,430	14,861,956	7,515,749	854,565	288,556	3,129,662
7	Other	4,123,047	1,871,617	747,794	73,473	25,506	252,604
	Total Additions	$ 126,470,976	$ 65,780,851	$ 28,412,408	$ 3,288,919	$ 1,349,262	$ 4,495,235
8	Rate Base Deductions:						
9	Accrued Vacation Liability	(3,041,800)	(2,129,309)	(541,841)	(29,280)	(9,851)	(86,915)
10	Customer Deposits	(9,804,903)	(4,450,840)	(1,778,308)	(174,725)	(60,656)	(600,710)
11	Accumulated Deferred Income Taxes	(639,093,570)	(290,110,287)	(115,911,949)	(11,388,759)	(3,953,639)	(39,154,913)
12	Deferred Revenue	(16,758,023)	(7,607,141)	(3,039,391)	(298,631)	(103,671)	(1,026,702)
13	Total Deductions	$ (668,698,296)	$ (304,297,577)	$ (121,271,490)	$ (11,891,395)	$ (4,127,817)	$ (40,869,241)
14	**Total Rate Base - Demand Related**	**$ 2,367,791,015**	**$ 801,832,679**	**$ 434,657,705**	**$ 53,453,037**	**$ 19,520,110**	**$ 188,292,006**

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Piedmont Natural Gas Company, Inc.
Demand Related Rate Base - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Net Gas Plant In Service - Demand Related	$ 869,747	$ 28,697,520	$ 20,797,624	$ 34,204,819	$ 116,492,942	$ 832,069,303
	Rate Base Additions:						
2	Materials and Supplies	297	9,199	6,203	10,288	34,807	248,458
3	Pension / OPEB	8,446	251,534	54,374	112,560	308,610	1,275,556
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	3,799	114,183	25,391	52,009	143,646	617,944
6	Deferred Pipeline Integrity Costs	-	-	314,491	463,080	1,764,275	16,173,096
7	Other	1,108	34,270	23,110	38,324	129,666	925,575
	Total Additions	$ 13,651	$ 409,186	$ 423,569	$ 676,261	$ 2,381,005	$ 19,240,629
8	Rate Base Deductions:						
9	Accrued Vacation Liability	(1,027)	(30,594)	(6,613)	(13,690)	(37,536)	(155,143)
10	Customer Deposits	(2,634)	(81,497)	(54,956)	(91,138)	(308,355)	(2,201,084)
11	Accumulated Deferred Income Taxes	(171,690)	(5,312,030)	(3,582,095)	(5,940,443)	(20,098,878)	(143,468,887)
12	Deferred Revenue	(4,502)	(139,290)	(93,928)	(155,768)	(527,024)	(3,761,976)
13	Total Deductions	$ (179,853)	$ (5,563,410)	$ (3,737,593)	$ (6,201,038)	$ (20,971,792)	$ (149,587,090)
14	**Total Rate Base - Demand Related**	**$ 703,544**	**$ 23,543,297**	**$ 17,483,600**	**$ 28,680,041**	**$ 97,902,154**	**$ 701,722,842**

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Piedmont Natural Gas Company, Inc.
Customer Related Net Plant - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Plant:						
5	Mains	259,227,117	234,170,159	24,667,069	158,315	25,406	104,735
6	Services	351,702,045	284,970,836	60,637,012	2,529,626	392,958	1,637,804
7	Meters & Regulators	164,063,624	104,086,225	55,518,108	1,258,371	220,461	878,747
8	All Other Distribution	26,263,202	21,120,122	4,772,227	133,734	21,649	88,831
9	Total Distribution Plant	$ 801,255,988	$ 644,347,343	$ 145,594,416	$ 4,080,046	$ 660,474	$ 2,710,117
10	General Plant	$ 54,169,345	$ 24,589,645	$ 9,824,656	$ 965,307	$ 335,109	$ 3,318,757
11	**Total Gas Plant In Service - Customer Related**	**$ 855,425,333**	**$ 668,936,988**	**$ 155,419,072**	**$ 5,045,353**	**$ 995,583**	**$ 6,028,873**

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Piedmont Natural Gas Company, Inc.
Customer Related Net Plant - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Plant:						
5	Mains	5,543	84,488	346	5,340	1,068	4,647
6	Services	79,264	1,250,255	636	124,185	24,837	54,631
7	Meters & Regulators	38,293	744,706	2,818	152,779	189,851	973,265
8	All Other Distribution	4,172	70,469	129	9,567	7,312	34,991
9	Total Distribution Plant	$ 127,273	$ 2,149,919	$ 3,929	$ 291,870	$ 223,067	$ 1,067,534
10	General Plant	$ 14,552	$ 450,246	$ 303,617	$ 503,510	$ 1,703,574	$ 12,160,372
11	**Total Gas Plant In Service - Customer Related**	**$ 141,825**	**$ 2,600,165**	**$ 307,547**	**$ 795,380**	**$ 1,926,641**	**$ 13,227,906**

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Piedmont Natural Gas Company, Inc.
Demand Related Net Plant - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ 77,402,723	$ 45,278,715	$ 26,466,161	$ 3,883,208	$ 1,774,638	$ -
4	Transmission Plant	$ 2,217,913,194	$ 726,600,147	$ 367,444,502	$ 41,779,646	$ 14,107,510	$ 153,008,981
	Distribution Plant:						
5	Mains	338,483,552	145,341,035	78,783,880	10,308,661	4,149,410	47,472,130
6	Services	-	-	-	-	-	-
7	Meters & Regulators	-	-	-	-	-	-
8	All Other Distribution	91,943,536	39,479,522	21,400,356	2,800,180	1,127,120	12,895,030
9	Total Distribution Plant	$ 430,427,088	$ 184,820,556	$ 100,184,237	$ 13,108,840	$ 5,276,529	$ 60,367,160
10	General Plant	$ 184,275,331	$ 83,649,988	$ 33,421,887	$ 3,283,819	$ 1,139,987	$ 11,289,872
11	**Total Gas Plant In Service - Demand Related**	**$ 2,910,018,335**	**$ 1,040,349,406**	**$ 527,516,786**	**$ 62,055,513**	**$ 22,298,664**	**$ 224,666,012**

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Piedmont Natural Gas Company, Inc.
Demand Related Net Plant - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ 15,375,448	$ 22,639,955	$ 86,255,317	$ 790,701,688
	Distribution Plant:						
5	Mains	645,030	21,362,958	3,451,717	7,747,518	19,221,214	-
6	Services	-	-	-	-	-	-
7	Meters & Regulators	-	-	-	-	-	-
8	All Other Distribution	175,212	5,802,899	937,603	2,104,487	5,221,129	-
9	Total Distribution Plant	$ 820,242	$ 27,165,857	$ 4,389,319	$ 9,852,005	$ 24,442,343	$ -
10	General Plant	$ 49,505	$ 1,531,663	$ 1,032,856	$ 1,712,859	$ 5,795,282	$ 41,367,615
11	**Total Gas Plant In Service - Demand Related**	**$ 869,747**	**$ 28,697,520**	**$ 20,797,624**	**$ 34,204,819**	**$ 116,492,942**	**$ 832,069,303**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Customer Related Operation And Maintenance Expenses - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	-	-	-	-	-	-
2	Other Purchased Gas Costs	-	-	-	-	-	-
3	Total Purchased Gas Costs	$ -	$ -	$ -	$ -	$ -	$ -
4	Other Gas Supply Expense	$ -	$ -	$ -	$ -	$ -	$ -
5	Production Expense	$ -	$ -	$ -	$ -	$ -	$ -
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Expense:						
8	Mains	7,608,012	4,830,641	1,316,784	133,230	53,139	605,586
9	Services	5,603,919	4,540,643	966,173	40,306	6,261	26,096
10	Meters & Regulators	12,434,342	7,888,670	4,207,704	95,372	16,709	66,600
11	Customer Installment	10,104,543	9,127,835	961,510	6,171	990	4,082
12	Other	12,386,458	8,549,655	2,442,927	158,574	53,265	557,246
13	Total Distribution Expense	$ 48,137,274	$ 34,937,444	$ 9,895,098	$ 433,653	$ 130,365	$ 1,259,611
	Customer Accounting:						
14	Uncollectible	89,952	83,235	5,853	88	465	77
15	Other	26,074,900	23,554,493	2,481,189	15,924	2,555	10,535
16	Total Customer Accounting	$ 26,164,852	$ 23,637,728	$ 2,487,042	$ 16,012	$ 3,020	$ 10,612
17	Sales Expense	$ 6,503,968	$ 5,875,293	$ 618,893	$ 3,972	$ 637	$ 2,628
18	Administration & General	$ 64,127,825	$ 44,890,516	$ 11,423,202	$ 617,277	$ 207,689	$ 1,832,366
19	Total Operating & Maintenance - Customer Related	$ 144,933,919	$ 109,340,981	$ 24,424,234	$ 1,070,915	$ 341,711	$ 3,105,217
20	**Total O&M Including Gas Cost - Customer Related**	**$ 144,933,919**	**$ 109,340,981**	**$ 24,424,234**	**$ 1,070,915**	**$ 341,711**	**$ 3,105,217**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
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Piedmont Natural Gas Company, Inc.
Customer Related Operation And Maintenance Expenses - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	-	-	-	-	-	-
2	Other Purchased Gas Costs	-	-	-	-	-	-
3	Total Purchased Gas Costs	$ -	$ -	$ -	$ -	$ -	$ -
4	Other Gas Supply Expense	$ -	$ -	$ -	$ -	$ -	$ -
5	Production Expense	$ -	$ -	$ -	$ -	$ -	$ -
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Expense:						
8	Mains	8,281	272,996	43,940	98,683	244,672	59
9	Services	1,263	19,921	10	1,979	396	870
10	Meters & Regulators	2,902	56,441	214	11,579	14,389	73,763
11	Customer Installment	216	3,293	14	208	42	181
12	Other	8,545	260,776	38,440	89,325	216,219	11,486
13	Total Distribution Expense	$ 21,207	$ 613,428	$ 82,617	$ 201,774	$ 475,718	$ 86,360
	Customer Accounting:						
14	Uncollectible	-	-	-	114	120	-
15	Other	558	8,498	35	537	107	467
16	Total Customer Accounting	$ 558	$ 8,498	$ 35	$ 651	$ 227	$ 467
17	Sales Expense	$ 139	$ 2,120	$ 9	$ 134	$ 27	$ 117
18	Administration & General	$ 21,658	$ 644,979	$ 139,425	$ 288,624	$ 791,333	$ 3,270,756
19	Total Operating & Maintenance - Customer Related	$ 43,561	$ 1,269,025	$ 222,086	$ 491,183	$ 1,267,305	$ 3,357,701
20	**Total O&M Including Gas Cost - Customer Related**	**$ 43,561**	**$ 1,269,025**	**$ 222,086**	**$ 491,183**	**$ 1,267,305**	**$ 3,357,701**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
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Piedmont Natural Gas Company, Inc.
Demand Related Operation And Maintenance Expenses - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	345,677,020	163,772,072	106,098,692	18,167,558	11,670,028	17,728,031
2	Other Purchased Gas Costs	322,726	149,353	59,057	5,793	2,032	19,174
3	Total Purchased Gas Costs	$ 345,999,746	$ 163,921,425	$ 106,157,749	$ 18,173,351	$ 11,672,060	$ 17,747,205
4	Other Gas Supply Expense	$ 1,581,818	$ 128,681	$ 88,594	$ 16,085	$ 8,407	$ 102,166
5	Production Expense	$ 212,304	$ 69,552	$ 35,173	$ 3,999	$ 1,350	$ 14,646
6	Storage Expense	$ 2,190,308	$ 1,281,277	$ 748,928	$ 109,885	$ 50,218	$ -
7	Transmission Expense	$ 15,776,685	$ 5,168,526	$ 2,613,744	$ 297,191	$ 100,351	$ 1,088,399
	Distribution Expense:						
8	Mains	9,934,095	6,307,567	1,719,380	173,964	69,386	790,739
9	Services	-	-	-	-	-	-
10	Meters & Regulators	-	-	-	-	-	-
11	Customer Installment	-	-	-	-	-	-
12	Other	6,653,887	4,592,793	1,312,317	85,185	28,613	299,347
13	Total Distribution Expense	$ 16,587,982	$ 10,900,360	$ 3,031,697	$ 259,148	$ 98,000	$ 1,090,086
	Customer Accounting:						
14	Uncollectible	-	-	-	-	-	-
15	Other	-	-	-	-	-	-
16	Total Customer Accounting	$ -	$ -	$ -	$ -	$ -	$ -
17	Sales Expense	$ -	$ -	$ -	$ -	$ -	$ -
18	Administration & General	$ 25,565,998	$ 17,896,613	$ 4,554,116	$ 246,092	$ 82,800	$ 730,514
19	Total Operating & Maintenance	$ 61,915,095	$ 35,445,008	$ 11,072,251	$ 932,401	$ 341,126	$ 3,025,811
20	**Total O&M Including Gas Cost - Demand Related**	**$ 407,914,841**	**199,366,434**	**117,230,000**	**19,105,751**	**12,013,186**	**20,773,016**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Demand Related Operation And Maintenance Expenses - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	3,503,684	11,404,592	1,296,932	1,995,454	3,005,702	7,034,275
2	Other Purchased Gas Costs	85	2,630	1,752	2,910	9,831	70,110
3	Total Purchased Gas Costs	$ 3,503,770	$ 11,407,222	$ 1,298,684	$ 1,998,363	$ 3,015,533	$ 7,104,385
4	Other Gas Supply Expense	$ 2,871	$ 95,084	$ 4,397	$ 18,336	$ 24,034	$ 1,093,163
5	Production Expense	$ -	$ -	$ 1,472	$ 2,167	$ 8,257	$ 75,688
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ 109,370	$ 161,045	$ 613,560	$ 5,624,500
	Distribution Expense:						
8	Mains	10,813	356,462	57,374	128,854	319,479	77
9	Services	-	-	-	-	-	-
10	Meters & Regulators	-	-	-	-	-	-
11	Customer Installment	-	-	-	-	-	-
12	Other	4,590	140,087	20,649	47,984	116,151	6,170
13	Total Distribution Expense	$ 15,403	$ 496,548	$ 78,024	$ 176,839	$ 435,630	$ 6,247
	Customer Accounting:						
14	Uncollectible	-	-	-	-	-	-
15	Other	-	-	-	-	-	-
16	Total Customer Accounting	$ -	$ -	$ -	$ -	$ -	$ -
17	Sales Expense	$ -	$ -	$ -	$ -	$ -	$ -
18	Administration & General	$ 8,634	$ 257,135	$ 55,585	$ 115,067	$ 315,483	$ 1,303,960
19	Total Operating & Maintenance	$ 26,908	$ 848,767	$ 248,848	$ 473,454	$ 1,396,963	$ 8,103,559
20	**Total O&M Including Gas Cost - Demand Related**	**3,530,678**	**12,255,989**	**1,547,532**	**2,471,817**	**4,412,496**	**15,207,943**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Depreciation Expense And Taxes Other Than Income - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ 1,819,514	$ 1,064,372	$ 622,143	$ 91,283	$ 41,717	$ -
4	Transmission Plant	$ 39,360,183	$ 12,894,605	$ 6,520,852	$ 741,442	$ 250,359	$ 2,715,373
	Distribution Plant:						
5	Mains	22,091,963	14,027,100	3,823,647	386,870	154,305	1,758,487
6	Services	18,112,037	14,675,497	3,122,699	130,271	20,237	84,344
7	Meters & Regulators	7,385,289	4,685,419	2,499,136	56,645	9,924	39,557
8	Other	2,590,119	1,787,809	510,838	33,159	11,138	116,525
9	Total Distribution Expense	50,179,408	$ 35,175,825	$ 9,956,320	$ 606,945	$ 195,604	$ 1,998,913
10	General Plant	$ 24,393,581	$ 11,073,228	$ 4,424,247	$ 434,698	$ 150,907	$ 1,494,505
11	**Total Depreciation Expense**	**$ 115,752,686**	**$ 60,208,030**	**$ 21,523,561**	**$ 1,874,369**	**$ 638,586**	**$ 6,208,790**
	Taxes Other Than Income:						
12	Payroll Tax	6,299,434	4,409,706	1,122,129	60,637	20,402	179,998
13	Property & Other	23,116,152	10,493,352	4,192,560	411,934	143,004	1,416,242
14	**Total Taxes Other Than Income**	**$ 29,415,586**	**$ 14,903,057**	**$ 5,314,689**	**$ 472,571**	**$ 163,406**	**$ 1,596,239**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Depreciation Expense And Taxes Other Than Income - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ 272,860	$ 401,780	$ 1,530,729	$ 14,032,183
	Distribution Plant:						
5	Mains	24,046	792,718	127,592	286,553	710,474	172
6	Services	4,082	64,386	33	6,395	1,279	2,813
7	Meters & Regulators	1,724	33,523	127	6,877	8,546	43,811
8	Other	1,787	54,531	8,038	18,679	45,213	2,402
9	Total Distribution Expense	$ 31,638	$ 945,158	$ 135,789	$ 318,504	$ 765,513	$ 49,198
10	General Plant	$ 6,553	$ 202,755	$ 136,725	$ 226,741	$ 767,155	$ 5,476,068
11	**Total Depreciation Expense**	**$ 38,192**	**$ 1,147,913**	**$ 545,375**	**$ 947,025**	**$ 3,063,397**	**$ 19,557,449**
	Taxes Other Than Income:						
12	Payroll Tax	2,128	63,358	13,696	28,352	77,735	321,294
13	Property & Other	6,210	192,137	129,565	214,867	726,981	5,189,301
14	**Total Taxes Other Than Income**	**$ 8,338**	**$ 255,495**	**$ 143,261**	**$ 243,219**	**$ 804,715**	**$ 5,510,595**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Revenues - Per Books

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Revenue Detail						
1	Rate Class Revenues	$ 881,916,691	$ 461,874,248	$ 219,540,271	$ 33,537,034	$ 12,389,639	$ 27,201,340
	Allocation of Other Revenues						
2	NGV And Gas Lights Revenues	2,049,628	948,537	375,071	36,788	12,903	121,771
3	Deferred Federal Income Tax Revenues	-	-	-	-	-	-
4	Other Operating Revenues	7,005,460	3,242,023	1,281,961	125,740	44,103	416,204
5	Total Other Revenues	9,055,088	$ 4,190,560	$ 1,657,032	$ 162,528	$ 57,006	$ 537,975
6	**Total Operating Revenues**	**$ 890,971,779**	**$ 466,064,808**	**$ 221,197,303**	**$ 33,699,562**	**$ 12,446,645**	**$ 27,739,315**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Revenues - Per Books

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Revenue Detail						
1	Rate Class Revenues	$ 3,735,055	$ 22,662,028	$ 2,208,974	$ 8,749,375	$ 9,197,967	$ 80,820,760
	Allocation of Other Revenues						
2	NGV And Gas Lights Revenues	541	16,705	11,126	18,479	62,436	445,269
3	Deferred Federal Income Tax Revenues	-	-	-	-	-	-
4	Other Operating Revenues	1,848	57,098	38,028	63,161	213,402	1,521,893
5	Total Other Revenues	$ 2,389	$ 73,803	$ 49,153	$ 81,641	$ 275,838	$ 1,967,162
6	**Total Operating Revenues**	**$ 3,737,444**	**$ 22,735,831**	**$ 2,258,127**	**$ 8,831,016**	**$ 9,473,806**	**$ 82,787,922**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Income and Rate of Return - Present Rates as Adjusted

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport Rate 113
1	**Operating Revenues**	$ 920,610,481	$ 481,752,618	$ 228,756,283	$ 34,881,598	$ 12,884,470	$ 28,576,500
2	Operating Expenses:						
3	Cost of Gas	333,020,439	163,474,947	105,701,207	17,924,971	9,005,706	9,865,198
4	Operation & Maintenance	227,893,060	160,026,423	38,923,661	2,192,023	751,958	6,716,211
5	Depreciation Expense	136,607,318	68,623,576	25,549,115	2,288,663	784,247	7,309,408
6	General Taxes	31,402,703	15,873,580	5,674,190	505,701	174,878	1,708,883
7	Income Taxes - State	2,982,638	1,380,321	545,807	53,535	18,777	177,203
8	Income Taxes - Federal	24,427,807	11,304,826	4,470,157	438,450	153,785	1,451,289
9	Amortization of Investment Tax Credits	(79,424)	(36,756)	(14,534)	(1,426)	(500)	(4,719)
10	Total Operating Expenses	$ 756,254,541	$ 420,646,916	$ 180,849,601	$ 23,401,917	$ 10,888,852	$ 27,223,474
11	Net Operating Income	$ 164,355,940	$ 61,105,702	$ 47,906,682	$ 11,479,681	$ 1,995,617	$ 1,353,026
12	Interest on Customer Deposits	(796,448)	(361,540)	(144,451)	(14,193)	(4,927)	(48,795)
13		0	-	-	-	-	-
14		0	-	-	-	-	-
15		0	-	-	-	-	-
16	**Net Operating Income for Return**	$ 163,559,492	$ 60,744,162	$ 47,762,230	$ 11,465,488	$ 1,990,690	$ 1,304,230
17	**Rate Base**	$ 3,299,177,177	$ 1,528,528,866	$ 606,476,088	$ 59,990,963	$ 21,185,338	$ 195,531,402
18	**Return on Rate Base**	4.96%	3.97%	7.88%	19.11%	9.40%	0.67%

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Income and Rate of Return - Present Rates as Adjusted

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation Rate 114	Military Transportation Rate T-10	Special Contracts	Municipal Contracts	Power Generation Contracts
1	**Operating Revenues**	**$ 3,873,548**	**$ 23,544,535**	**$ 2,324,473**	**$ 9,127,354**	**$ 9,728,971**	**$ 85,160,132**
2	Operating Expenses:						
3	Cost of Gas	2,846,976	11,916,027	619,025	1,923,439	2,902,677	6,840,265
4	Operation & Maintenance	77,531	2,330,379	515,123	1,058,041	2,915,299	12,386,411
5	Depreciation Expense	38,279	1,138,602	655,722	1,108,619	3,684,136	25,426,950
6	General Taxes	8,891	272,498	153,444	260,355	861,890	5,908,393
7	Income Taxes - State	787	24,310	16,191	26,891	90,858	647,960
8	Income Taxes - Federal	6,446	199,098	132,601	220,241	744,126	5,306,790
9	Amortization of Investment Tax Credits	(21)	(647)	(431)	(716)	(2,419)	(17,254)
10	Total Operating Expenses	$ 2,978,888	$ 15,880,266	$ 2,091,674	$ 4,596,871	$ 11,196,566	$ 56,499,515
11	Net Operating Income	$ 894,660	$ 7,664,268	$ 232,799	$ 4,530,483	$ (1,467,596)	$ 28,660,617
12	Interest on Customer Deposits	(214)	(6,620)	(4,464)	(7,403)	(25,048)	(178,793)
13		-	-	-	-	-	-
14		-	-	-	-	-	-
15		-	-	-	-	-	-
16	**Net Operating Income for Return**	**$ 894,446**	**$ 7,657,649**	**$ 228,335**	**$ 4,523,080**	**$ (1,492,643)**	**$ 28,481,824**
17	**Rate Base**	**$ 874,697**	**$ 27,090,545**	**$ 17,852,581**	**$ 29,687,506**	**$ 100,178,573**	**$ 711,780,617**
18	**Return on Rate Base**	**102.26%**	**28.27%**	**1.28%**	**15.24%**	**-1.49%**	**4.00%**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Customer Related Rate Base - Present Rates as Adjusted

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Net Gas Plant In Service - Customer Related	$ 888,121,618	$ 695,287,292	$ 160,586,781	$ 5,192,965	$ 1,027,614	$ 6,246,663
	Rate Base Additions:						
2	Materials and Supplies	329,309	149,486	59,726	5,868	2,037	20,176
3	Pension / OPEB	63,305,912	44,315,163	11,276,793	609,366	205,027	1,808,881
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	38,390,379	26,871,721	6,588,011	371,808	126,732	1,137,895
6	Deferred Pipeline Integrity Costs	-	-	-	-	-	-
7	Other	-	-	-	-	-	-
8	Total Additions	$ 102,025,599	$ 71,336,370	$ 17,924,530	$ 987,042	$ 333,796	$ 2,966,952
	Rate Base Deductions:						
9	Accrued Vacation Liability	(7,669,852)	(5,369,020)	(1,366,244)	(73,828)	(24,840)	(219,156)
10	Customer Deposits	(2,826,634)	(1,283,123)	(512,665)	(50,371)	(17,486)	(173,177)
11	Accumulated Deferred Income Taxes	(195,018,322)	(88,526,663)	(35,370,335)	(3,475,261)	(1,206,446)	(11,948,055)
12	Deferred Revenue	(4,831,133)	(2,193,046)	(876,219)	(86,092)	(29,887)	(295,986)
13	Total Deductions	$ (210,345,940)	$ (97,371,852)	$ (38,125,463)	$ (3,685,551)	$ (1,278,660)	$ (12,636,374)
14	**Total Rate Base - Customer Related**	**$ 779,801,278**	**$ 669,251,811**	**$ 140,385,848**	**$ 2,494,455**	**$ 82,750**	**$ (3,422,759)**

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Piedmont Natural Gas Company, Inc.
Customer Related Rate Base - Present Rates as Adjusted

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Net Gas Plant In Service - Customer Related	$ 145,754	$ 2,676,256	$ 321,202	$ 825,683	$ 2,009,194	$ 13,802,213
	Rate Base Additions:						
2	Materials and Supplies	88	2,737	1,846	3,061	10,356	73,926
3	Pension / OPEB	21,380	636,713	137,638	284,925	781,190	3,228,836
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	13,079	393,054	87,403	179,033	494,478	2,127,165
6	Deferred Pipeline Integrity Costs	-	-	-	-	-	-
7	Other	-	-	-	-	-	-
8	Total Additions	$ 34,548	$ 1,032,504	$ 226,888	$ 467,019	$ 1,286,025	$ 5,429,927
	Rate Base Deductions:						
9	Accrued Vacation Liability	(2,590)	(77,141)	(16,676)	(34,520)	(94,645)	(391,191)
10	Customer Deposits	(759)	(23,494)	(15,843)	(26,274)	(88,895)	(634,546)
11	Accumulated Deferred Income Taxes	(52,391)	(1,620,957)	(1,093,070)	(1,812,716)	(6,133,139)	(43,779,288)
12	Deferred Revenue	(1,298)	(40,156)	(27,078)	(44,906)	(151,934)	(1,084,532)
13	Total Deductions	$ (57,038)	$ (1,761,748)	$ (1,152,667)	$ (1,918,416)	$ (6,468,614)	$ (45,889,556)
14	**Total Rate Base - Customer Related**	**$ 123,263**	**$ 1,947,012**	**$ (604,578)**	**$ (625,714)**	**$ (3,173,395)**	**$ (26,657,416)**

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Piedmont Natural Gas Company, Inc.
Demand Related Rate Base - Present Rates as Adjusted

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Net Gas Plant In Service - Demand Related	$ 3,098,147,703	$ 1,113,061,305	$ 565,614,876	$ 66,791,194	$ 24,121,375	$ 237,740,726
	Rate Base Additions:						
2	Materials and Supplies	1,148,769	521,473	208,351	20,471	7,107	70,381
3	Pension / OPEB	25,441,400	17,809,392	4,531,921	244,892	82,396	726,954
4	Stored Natural Gas	39,788,868	23,275,523	13,604,929	1,996,163	912,253	-
5	Cash Working Capital	16,092,308	11,263,969	2,761,533	155,853	53,123	476,978
6	Deferred Pipeline Integrity Costs	45,365,430	14,861,956	7,515,749	854,565	288,556	3,129,662
7	Other	3,494,584	1,586,332	633,810	62,274	21,619	214,100
	Total Additions	$ 131,331,360	$ 69,318,644	$ 29,256,294	$ 3,334,219	$ 1,365,054	$ 4,618,074
8	Rate Base Deductions:						
9	Accrued Vacation Liability	(3,082,362)	(2,157,704)	(549,067)	(29,670)	(9,983)	(88,074)
10	Customer Deposits	(9,860,506)	(4,476,081)	(1,788,393)	(175,716)	(61,000)	(604,117)
11	Accumulated Deferred Income Taxes	(680,307,237)	(308,818,829)	(123,386,843)	(12,123,194)	(4,208,600)	(41,679,922)
12	Deferred Revenue	(16,853,057)	(7,650,281)	(3,056,627)	(300,324)	(104,258)	(1,032,525)
13	Total Deductions	$ (710,103,163)	$ (323,102,894)	$ (128,780,930)	$ (12,628,905)	$ (4,383,841)	$ (43,404,639)
14	**Total Rate Base - Demand Related**	**$ 2,519,375,899**	**$ 859,277,055**	**$ 466,090,240**	**$ 57,496,508**	**$ 21,102,588**	**$ 198,954,162**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Demand Related Rate Base - Present Rates as Adjusted

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Net Gas Plant In Service - Demand Related	$ 927,091	$ 30,591,927	$ 21,994,218	$ 36,203,135	$ 123,193,606	$ 877,908,251
	Rate Base Additions:						
2	Materials and Supplies	309	9,548	6,439	10,678	36,128	257,885
3	Pension / OPEB	8,592	255,882	55,314	114,506	313,945	1,297,605
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	5,482	164,759	36,637	75,046	207,273	891,656
6	Deferred Pipeline Integrity Costs	-	-	314,491	463,080	1,764,275	16,173,096
7	Other	939	29,046	19,587	32,483	109,901	784,492
	Total Additions	$ 15,322	$ 459,236	$ 432,468	$ 695,792	$ 2,431,522	$ 19,404,734
8	Rate Base Deductions:						
9	Accrued Vacation Liability	(1,041)	(31,002)	(6,702)	(13,873)	(38,036)	(157,212)
10	Customer Deposits	(2,649)	(81,959)	(55,268)	(91,654)	(310,103)	(2,213,566)
11	Accumulated Deferred Income Taxes	(182,762)	(5,654,590)	(3,813,097)	(6,323,528)	(21,395,009)	(152,720,864)
12	Deferred Revenue	(4,528)	(140,080)	(94,461)	(156,651)	(530,012)	(3,783,310)
13	Total Deductions	$ (190,979)	$ (5,907,630)	$ (3,969,527)	$ (6,585,706)	$ (22,273,161)	$ (158,874,952)
14	**Total Rate Base - Demand Related**	**$ 751,434**	**$ 25,143,533**	**$ 18,457,159**	**$ 30,313,221**	**$ 103,351,967**	**$ 738,438,033**

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Piedmont Natural Gas Company, Inc.
Customer Related Net Plant - Present Rates as Adjusted

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Plant:						
5	Mains	275,644,359	249,000,506	26,229,272	168,342	27,015	111,368
6	Services	358,175,730	290,216,218	61,753,141	2,576,188	400,191	1,667,950
7	Meters & Regulators	168,757,053	107,063,858	57,106,336	1,294,370	226,768	903,886
8	All Other Distribution	28,961,442	23,321,394	5,235,608	145,746	23,599	96,825
9	Total Distribution Plant	$ 831,538,584	$ 669,601,976	$ 150,324,356	$ 4,184,645	$ 677,573	$ 2,780,029
10	General Plant	$ 56,583,034	$ 25,685,316	$ 10,262,425	$ 1,008,320	$ 350,041	$ 3,466,634
11	**Total Gas Plant In Service - Customer Related**	**$ 888,121,618**	**$ 695,287,292**	**$ 160,586,781**	**$ 5,192,965**	**$ 1,027,614**	**$ 6,246,663**

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Piedmont Natural Gas Company, Inc.
Customer Related Net Plant - Present Rates as Adjusted

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Plant:						
5	Mains	5,894	89,839	368	5,678	1,136	4,942
6	Services	80,723	1,273,269	648	126,471	25,294	55,637
7	Meters & Regulators	39,389	766,010	2,898	157,149	195,282	1,001,107
8	All Other Distribution	4,547	76,830	141	10,439	8,001	38,312
9	Total Distribution Plant	$ 130,554	$ 2,205,948	$ 4,056	$ 299,738	$ 229,712	$ 1,099,997
10	General Plant	$ 15,201	$ 470,308	$ 317,146	$ 525,945	$ 1,779,482	$ 12,702,217
11	**Total Gas Plant In Service - Customer Related**	**$ 145,754**	**$ 2,676,256**	**$ 321,202**	**$ 825,683**	**$ 2,009,194**	**$ 13,802,213**

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Piedmont Natural Gas Company, Inc.
Demand Related Net Plant - Present Rates as Adjusted

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ 104,979,086	$ 61,410,219	$ 35,895,293	$ 5,266,684	$ 2,406,891	$ -
4	Transmission Plant	$ 2,341,320,799	$ 767,029,134	$ 387,889,597	$ 44,104,320	$ 14,892,470	$ 161,522,602
	Distribution Plant:						
5	Mains	359,920,223	154,545,700	83,773,382	10,961,524	4,412,198	50,478,611
6	Services	-	-	-	-	-	-
7	Meters & Regulators	-	-	-	-	-	-
8	All Other Distribution	99,441,283	42,698,970	23,145,497	3,028,527	1,219,033	13,946,585
9	Total Distribution Plant	$ 459,361,506	$ 197,244,670	$ 106,918,879	$ 13,990,050	$ 5,631,231	$ 64,425,196
10	General Plant	$ 192,486,311	$ 87,377,282	$ 34,911,106	$ 3,430,140	$ 1,190,782	$ 11,792,928
11	**Total Gas Plant In Service - Demand Related**	**$ 3,098,147,703**	**$ 1,113,061,305**	**$ 565,614,876**	**$ 66,791,194**	**$ 24,121,375**	**$ 237,740,726**

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Piedmont Natural Gas Company, Inc.
Demand Related Net Plant - Present Rates as Adjusted

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ 16,230,958	$ 23,899,672	$ 91,054,676	$ 834,697,369
	Distribution Plant:						
5	Mains	685,881	22,715,906	3,670,319	8,238,180	20,438,522	-
6	Services	-	-	-	-	-	-
7	Meters & Regulators	-	-	-	-	-	-
8	All Other Distribution	189,500	6,276,110	1,014,062	2,276,102	5,646,898	-
9	Total Distribution Plant	$ 875,380	$ 28,992,016	$ 4,684,381	$ 10,514,282	$ 26,085,420	$ -
10	General Plant	$ 51,711	$ 1,599,911	$ 1,078,879	$ 1,789,181	$ 6,053,509	$ 43,210,882
11	**Total Gas Plant In Service - Demand Related**	**$ 927,091**	**$ 30,591,927**	**$ 21,994,218**	**$ 36,203,135**	**$ 123,193,606**	**$ 877,908,251**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Customer Related Operation & Maintenance Exp. - Present Rates as Adj.

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	-	-	-	-	-	-
2	Other Purchased Gas Costs	-	-	-	-	-	-
3	Total Purchased Gas Costs	$ -	$ -	$ -	$ -	$ -	$ -
4	Other Gas Supply Expense	$ -	$ -	$ -	$ -	$ -	$ -
5	Production Expense	$ -	$ -	$ -	$ -	$ -	$ -
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Expense:						
8	Mains	8,624,069	5,475,778	1,492,642	151,023	60,236	686,463
9	Services	6,649,261	5,387,644	1,146,400	47,825	7,429	30,964
10	Meters & Regulators	13,498,560	8,563,837	4,567,829	103,534	18,139	72,300
11	Customer Installment	10,958,298	9,899,066	1,042,750	6,692	1,074	4,427
12	Other	13,378,523	9,234,420	2,638,588	171,275	57,531	601,877
13	Total Distribution Expense	$ 53,108,711	$ 38,560,745	$ 10,888,209	$ 480,349	$ 144,409	$ 1,396,032
	Customer Accounting:						
14	Uncollectible	1,115,910	1,032,577	72,614	1,089	5,766	958
15	Other	28,009,531	25,302,123	2,665,281	17,106	2,745	11,317
16	Total Customer Accounting	$ 29,125,441	$ 26,334,700	$ 2,737,895	$ 18,195	$ 8,511	$ 12,275
17	Sales Expense	$ 8,367,361	$ 7,558,570	$ 796,206	$ 5,110	$ 820	$ 3,381
18	Administration & General	$ 69,603,657	$ 48,723,687	$ 12,398,621	$ 669,986	$ 225,423	$ 1,988,831
19	Total Operating & Maintenance - Customer Related	$ 160,205,170	$ 121,177,701	$ 26,820,931	$ 1,173,641	$ 379,164	$ 3,400,518
20	**Total O&M Including Gas Cost - Customer Related**	**$ 160,205,170**	**$ 121,177,701**	**$ 26,820,931**	**$ 1,173,641**	**$ 379,164**	**$ 3,400,518**

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Piedmont Natural Gas Company, Inc.
Customer Related Operation & Maintenance Exp. - Present Rates as Adj.

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	-	-	-	-	-	-
2	Other Purchased Gas Costs	-	-	-	-	-	-
3	Total Purchased Gas Costs	$ -	$ -	$ -	$ -	$ -	$ -
4	Other Gas Supply Expense	$ -	$ -	$ -	$ -	$ -	$ -
5	Production Expense	$ -	$ -	$ -	$ -	$ -	$ -
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Expense:						
8	Mains	9,387	309,455	49,808	111,862	277,349	67
9	Services	1,499	23,637	12	2,348	470	1,033
10	Meters & Regulators	3,151	61,272	232	12,570	15,620	80,077
11	Customer Installment	234	3,572	15	226	45	196
12	Other	9,229	281,663	41,518	96,479	233,537	12,406
13	Total Distribution Expense	$ 23,499	$ 679,598	$ 91,585	$ 223,485	$ 527,021	$ 93,779
	Customer Accounting:						
14	Uncollectible	-	-	-	1,417	1,489	-
15	Other	599	9,129	37	577	115	502
16	Total Customer Accounting	$ 599	$ 9,129	$ 37	$ 1,994	$ 1,605	$ 502
17	Sales Expense	$ 179	$ 2,727	$ 11	$ 172	$ 34	$ 150
18	Administration & General	$ 23,507	$ 700,053	$ 151,331	$ 313,270	$ 858,904	$ 3,550,044
19	Total Operating & Maintenance - Customer Related	$ 47,785	$ 1,391,507	$ 242,964	$ 538,921	$ 1,387,564	$ 3,644,475
20	**Total O&M Including Gas Cost - Customer Related**	**$ 47,785**	**$ 1,391,507**	**$ 242,964**	**$ 538,921**	**$ 1,387,564**	**$ 3,644,475**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Demand Related Operation & Maintenance Exp. - Present Rates as Adj.

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	332,697,713	163,325,594	105,642,150	17,919,179	9,003,675	9,846,025
2	Other Purchased Gas Costs	322,726	149,353	59,057	5,793	2,032	19,174
3	Total Purchased Gas Costs	$ 333,020,439	$ 163,474,947	$ 105,701,207	$ 17,924,971	$ 9,005,706	$ 9,865,198
4	Other Gas Supply Expense	$ 1,699,545	$ 138,258	$ 95,188	$ 17,282	$ 9,033	$ 109,769
5	Production Expense	$ 228,197	$ 74,758	$ 37,806	$ 4,299	$ 1,451	$ 15,743
6	Storage Expense	$ 2,362,641	$ 1,382,088	$ 807,853	$ 118,531	$ 54,169	$ -
7	Transmission Expense	$ 16,977,549	$ 5,561,935	$ 2,812,692	$ 319,812	$ 107,989	$ 1,171,244
	Distribution Expense:						
8	Mains	11,260,803	7,149,949	1,949,005	197,197	78,653	896,343
9	Services	-	-	-	-	-	-
10	Meters & Regulators	-	-	-	-	-	-
11	Customer Installment	-	-	-	-	-	-
12	Other	7,186,815	4,960,642	1,417,424	92,007	30,905	323,323
13	Total Distribution Expense	$ 18,447,619	$ 12,110,592	$ 3,366,429	$ 289,204	$ 109,558	$ 1,219,666
	Customer Accounting:						
14	Uncollectible	-	-	-	-	-	-
15	Other	-	-	-	-	-	-
16	Total Customer Accounting	$ -	$ -	$ -	$ -	$ -	$ -
17	Sales Expense	$ -	$ -	$ -	$ -	$ -	$ -
18	Administration & General	$ 27,972,340	$ 19,581,090	$ 4,982,762	$ 269,254	$ 90,593	$ 799,272
19	Total Operating & Maintenance	$ 67,687,890	$ 38,848,722	$ 12,102,730	$ 1,018,382	$ 372,794	$ 3,315,694
20	**Total O&M Including Gas Cost - Demand Related**	**$ 400,708,329**	**202,323,669**	**117,803,936**	**18,943,354**	**9,378,500**	**13,180,892**

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Piedmont Natural Gas Company, Inc.
Demand Related Operation & Maintenance Exp. - Present Rates as Adj.

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	2,846,891	11,913,396	617,273	1,920,529	2,892,846	6,770,155
2	Other Purchased Gas Costs	85	2,630	1,752	2,910	9,831	70,110
3	Total Purchased Gas Costs	$ 2,846,976	$ 11,916,027	$ 619,025	$ 1,923,439	$ 2,902,677	$ 6,840,265
4	Other Gas Supply Expense	$ 3,085	$ 102,160	$ 4,725	$ 19,701	$ 25,822	$ 1,174,522
5	Production Expense	$ -	$ -	$ 1,582	$ 2,329	$ 8,875	$ 81,354
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ 117,695	$ 173,303	$ 660,262	$ 6,052,616
	Distribution Expense:						
8	Mains	12,257	404,068	65,036	146,063	362,146	88
9	Services	-	-	-	-	-	-
10	Meters & Regulators	-	-	-	-	-	-
11	Customer Installment	-	-	-	-	-	-
12	Other	4,958	151,307	22,303	51,828	125,454	6,664
13	Total Distribution Expense	$ 17,215	$ 555,374	$ 87,340	$ 197,891	$ 487,600	$ 6,752
	Customer Accounting:						
14	Uncollectible	-	-	-	-	-	-
15	Other	-	-	-	-	-	-
16	Total Customer Accounting	$ -	$ -	$ -	$ -	$ -	$ -
17	Sales Expense	$ -	$ -	$ -	$ -	$ -	$ -
18	Administration & General	$ 9,447	$ 281,338	$ 60,817	$ 125,897	$ 345,177	$ 1,426,693
19	Total Operating & Maintenance	$ 29,746	$ 938,872	$ 272,158	$ 519,121	$ 1,527,735	$ 8,741,936
20	**Total O&M Including Gas Cost - Demand Related**	**2,876,723**	**12,854,899**	**891,183**	**2,442,560**	**4,430,412**	**15,582,202**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
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Piedmont Natural Gas Company, Inc.
Depreciation Exp. Taxes Other Than Income - Present Rates as Adj

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ 15,183,251	$ 6,892,289	$ 2,753,776	$ 270,568	$ 93,928	$ 930,222
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ 3,411,817	$ 1,995,830	$ 1,166,596	$ 171,167	$ 78,224	$ -
4	Transmission Plant	$ 49,677,590	$ 16,274,642	$ 8,230,150	$ 935,795	$ 315,985	$ 3,427,148
	Distribution Plant:						
5	Mains	19,364,940	12,295,600	3,351,658	339,115	135,258	1,541,420
6	Services	19,183,877	15,543,969	3,307,496	137,981	21,434	89,335
7	Meters & Regulators	8,255,076	5,237,234	2,793,466	63,317	11,093	44,215
8	Other	2,582,838	1,782,784	509,402	33,066	11,107	116,198
9	Total Distribution Expense	49,386,731	$ 34,859,587	$ 9,962,021	$ 573,478	$ 178,892	$ 1,791,168
10	General Plant	$ 18,947,928	$ 8,601,227	$ 3,436,572	$ 337,655	$ 117,218	$ 1,160,870
11	**Total Depreciation Expense**	**$ 136,607,318**	**$ 68,623,576**	**$ 25,549,115**	**$ 2,288,663**	**$ 784,247**	**$ 7,309,408**
	Taxes Other Than Income:						
12	Payroll Tax	6,577,766	4,604,543	1,171,709	63,316	21,303	187,951
13	Property & Other	24,824,937	11,269,038	4,502,481	442,385	153,575	1,520,933
14	**Total Taxes Other Than Income**	**$ 31,402,703**	**$ 15,873,580**	**$ 5,674,190**	**$ 505,701**	**$ 174,878**	**$ 1,708,883**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Depreciation Exp. Taxes Other Than Income - Present Rates as Adj

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ 4,079	$ 126,200	$ 85,102	$ 141,130	$ 477,499	$ 3,408,459
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ 344,385	$ 507,098	$ 1,931,977	$ 17,710,411
	Distribution Plant:						
5	Mains	21,078	694,865	111,842	251,181	622,773	151
6	Services	4,324	68,196	35	6,774	1,355	2,980
7	Meters & Regulators	1,927	37,471	142	7,687	9,553	48,971
8	Other	1,782	54,377	8,015	18,626	45,086	2,395
9	Total Distribution Expense	$ 29,110	$ 854,910	$ 120,034	$ 284,268	$ 678,767	$ 54,497
10	General Plant	$ 5,090	$ 157,492	$ 106,202	$ 176,123	$ 595,894	$ 4,253,584
11	**Total Depreciation Expense**	**$ 38,279**	**$ 1,138,602**	**$ 655,722**	**$ 1,108,619**	**$ 3,684,136**	**$ 25,426,950**
	Taxes Other Than Income:						
12	Payroll Tax	2,222	66,157	14,301	29,605	81,169	335,490
13	Property & Other	6,669	206,340	139,143	230,750	780,720	5,572,902
14	**Total Taxes Other Than Income**	**$ 8,891**	**$ 272,498**	**$ 153,444**	**$ 260,355**	**$ 861,890**	**$ 5,908,393**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Revenues - Present Rates as Adjusted

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Revenue Detail						
1	Rate Class Revenues	$ 914,217,479	$ 478,790,701	$ 227,581,080	$ 34,765,350	$ 12,843,418	$ 28,197,608
	Allocation of Other Revenues						
2	NGV And Gas Lights Revenues	2,049,628	949,605	376,776	37,270	13,161	121,475
3	Deferred Federal Income Tax Revenues	-	-	-	-	-	-
4	Other Operating Revenues	4,343,374	2,012,312	798,427	78,978	27,891	257,418
5	Total Other Revenues	6,393,002	$ 2,961,917	$ 1,175,203	$ 116,248	$ 41,052	$ 378,892
6	**Total Operating Revenues**	**$ 920,610,481**	**$ 481,752,618**	**$ 228,756,283**	**$ 34,881,598**	**$ 12,884,470**	**$ 28,576,500**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
Docket No. G-9, Sub 743

Piedmont Natural Gas Company, Inc.
Revenues - Present Rates as Adjusted

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Revenue Detail						
1	Rate Class Revenues	$ 3,871,853	$ 23,492,040	$ 2,289,879	$ 9,069,827	$ 9,534,849	$ 83,780,874
	Allocation of Other Revenues						
2	NGV And Gas Lights Revenues	543	16,830	11,091	18,443	62,236	442,197
3	Deferred Federal Income Tax Revenues	-	-	-	-	-	-
4	Other Operating Revenues	1,152	35,665	23,503	39,084	131,885	937,061
5	Total Other Revenues	$ 1,695	$ 52,495	$ 34,594	$ 57,527	$ 194,122	$ 1,379,258
6	**Total Operating Revenues**	**$ 3,873,548**	**$ 23,544,535**	**$ 2,324,473**	**$ 9,127,354**	**$ 9,728,971**	**$ 85,160,132**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Income and Rate of Return at Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport Rate 113
1	**Operating Revenues**	$ 1,040,393,826	$ 552,292,964	$ 262,407,679	$ 40,004,475	$ 13,829,645	$ 33,604,847
2	Operating Expenses:						
3	Cost of Gas	334,686,871	164,371,119	106,255,870	17,993,090	9,005,706	9,865,198
4	Operation & Maintenance	229,325,283	160,357,186	39,473,784	2,283,187	780,221	6,793,475
5	Depreciation Expense	136,607,318	68,623,576	25,549,115	2,288,663	784,247	7,309,408
6	General Taxes	31,402,703	15,873,580	5,674,190	505,701	174,878	1,708,883
7	Income Taxes - State	5,899,747	2,730,315	1,079,622	105,893	37,142	350,512
8	Income Taxes - Federal	48,318,933	22,361,284	8,842,103	867,266	304,192	2,870,694
9	Amortization of Investment Tax Credits	(79,424)	(36,756)	(14,534)	(1,426)	(500)	(4,719)
10	Total Operating Expenses	$ 786,161,431	$ 434,280,303	$ 186,860,150	$ 24,042,374	$ 11,085,886	$ 28,893,452
11	Net Operating Income	$ 254,232,395	$ 118,012,661	$ 75,547,529	$ 15,962,100	$ 2,743,759	$ 4,711,395
12	Interest on Customer Deposits	(796,448)	(361,540)	(144,451)	(14,193)	(4,927)	(48,795)
13		0	-	-	-	-	-
14		0	-	-	-	-	-
15		0	-	-	-	-	-
16	**Net Operating Income for Return**	$ 253,435,947	$ 117,651,121	$ 75,403,078	$ 15,947,908	$ 2,738,832	$ 4,662,600
17	**Rate Base**	$ 3,299,177,177	$ 1,528,528,866	$ 606,476,088	$ 59,990,963	$ 21,185,338	$ 195,531,402
18	**Return on Rate Base**	7.68%	7.70%	12.43%	26.58%	12.93%	2.38%

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Piedmont Natural Gas Company, Inc.
Income and Rate of Return at Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation Rate 114	Military Transportation Rate T-10	Special Contracts	Municipal Contracts	Power Generation Contracts
1	**Operating Revenues**	$ 4,153,789	$ 27,389,445	$ 2,658,044	$ 9,128,641	$ 9,733,313	$ 85,190,984
2	Operating Expenses:						
3	Cost of Gas	2,846,976	12,063,506	619,025	1,923,439	2,902,677	6,840,265
4	Operation & Maintenance	87,685	2,393,299	521,451	1,081,018	2,940,698	12,613,280
5	Depreciation Expense	38,279	1,138,602	655,722	1,108,619	3,684,136	25,426,950
6	General Taxes	8,891	272,498	153,444	260,355	861,890	5,908,393
7	Income Taxes - State	1,557	48,086	32,025	53,192	179,720	1,281,683
8	Income Taxes - Federal	12,749	393,822	262,288	435,643	1,471,904	10,496,989
9	Amortization of Investment Tax Credits	(21)	(647)	(431)	(716)	(2,419)	(17,254)
10	Total Operating Expenses	$ 2,996,116	$ 16,309,164	$ 2,243,524	$ 4,861,550	$ 12,038,604	$ 62,550,306
11	Net Operating Income	$ 1,157,673	$ 11,080,281	$ 414,520	$ 4,267,091	$ (2,305,292)	$ 22,640,678
12	Interest on Customer Deposits	(214)	(6,620)	(4,464)	(7,403)	(25,048)	(178,793)
13		-	-	-	-	-	-
14		-	-	-	-	-	-
15		-	-	-	-	-	-
16	**Net Operating Income for Return**	$ 1,157,459	$ 11,073,661	$ 410,056	$ 4,259,688	$ (2,330,339)	$ 22,461,885
17	**Rate Base**	$ 874,697	$ 27,090,545	$ 17,852,581	$ 29,687,506	$ 100,178,573	$ 711,780,617
18	**Return on Rate Base**	132.33%	40.88%	2.30%	14.35%	-2.33%	3.16%

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Piedmont Natural Gas Company, Inc.
Customer Related Rate Base - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Net Gas Plant In Service - Customer Related	$ 888,121,618	$ 695,287,292	$ 160,586,781	$ 5,192,965	$ 1,027,614	$ 6,246,663
	Rate Base Additions:						
2	Materials and Supplies	329,309	149,486	59,726	5,868	2,037	20,176
3	Pension / OPEB	63,305,912	44,315,163	11,276,793	609,366	205,027	1,808,881
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	38,390,379	26,871,721	6,588,011	371,808	126,732	1,137,895
6	Deferred Pipeline Integrity Costs	-	-	-	-	-	-
7	Other	-	-	-	-	-	-
8	Total Additions	$ 102,025,599	$ 71,336,370	$ 17,924,530	$ 987,042	$ 333,796	$ 2,966,952
	Rate Base Deductions:						
9	Accrued Vacation Liability	(7,669,852)	(5,369,020)	(1,366,244)	(73,828)	(24,840)	(219,156)
10	Customer Deposits	(2,826,634)	(1,283,123)	(512,665)	(50,371)	(17,486)	(173,177)
11	Accumulated Deferred Income Taxes	(195,018,322)	(88,526,663)	(35,370,335)	(3,475,261)	(1,206,446)	(11,948,055)
12	Deferred Revenue	(4,831,133)	(2,193,046)	(876,219)	(86,092)	(29,887)	(295,986)
13	Total Deductions	$ (210,345,940)	$ (97,371,852)	$ (38,125,463)	$ (3,685,551)	$ (1,278,660)	$ (12,636,374)
14	**Total Rate Base - Customer Related**	**$ 779,801,278**	**$ 669,251,811**	**$ 140,385,848**	**$ 2,494,455**	**$ 82,750**	**$ (3,422,759)**

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Piedmont Natural Gas Company, Inc.
Customer Related Rate Base - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Net Gas Plant In Service - Customer Related	$ 145,754	$ 2,676,256	$ 321,202	$ 825,683	$ 2,009,194	$ 13,802,213
	Rate Base Additions:						
2	Materials and Supplies	88	2,737	1,846	3,061	10,356	73,926
3	Pension / OPEB	21,380	636,713	137,638	284,925	781,190	3,228,836
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	13,079	393,054	87,403	179,033	494,478	2,127,165
6	Deferred Pipeline Integrity Costs	-	-	-	-	-	-
7	Other	-	-	-	-	-	-
8	Total Additions	$ 34,548	$ 1,032,504	$ 226,888	$ 467,019	$ 1,286,025	$ 5,429,927
	Rate Base Deductions:						
9	Accrued Vacation Liability	(2,590)	(77,141)	(16,676)	(34,520)	(94,645)	(391,191)
10	Customer Deposits	(759)	(23,494)	(15,843)	(26,274)	(88,895)	(634,546)
11	Accumulated Deferred Income Taxes	(52,391)	(1,620,957)	(1,093,070)	(1,812,716)	(6,133,139)	(43,779,288)
12	Deferred Revenue	(1,298)	(40,156)	(27,078)	(44,906)	(151,934)	(1,084,532)
13	Total Deductions	$ (57,038)	$ (1,761,748)	$ (1,152,667)	$ (1,918,416)	$ (6,468,614)	$ (45,889,556)
14	**Total Rate Base - Customer Related**	**$ 123,263**	**$ 1,947,012**	**$ (604,578)**	**$ (625,714)**	**$ (3,173,395)**	**$ (26,657,416)**

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Piedmont Natural Gas Company, Inc.
Demand Related Rate Base - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Net Gas Plant In Service - Demand Related	$ 3,098,147,703	$ 1,113,061,305	$ 565,614,876	$ 66,791,194	$ 24,121,375	$ 237,740,726
	Rate Base Additions:						
2	Materials and Supplies	1,148,769	521,473	208,351	20,471	7,107	70,381
3	Pension / OPEB	25,441,400	17,809,392	4,531,921	244,892	82,396	726,954
4	Stored Natural Gas	39,788,868	23,275,523	13,604,929	1,996,163	912,253	-
5	Cash Working Capital	16,092,308	11,263,969	2,761,533	155,853	53,123	476,978
6	Deferred Pipeline Integrity Costs	45,365,430	14,861,956	7,515,749	854,565	288,556	3,129,662
7	Other	3,494,584	1,586,332	633,810	62,274	21,619	214,100
	Total Additions	$ 131,331,360	$ 69,318,644	$ 29,256,294	$ 3,334,219	$ 1,365,054	$ 4,618,074
8	Rate Base Deductions:						
9	Accrued Vacation Liability	(3,082,362)	(2,157,704)	(549,067)	(29,670)	(9,983)	(88,074)
10	Customer Deposits	(9,860,506)	(4,476,081)	(1,788,393)	(175,716)	(61,000)	(604,117)
11	Accumulated Deferred Income Taxes	(680,307,237)	(308,818,829)	(123,386,843)	(12,123,194)	(4,208,600)	(41,679,922)
12	Deferred Revenue	(16,853,057)	(7,650,281)	(3,056,627)	(300,324)	(104,258)	(1,032,525)
13	Total Deductions	$ (710,103,163)	$ (323,102,894)	$ (128,780,930)	$ (12,628,905)	$ (4,383,841)	$ (43,404,639)
14	**Total Rate Base - Demand Related**	**$ 2,519,375,899**	**$ 859,277,055**	**$ 466,090,240**	**$ 57,496,508**	**$ 21,102,588**	**$ 198,954,162**

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Piedmont Natural Gas Company, Inc.
Demand Related Rate Base - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Net Gas Plant In Service - Demand Related	$ 927,091	$ 30,591,927	$ 21,994,218	$ 36,203,135	$ 123,193,606	$ 877,908,251
	Rate Base Additions:						
2	Materials and Supplies	309	9,548	6,439	10,678	36,128	257,885
3	Pension / OPEB	8,592	255,882	55,314	114,506	313,945	1,297,605
4	Stored Natural Gas	-	-	-	-	-	-
5	Cash Working Capital	5,482	164,759	36,637	75,046	207,273	891,656
6	Deferred Pipeline Integrity Costs	-	-	314,491	463,080	1,764,275	16,173,096
7	Other	939	29,046	19,587	32,483	109,901	784,492
	Total Additions	$ 15,322	$ 459,236	$ 432,468	$ 695,792	$ 2,431,522	$ 19,404,734
8	Rate Base Deductions:						
9	Accrued Vacation Liability	(1,041)	(31,002)	(6,702)	(13,873)	(38,036)	(157,212)
10	Customer Deposits	(2,649)	(81,959)	(55,268)	(91,654)	(310,103)	(2,213,566)
11	Accumulated Deferred Income Taxes	(182,762)	(5,654,590)	(3,813,097)	(6,323,528)	(21,395,009)	(152,720,864)
12	Deferred Revenue	(4,528)	(140,080)	(94,461)	(156,651)	(530,012)	(3,783,310)
13	Total Deductions	$ (190,979)	$ (5,907,630)	$ (3,969,527)	$ (6,585,706)	$ (22,273,161)	$ (158,874,952)
14	**Total Rate Base - Demand Related**	**$ 751,434**	**$ 25,143,533**	**$ 18,457,159**	**$ 30,313,221**	**$ 103,351,967**	**$ 738,438,033**

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Piedmont Natural Gas Company, Inc.
Customer Related Net Plant - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Plant:						
5	Mains	275,644,359	249,000,506	26,229,272	168,342	27,015	111,368
6	Services	358,175,730	290,216,218	61,753,141	2,576,188	400,191	1,667,950
7	Meters & Regulators	168,757,053	107,063,858	57,106,336	1,294,370	226,768	903,886
8	All Other Distribution	28,961,442	23,321,394	5,235,608	145,746	23,599	96,825
9	Total Distribution Plant	$ 831,538,584	$ 669,601,976	$ 150,324,356	$ 4,184,645	$ 677,573	$ 2,780,029
10	General Plant	$ 56,583,034	$ 25,685,316	$ 10,262,425	$ 1,008,320	$ 350,041	$ 3,466,634
11	**Total Gas Plant In Service - Customer Related**	**$ 888,121,618**	**$ 695,287,292**	**$ 160,586,781**	**$ 5,192,965**	**$ 1,027,614**	**$ 6,246,663**

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Piedmont Natural Gas Company, Inc.
Customer Related Net Plant - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Plant:						
5	Mains	5,894	89,839	368	5,678	1,136	4,942
6	Services	80,723	1,273,269	648	126,471	25,294	55,637
7	Meters & Regulators	39,389	766,010	2,898	157,149	195,282	1,001,107
8	All Other Distribution	4,547	76,830	141	10,439	8,001	38,312
9	Total Distribution Plant	$ 130,554	$ 2,205,948	$ 4,056	$ 299,738	$ 229,712	$ 1,099,997
10	General Plant	$ 15,201	$ 470,308	$ 317,146	$ 525,945	$ 1,779,482	$ 12,702,217
11	**Total Gas Plant In Service - Customer Related**	**$ 145,754**	**$ 2,676,256**	**$ 321,202**	**$ 825,683**	**$ 2,009,194**	**$ 13,802,213**

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Piedmont Natural Gas Company, Inc.
Demand Related Net Plant - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ 104,979,086	$ 61,410,219	$ 35,895,293	$ 5,266,684	$ 2,406,891	$ -
4	Transmission Plant	$ 2,341,320,799	$ 767,029,134	$ 387,889,597	$ 44,104,320	$ 14,892,470	$ 161,522,602
	Distribution Plant:						
5	Mains	359,920,223	154,545,700	83,773,382	10,961,524	4,412,198	50,478,611
6	Services	-	-	-	-	-	-
7	Meters & Regulators	-	-	-	-	-	-
8	All Other Distribution	99,441,283	42,698,970	23,145,497	3,028,527	1,219,033	13,946,585
9	Total Distribution Plant	$ 459,361,506	$ 197,244,670	$ 106,918,879	$ 13,990,050	$ 5,631,231	$ 64,425,196
10	General Plant	$ 192,486,311	$ 87,377,282	$ 34,911,106	$ 3,430,140	$ 1,190,782	$ 11,792,928
11	**Total Gas Plant In Service - Demand Related**	**$ 3,098,147,703**	**$ 1,113,061,305**	**$ 565,614,876**	**$ 66,791,194**	**$ 24,121,375**	**$ 237,740,726**

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Piedmont Natural Gas Company, Inc.
Demand Related Net Plant - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ -	$ -	$ -	$ -	$ -	$ -
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ 16,230,958	$ 23,899,672	$ 91,054,676	$ 834,697,369
	Distribution Plant:						
5	Mains	685,881	22,715,906	3,670,319	8,238,180	20,438,522	-
6	Services	-	-	-	-	-	-
7	Meters & Regulators	-	-	-	-	-	-
8	All Other Distribution	189,500	6,276,110	1,014,062	2,276,102	5,646,898	-
9	Total Distribution Plant	$ 875,380	$ 28,992,016	$ 4,684,381	$ 10,514,282	$ 26,085,420	$ -
10	General Plant	$ 51,711	$ 1,599,911	$ 1,078,879	$ 1,789,181	$ 6,053,509	$ 43,210,882
11	**Total Gas Plant In Service - Demand Related**	**$ 927,091**	**$ 30,591,927**	**$ 21,994,218**	**$ 36,203,135**	**$ 123,193,606**	**$ 877,908,251**

Allocated Cost of Service Study
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Piedmont Natural Gas Company, Inc.
Customer Related Operation & Maintenance Exp. - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	-	-	-	-	-	-
2	Other Purchased Gas Costs	-	-	-	-	-	-
3	Total Purchased Gas Costs	$ -	$ -	$ -	$ -	$ -	$ -
4	Other Gas Supply Expense	$ -	$ -	$ -	$ -	$ -	$ -
5	Production Expense	$ -	$ -	$ -	$ -	$ -	$ -
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Expense:						
8	Mains	8,624,069	5,475,778	1,492,642	151,023	60,236	686,463
9	Services	6,649,261	5,387,644	1,146,400	47,825	7,429	30,964
10	Meters & Regulators	13,498,560	8,563,837	4,567,829	103,534	18,139	72,300
11	Customer Installment	10,958,298	9,899,066	1,042,750	6,692	1,074	4,427
12	Other	13,378,523	9,234,420	2,638,588	171,275	57,531	601,877
13	Total Distribution Expense	$ 53,108,711	$ 38,560,745	$ 10,888,209	$ 480,349	$ 144,409	$ 1,396,032
	Customer Accounting:						
14	Uncollectible	2,384,541	1,248,823	593,597	90,678	33,499	73,547
15	Other	28,009,531	25,302,123	2,665,281	17,106	2,745	11,317
16	Total Customer Accounting	$ 30,394,072	$ 26,550,946	$ 3,258,877	$ 107,784	$ 36,244	$ 84,864
17	Sales Expense	$ 8,367,361	$ 7,558,570	$ 796,206	$ 5,110	$ 820	$ 3,381
18	Administration & General	$ 69,720,351	$ 48,805,374	$ 12,419,408	$ 671,110	$ 225,801	$ 1,992,165
19	Total Operating & Maintenance - Customer Related	$ 161,590,496	$ 121,475,635	$ 27,362,701	$ 1,264,353	$ 407,275	$ 3,476,441
20	**Total O&M Including Gas Cost - Customer Related**	**$ 161,590,496**	**$ 121,475,635**	**$ 27,362,701**	**$ 1,264,353**	**$ 407,275**	**$ 3,476,441**

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Piedmont Natural Gas Company, Inc.
Customer Related Operation & Maintenance Exp. - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	-	-	-	-	-	-
2	Other Purchased Gas Costs	-	-	-	-	-	-
3	Total Purchased Gas Costs	$ -	$ -	$ -	$ -	$ -	$ -
4	Other Gas Supply Expense	$ -	$ -	$ -	$ -	$ -	$ -
5	Production Expense	$ -	$ -	$ -	$ -	$ -	$ -
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ -	$ -	$ -	$ -
	Distribution Expense:						
8	Mains	9,387	309,455	49,808	111,862	277,349	67
9	Services	1,499	23,637	12	2,348	470	1,033
10	Meters & Regulators	3,151	61,272	232	12,570	15,620	80,077
11	Customer Installment	234	3,572	15	226	45	196
12	Other	9,229	281,663	41,518	96,479	233,537	12,406
13	Total Distribution Expense	$ 23,499	$ 679,598	$ 91,585	$ 223,485	$ 527,021	$ 93,779
	Customer Accounting:						
14	Uncollectible	10,099	61,274	5,973	23,657	24,870	218,525
15	Other	599	9,129	37	577	115	502
16	Total Customer Accounting	$ 10,698	$ 70,403	$ 6,010	$ 24,234	$ 24,985	$ 219,027
17	Sales Expense	$ 179	$ 2,727	$ 11	$ 172	$ 34	$ 150
18	Administration & General	$ 23,547	$ 701,227	$ 151,584	$ 313,795	$ 860,344	$ 3,555,996
19	Total Operating & Maintenance - Customer Related	$ 57,923	$ 1,453,955	$ 249,191	$ 561,686	$ 1,412,384	$ 3,868,951
20	**Total O&M Including Gas Cost - Customer Related**	**$ 57,923**	**$ 1,453,955**	**$ 249,191**	**$ 561,686**	**$ 1,412,384**	**$ 3,868,951**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
Docket No. G-9, Sub 743

Piedmont Natural Gas Company, Inc.
Demand Related Operation And Maintenance Expenses - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	334,364,145	164,221,766	106,196,813	17,987,297	9,003,675	9,846,025
2	Other Purchased Gas Costs	322,726	149,353	59,057	5,793	2,032	19,174
3	Total Purchased Gas Costs	$ 334,686,871	$ 164,371,119	$ 106,255,870	$ 17,993,090	$ 9,005,706	$ 9,865,198
4	Other Gas Supply Expense	$ 1,699,545	$ 138,258	$ 95,188	$ 17,282	$ 9,033	$ 109,769
5	Production Expense	$ 228,197	$ 74,758	$ 37,806	$ 4,299	$ 1,451	$ 15,743
6	Storage Expense	$ 2,362,641	$ 1,382,088	$ 807,853	$ 118,531	$ 54,169	$ -
7	Transmission Expense	$ 16,977,549	$ 5,561,935	$ 2,812,692	$ 319,812	$ 107,989	$ 1,171,244
	Distribution Expense:						
8	Mains	11,260,803	7,149,949	1,949,005	197,197	78,653	896,343
9	Services	-	-	-	-	-	-
10	Meters & Regulators	-	-	-	-	-	-
11	Customer Installment	-	-	-	-	-	-
12	Other	7,186,815	4,960,642	1,417,424	92,007	30,905	323,323
13	Total Distribution Expense	$ 18,447,619	$ 12,110,592	$ 3,366,429	$ 289,204	$ 109,558	$ 1,219,666
	Customer Accounting:						
14	Uncollectible	-	-	-	-	-	-
15	Other	-	-	-	-	-	-
16	Total Customer Accounting	$ -	$ -	$ -	$ -	$ -	$ -
17	Sales Expense	$ -	$ -	$ -	$ -	$ -	$ -
18	Administration & General	$ 28,019,237	$ 19,613,919	$ 4,991,116	$ 269,706	$ 90,745	$ 800,612
19	Total Operating & Maintenance	$ 67,734,787	$ 38,881,550	$ 12,111,083	$ 1,018,834	$ 372,946	$ 3,317,034
20	**Total O&M Including Gas Cost - Demand Related**	**$ 402,421,658**	**203,252,669**	**118,366,953**	**19,011,924**	**9,378,652**	**13,182,232**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
Docket No. G-9, Sub 743

Piedmont Natural Gas Company, Inc.
Demand Related Operation And Maintenance Expenses - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Purchased Gas Costs:						
1	Rate Class Purchased Gas Costs	2,846,891	12,060,876	617,273	1,920,529	2,892,846	6,770,155
2	Other Purchased Gas Costs	85	2,630	1,752	2,910	9,831	70,110
3	Total Purchased Gas Costs	$ 2,846,976	$ 12,063,506	$ 619,025	$ 1,923,439	$ 2,902,677	$ 6,840,265
4	Other Gas Supply Expense	$ 3,085	$ 102,160	$ 4,725	$ 19,701	$ 25,822	$ 1,174,522
5	Production Expense	$ -	$ -	$ 1,582	$ 2,329	$ 8,875	$ 81,354
6	Storage Expense	$ -	$ -	$ -	$ -	$ -	$ -
7	Transmission Expense	$ -	$ -	$ 117,695	$ 173,303	$ 660,262	$ 6,052,616
	Distribution Expense:						
8	Mains	12,257	404,068	65,036	146,063	362,146	88
9	Services	-	-	-	-	-	-
10	Meters & Regulators	-	-	-	-	-	-
11	Customer Installment	-	-	-	-	-	-
12	Other	4,958	151,307	22,303	51,828	125,454	6,664
13	Total Distribution Expense	$ 17,215	$ 555,374	$ 87,340	$ 197,891	$ 487,600	$ 6,752
	Customer Accounting:						
14	Uncollectible	-	-	-	-	-	-
15	Other	-	-	-	-	-	-
16	Total Customer Accounting	$ -	$ -	$ -	$ -	$ -	$ -
17	Sales Expense	$ -	$ -	$ -	$ -	$ -	$ -
18	Administration & General	$ 9,463	$ 281,809	$ 60,919	$ 126,108	$ 345,755	$ 1,429,085
19	Total Operating & Maintenance	$ 29,762	$ 939,344	$ 272,260	$ 519,332	$ 1,528,314	$ 8,744,328
20	**Total O&M Including Gas Cost - Demand Related**	**2,876,738**	**13,002,850**	**891,285**	**2,442,771**	**4,430,990**	**15,584,594**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
Docket No. G-9, Sub 743

Piedmont Natural Gas Company, Inc.
Depreciation Expense And Taxes Other Than Income - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
1	Intangible Plant	$ 15,183,251	$ 6,892,289	$ 2,753,776	$ 270,568	$ 93,928	$ 930,222
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ 3,411,817	$ 1,995,830	$ 1,166,596	$ 171,167	$ 78,224	$ -
4	Transmission Plant	$ 49,677,590	$ 16,274,642	$ 8,230,150	$ 935,795	$ 315,985	$ 3,427,148
	Distribution Plant:						
5	Mains	19,364,940	12,295,600	3,351,658	339,115	135,258	1,541,420
6	Services	19,183,877	15,543,969	3,307,496	137,981	21,434	89,335
7	Meters & Regulators	8,255,076	5,237,234	2,793,466	63,317	11,093	44,215
8	Other	2,582,838	1,782,784	509,402	33,066	11,107	116,198
9	Total Distribution Expense	49,386,731	$ 34,859,587	$ 9,962,021	$ 573,478	$ 178,892	$ 1,791,168
10	General Plant	$ 18,947,928	$ 8,601,227	$ 3,436,572	$ 337,655	$ 117,218	$ 1,160,870
11	**Total Depreciation Expense**	**$ 136,607,318**	**$ 68,623,576**	**$ 25,549,115**	**$ 2,288,663**	**$ 784,247**	**$ 7,309,408**
	Taxes Other Than Income:						
12	Payroll Tax	6,577,766	4,604,543	1,171,709	63,316	21,303	187,951
13	Property & Other	24,824,937	11,269,038	4,502,481	442,385	153,575	1,520,933
14	**Total Taxes Other Than Income**	**$ 31,402,703**	**$ 15,873,580**	**$ 5,674,190**	**$ 505,701**	**$ 174,878**	**$ 1,708,883**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
Docket No. G-9, Sub 743

Piedmont Natural Gas Company, Inc.
Depreciation Expense And Taxes Other Than Income - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
1	Intangible Plant	$ 4,079	$ 126,200	$ 85,102	$ 141,130	$ 477,499	$ 3,408,459
2	Production Plant	$ -	$ -	$ -	$ -	$ -	$ -
3	Storage Plant	$ -	$ -	$ -	$ -	$ -	$ -
4	Transmission Plant	$ -	$ -	$ 344,385	$ 507,098	$ 1,931,977	$ 17,710,411
	Distribution Plant:						
5	Mains	21,078	694,865	111,842	251,181	622,773	151
6	Services	4,324	68,196	35	6,774	1,355	2,980
7	Meters & Regulators	1,927	37,471	142	7,687	9,553	48,971
8	Other	1,782	54,377	8,015	18,626	45,086	2,395
9	Total Distribution Expense	$ 29,110	$ 854,910	$ 120,034	$ 284,268	$ 678,767	$ 54,497
10	General Plant	$ 5,090	$ 157,492	$ 106,202	$ 176,123	$ 595,894	$ 4,253,584
11	**Total Depreciation Expense**	**$ 38,279**	**$ 1,138,602**	**$ 655,722**	**$ 1,108,619**	**$ 3,684,136**	**$ 25,426,950**
	Taxes Other Than Income:						
12	Payroll Tax	2,222	66,157	14,301	29,605	81,169	335,490
13	Property & Other	6,669	206,340	139,143	230,750	780,720	5,572,902
14	**Total Taxes Other Than Income**	**$ 8,891**	**$ 272,498**	**$ 153,444**	**$ 260,355**	**$ 861,890**	**$ 5,908,393**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
Docket No. G-9, Sub 743

Piedmont Natural Gas Company, Inc.
Revenues - Proposed Rates

Line No.	Description	Total North Carolina	Residential Rate 101	Small GS Rate 102	Medium GS Rate 152	Large GS Sales Rate 103	Large GS Transport
	Revenue Detail						
1	Rate Class Revenues	$ 1,033,857,819	$ 549,264,792	$ 261,206,188	$ 39,885,627	$ 13,787,675	$ 33,217,479
	Allocation of Other Revenues						
2	NGV And Gas Lights Revenues	2,192,633	1,015,860	403,064	39,870	14,080	129,950
3	Deferred Federal Income Tax Revenues	-	-	-	-	-	-
4	Other Operating Revenues	4,343,374	2,012,312	798,427	78,978	27,891	257,418
5	Total Other Revenues	6,536,007	$ 3,028,172	$ 1,201,491	$ 118,848	$ 41,970	$ 387,368
6	**Total Operating Revenues**	**$ 1,040,393,826**	**$ 552,292,964**	**$ 262,407,679**	**$ 40,004,475**	**$ 13,829,645**	**$ 33,604,847**

Allocated Cost of Service Study
Test Period: 12-months ending December 31, 2018
Docket No. G-9, Sub 743

Piedmont Natural Gas Company, Inc.
Revenues - Proposed Rates

Line No.	Description	Interruptible Sales Rate 104	Interruptible Transportation	Military Transportation	Special Contracts	Municipal Contracts	Power Generation Contracts
	Revenue Detail						
1	Rate Class Revenues	$ 4,152,056	$ 27,335,776	$ 2,622,676	$ 9,069,827	$ 9,534,849	$ 83,780,874
	Allocation of Other Revenues						
2	NGV And Gas Lights Revenues	581	18,004	11,865	19,730	66,579	473,049
3	Deferred Federal Income Tax Revenues	-	-	-	-	-	-
4	Other Operating Revenues	1,152	35,665	23,503	39,084	131,885	937,061
5	Total Other Revenues	$ 1,733	$ 53,669	$ 35,368	$ 58,814	$ 198,464	$ 1,410,110
6	**Total Operating Revenues**	**$ 4,153,789**	**$ 27,389,445**	**$ 2,658,044**	**$ 9,128,641**	**$ 9,733,313**	**$ 85,190,984**

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Piedmont Natural Gas Company, Inc.
Allocation of Fixed Gas Costs to Rate Schedules
Docket No. G-9, SUB 743

		Winter		Summer		Annual		Total Percentage
		Fixed Cost per therm (1)	Apportionment Percentage (2)	Fixed Cost per therm (3)	Apportionment Percentage (4)	Fixed Cost per therm (5)	Apportionment Percentage (6)	Columns (2)+ (4) + (6) (7)
Residential								
Rate 101		$ 0.13377	34.79%	$ 0.08278	5.75%			40.54%
Commercial								
Rate 102		$ 0.11225	17.06%	$ 0.07247	5.43%			22.49%
Rate 142		$ 0.13449		$ 0.13449			0.09%	0.09%
Rate 152	first 500	$ 0.09740	0.83%	$ 0.09165	0.91%			1.73%
	over 500	$ 0.06431	0.89%	$ 0.06110	0.55%			1.44%
Firm Sales								
Demand Charge						$ 1.27500	1.79%	1.79%
Commodity								
1st Step Volumes		$ 0.08968	0.38%	$ 0.08356	0.47%			0.84%
2nd Step Volumes		$ 0.08918	0.36%	$ 0.05856	0.23%			0.59%
3rd Step Volumes		$ 0.05468	0.09%	$ 0.03606	0.04%			0.13%
4th Step Volumes		$ 0.04438	0.01%	$ 0.02656	0.02%			0.03%
5th Step Volumes		$ 0.04368	0.00%	$ 0.01356	0.00%			0.00%
6th Step Voumes		$ 0.00968	0.00%	$ 0.00006	0.00%			0.00%
Firm Transportation								
Demand Charge						$ 0.07500	1.04%	1.04%
Standby Sales Service Charge						$ 1.20000	0.00%	0.00%
Commodity								
1st Step Volumes		$ 0.08968	1.51%	$ 0.08356	1.91%			3.43%
2nd Step Volumes		$ 0.08918	2.12%	$ 0.05856	1.65%			3.77%
3rd Step Volumes		$ 0.05468	1.33%	$ 0.03606	1.02%			2.35%
4th Step Volumes		$ 0.04438	0.74%	$ 0.02656	0.54%			1.28%
5th Step Volumes		$ 0.04368	0.62%	$ 0.01356	0.24%			0.85%
6h Step Volumes		$ 0.00968	0.22%	$ 0.00006	0.00%			0.22%
Interruptible Sales								
1st Step Volumes		$ 0.11018	0.10%	$ 0.09749	0.12%			0.23%
2nd Step Volumes		$ 0.14218	0.20%	$ 0.08549	0.12%			0.32%
3rd Step Volumes		$ 0.10768	0.12%	$ 0.08049	0.09%			0.21%
4th Step Volumes		$ 0.08338	0.00%	$ 0.06799	0.00%			0.01%
5th Step Volumes		$ 0.06418	0.00%	$ 0.06549	0.00%			0.00%
6th Step Volumes		$ 0.05384	0.00%	$ 0.05749	0.00%			0.00%
Interruptible Transportation								
1st Step Volumes		$ 0.09291	1.24%	$ 0.04367	0.84%			2.08%
2nd Step Volumes		$ 0.08784	1.78%	$ 0.03047	0.85%			2.63%
3rd Step Volumes		$ 0.05737	1.49%	$ 0.02031	0.67%			2.16%
4th Step Volumes		$ 0.02690	0.50%	$ 0.01016	0.22%			0.72%
5th Step Volumes		$ 0.01675	0.28%	$ 0.00508	0.10%			0.38%
6th Step Volumes		$ 0.00659	0.09%	$ -	0.00%			0.09%
Special Contracts							3.03%	3.03%
Electric Generation							4.55%	4.55%
Military Operations (T 10)								
Demand Charge						$ 1.00000	0.70%	0.70%
		$ 0.02516	0.18%	$ 0.02516	0.10%			0.28%
Military in Onslow County								
Total			66.93%		21.87%		11.20%	100.00%

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Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Allocation of Proposed Revenue Adjustments to Base Rates
(In Thousands of Dollars)

Line No.	Description	Current Base and Gas Cost Revenue	Revenue Decoupling Revenue	Integrity Management Revenue	Current Total Revenue	Proposed Base Revenue Increase	Proposed Total Revenue
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	**Rate Schedule:**						
2	101 - Residential Service	420,371	2,474	55,946	478,791	69,577	548,367
3	102 - Small General Service	214,117	(8,725)	22,189	227,581	33,072	260,653
4	152 - Medium General Service	32,656	(1,123)	3,233	34,765	5,052	39,817
5	142 - Natural Gas Vehicle Service	898	-	-	898	131	1,029
6	T-10 - Military Transportation Service	2,101	-	189	2,290	333	2,623
7	105 - Outdoor Gas Light Service	86	-	-	86	13	99
8	103/113 - Large General Service	38,922	-	2,119	41,041	5,964	47,005
9	104/114 - Interruptible Service	24,542	-	2,822	27,364	3,976	31,340
10	**Total**	733,694	(7,375)	86,497	812,816	118,117	930,933

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

Component	Quantity	Units	Present Rates Margin Rate	Present Rates Fixed Gas Rate	Present Rates Commodity Gas Rate	Present Rates Total Rate	Present Rates Revenue	Proposed Rates Margin Rate	Proposed Rates Fixed Gas Rate	Proposed Rates Commodity Gas Rate	Proposed Rates Total Rate	Proposed Rates Revenue	Change
			Residential					Residential					
Rate Schedule 101 - Residential Service													
Customer Charge	8,112,675	Bills	$ 10.00			$ 10.00	$ 81,126,747	$ 10.00			$ 10.00	$ 81,126,747	
Delivery Charge - Winter	31,023,746	Dts	$ 4.6202	$ 1.3129	$ 2.8023	$ 8.7354	271,004,828	$ 7.8763	$ 1.3377	$ 2.8023	$ 12.0163	372,790,635	
Delivery Charge - Summer	8,286,467	Dts	$ 4.6202	$ 0.8125	$ 2.8023	$ 8.2350	68,239,060	$ 7.8763	$ 0.8278	$ 2.8023	$ 11.5064	95,347,409	
Margin Decoupling Revenues							2,473,674					-	
Integrity Management Rider Revenues							55,946,391					-	
Total Revenues							**$ 478,790,701**					**$ 549,264,792**	**14.7%**
			Small General Service					Small General Service					
Rate Schedule 102 - Small General Service													
Customer Charge	854,575	Bills	$ 22.00			$ 22.00	$ 18,800,645	$ 22.00			$ 22.00	$ 18,800,645	
Delivery Charge - Winter	18,133,895	Dts	$ 3.4437	$ 1.0993	$ 2.8023	$ 7.3453	133,198,895	$ 5.1631	$ 1.1225	$ 2.8023	$ 9.0879	164,799,020	
Delivery Charge - Summer	8,930,452	Dts	$ 3.4437	$ 0.7097	$ 2.8023	$ 6.9557	62,117,547	$ 5.1631	$ 0.7247	$ 2.8023	$ 8.6901	77,606,523	
Margin Decoupling Revenues							(8,725,017)					-	
Integrity Management Rider Revenues							22,189,010					-	
Total Revenues							**$ 227,581,080**					**$ 261,206,188**	**14.8%**

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

Component	Quantity	Units	Present Rates: Margin Rate	Present Rates: Fixed Gas Rate	Present Rates: Commodity Gas Rate	Present Rates: Total Rate	Present Rates: Revenue	Proposed Rates: Margin Rate	Proposed Rates: Fixed Gas Rate	Proposed Rates: Commodity Gas Rate	Proposed Rates: Total Rate	Proposed Rates: Revenue	Change
			Medium General Service					Medium General Service					
Rate Schedule 152 - Medium General Service													
Customer Charge	5,485	Bills	$ 75.00			$ 75.00	$ 411,355	$ 75.00			$ 75.00	$ 411,355	
Delivery Charge - Winter 1st 5,000 Dts	1,014,250	Dts	$ 3.2319	$ 0.9565	$ 2.8023	$ 6.9907	$ 7,090,314	$ 4.4552	$ 0.9740	$ 2.8023	$ 8.2315	$ 8,348,795	
Delivery Charge - Winter over 5,000 Dts	1,646,419	Dts	$ 3.2319	$ 0.6315	$ 2.8023	$ 6.6657	10,974,538	$ 4.4552	$ 0.6431	$ 2.8023	$ 7.9006	13,007,701	
Subtotal Winter Delivery Charges							$ 18,064,852					$ 21,356,496	
Delivery Charge - Summer 1st 5,000 Dts	1,179,309	Dts	$ 2.7134	$ 0.9000	$ 2.8023	$ 6.4157	7,566,091	$ 4.4552	$ 0.9165	$ 2.8023	$ 8.1740	$ 9,639,670	
Delivery Charge - Summer over 5,000 Dts	1,073,809	Dts	$ 2.7134	$ 0.6000	$ 2.8023	$ 6.1157	6,567,094	$ 4.4552	$ 0.6110	$ 2.8023	$ 7.8685	8,449,267	
Subtotal Summer Delivery Charges							$ 14,133,186					$ 18,088,937	
Margin Decoupling Revenues							(1,123,271)					-	
Integrity Management Rider Revenues							3,232,670					-	
Minimum Margin Agreement Revenues							46,559					28,839	
Total Revenues							**$ 34,765,350**					**$ 39,885,627**	**14.7%**
			NGV Service					NGV Service					
Rate Schedule 142 - Natural Gas Vehicle Service													
Delivery Charge	77,818	Dts	$ 2.7035	$ 1.3449	$ 2.8023	$ 6.8507	533,107	$ 5.0701	$ 1.3449	$ 2.8023	$ 9.2173	717,271	
Fuel Charge (Service at Company Premises)	77,818	Dts	$ 4.0000			$ 4.0000	311,272	$ 4.0000			$ 4.0000	311,272	
Integrity Management Rider Revenues							53,661					-	
Total Revenues							**$ 898,040**					**$ 1,028,543**	**14.5%**

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

Component	Quantity	Units	Present Rates Margin Rate	Present Rates Fixed Gas Rate	Present Rates Commodity Gas Rate	Present Rates Total Rate	Present Rates Revenue	Proposed Rates Margin Rate	Proposed Rates Fixed Gas Rate	Proposed Rates Commodity Gas Rate	Proposed Rates Total Rate	Proposed Rates Revenue	Change
			Military Transportation					Military Transportation					
Rate Schedule T-10 - Military Transportation Service													
Customer Charge	12	Bills	$ -			$ -	$ -	$ -			$ -	$ -	
Demand Charge	84,000	Dts	$ -	$ 10.0000	$ -	$ 10.0000	840,000	$ -	$ 10.0000	$ -	$ 10.0000	840,000	
Delivery Charge - Winter	856,870	Dts	$ 0.9645	$ 0.2516	$ 0.0523	$ 1.2684	1,086,854	$ 1.3527	$ 0.2516	$ 0.0523	$ 1.6566	1,419,491	
Delivery Charge - Summer	486,453	Dts	$ 0.0545	$ 0.2516	$ 0.0523	$ 0.3584	174,345	$ 0.4427	$ 0.2516	$ 0.0523	$ 0.7466	363,186	
Integrity Management Rider Revenues							188,681						
Total Revenues							**$ 2,289,879**					**$ 2,622,676**	**14.5%**
			Outdoor Lights					Outdoor Lights					
Rate Schedule 105 - Outdoor Gas Light Service													
Fixture Charge	5,215	Fixture	$ 16.5000				86,041	$ 18.8977				98,544	
Total Revenues							**$ 86,041**					**$ 98,544**	**14.5%**

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

Component	Quantity	Units	Present Rates: Margin Rate	Present Rates: Fixed Gas Rate	Present Rates: Commodity Gas Rate	Present Rates: Total Rate	Present Rates: Revenue	Proposed Rates: Margin Rate	Proposed Rates: Fixed Gas Rate	Proposed Rates: Commodity Gas Rate	Proposed Rates: Total Rate	Proposed Rates: Revenue	Change
Rate Schedule 103 Large General Sales			Large General Service					Large General Service					
Customer Charge	880	Bills	$ 350.00			$ 350.00	$ 308,058	$ 350.00			$ 350.00	$ 308,056	
Demand Charge	167,362	Dts	$ 2.0000	$ 12.7500	$ -	$ 14.7500	$ 2,468,597	$ 2.5000	$ 12.7500	$ -	$ 15.2500	2,552,278	
Delivery Charge - Winter First 1,500 Dts	500,182	Dts	$ 0.7543	$ 0.8968	$ 2.8023	$ 4.4534	$ 2,227,512	$ 1.2840	$ 0.8968	$ 2.8023	$ 4.9831	2,492,458	
Delivery Charge - Winter Next 3,000 Dts	480,276	Dts	$ 0.1793	$ 0.8918	$ 2.8023	$ 3.8734	1,860,302	$ 0.6805	$ 0.8918	$ 2.8023	$ 4.3746	2,101,016	
Delivery Charge - Winter Next 9,000 Dts	197,238	Dts	$ 0.2243	$ 0.5468	$ 2.8023	$ 3.5734	704,810	$ 0.3550	$ 0.5468	$ 2.8023	$ 3.7041	730,589	
Delivery Charge - Winter Next 16,500 Dts	38,237	Dts	$ 0.1073	$ 0.4438	$ 2.8023	$ 3.3534	128,225	$ 0.2012	$ 0.4438	$ 2.8023	$ 3.4473	131,816	
Delivery Charge - Winter Next 30,000 Dts	0	Dts	$ 0.1143	$ 0.4368	$ 2.8023	$ 3.3534	-	$ 0.1302	$ 0.4368	$ 2.8023	$ 3.3693	-	
Delivery Charge - Winter Over 60,000 Dts	0	Dts	$ 0.0843	$ 0.0968	$ 2.8023	$ 2.9834	-	$ 0.0414	$ 0.0968	$ 2.8023	$ 2.9405	-	
Subtotal Winter Delivery Charges	1,215,934						$ 4,920,849					$ 5,455,880	
Delivery Charge - Summer First 1,500 Dts	663,887	Dts	$ 0.2595	$ 0.8356	$ 2.8023	$ 3.8974	$ 2,587,432	$ 0.8645	$ 0.8356	$ 2.8023	$ 4.5024	2,989,083	
Delivery Charge - Summer Next 3,000 Dts	463,485	Dts	$ 0.0095	$ 0.5856	$ 2.8023	$ 3.3974	1,574,643	$ 0.2787	$ 0.5856	$ 2.8023	$ 3.6666	1,699,413	
Delivery Charge - Summer Next 9,000 Dts	142,024	Dts	$ 0.0345	$ 0.3606	$ 2.8023	$ 3.1974	454,108	$ 0.1604	$ 0.3606	$ 2.8023	$ 3.3233	471,989	
Delivery Charge - Summer Next 16,500 Dts	82,881	Dts	$ 0.0045	$ 0.2656	$ 2.8023	$ 3.0724	254,642	$ 0.0953	$ 0.2656	$ 2.8023	$ 3.1632	262,168	
Delivery Charge - Summer Next 30,000 Dts	0	Dts	$ 0.0095	$ 0.1356	$ 2.8023	$ 2.9474	-	$ 0.0657	$ 0.1356	$ 2.8023	$ 3.0036	-	
Delivery Charge - Summer Over 60,000 Dts	0	Dts	$ 0.0945	$ 0.0006	$ 2.8023	$ 2.8974	-	$ 0.0112	$ 0.0006	$ 2.8023	$ 2.8141	-	
Subtotal Summer Delivery Charges	1,352,276						$ 4,870,825					$ 5,422,653	
Integrity Management Rider Revenues							196,470					-	
Minimum Margin Agreement Revenues							78,618					48,806	
Total Revenues							**$ 12,843,418**					**$ 13,787,675**	7.4%

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

Component	Quantity	Units	Present Rates Margin Rate	Present Rates Fixed Gas Rate	Present Rates Commodity Gas Rate	Present Rates Total Rate	Present Rates Revenue	Proposed Rates Margin Rate	Proposed Rates Fixed Gas Rate	Proposed Rates Commodity Gas Rate	Proposed Rates Total Rate	Proposed Rates Revenue	Change
Rate Schedule 113 Large General Transport			Large General Service					Large General Service					
Customer Charge	3,628	Bills	$ 350.00			$ 350.00	$ 1,269,961	$ 350.00			$ 350.00	$ 1,269,961	
Demand Charge	1,651,088	Dts	$ 2.0000	$ 0.7500	$ -	$ 2.7500	4,540,491	$ 2.5000	$ 0.7500	$ -	$ 3.2500	5,366,035	
Delivery Charge - Winter First 1,500 Dts	2,014,321	Dts	$ 0.7543	$ 0.8968	$ 0.0523	$ 1.7034	$ 3,431,195	$ 1.2840	$ 0.8968	$ 0.0523	$ 2.2331	4,498,180	
Delivery Charge - Winter Next 3,000 Dts	2,836,557	Dts	$ 0.1793	$ 0.8918	$ 0.0523	$ 1.1234	3,186,588	$ 0.6805	$ 0.8918	$ 0.0523	$ 1.6246	4,608,271	
Delivery Charge - Winter Next 9,000 Dts	2,891,338	Dts	$ 0.2243	$ 0.5468	$ 0.0523	$ 0.8234	2,380,728	$ 0.3550	$ 0.5468	$ 0.0523	$ 0.9541	2,758,626	
Delivery Charge - Winter Next 16,500 Dts	1,979,823	Dts	$ 0.1073	$ 0.4438	$ 0.0523	$ 0.6034	1,194,625	$ 0.2012	$ 0.4438	$ 0.0523	$ 0.6973	1,380,530	
Delivery Charge - Winter Next 30,000 Dts	1,682,248	Dts	$ 0.1143	$ 0.4368	$ 0.0523	$ 0.6034	1,015,069	$ 0.1302	$ 0.4368	$ 0.0523	$ 0.6193	1,041,816	
Delivery Charge - Winter Over 60,000 Dts	2,700,814	Dts	$ 0.0843	$ 0.0968	$ 0.0523	$ 0.2334	630,370	$ 0.0414	$ 0.0968	$ 0.0523	$ 0.1905	514,505	
Subtotal Winter Delivery Charges	14,105,102						$ 11,838,575					$ 14,801,929	
Delivery Charge - Summer First 1,500 Dts	2,727,607	Dts	$ 0.2595	$ 0.8356	$ 0.0523	$ 1.1474	$ 3,129,657	$ 0.8645	$ 0.8356	$ 0.0523	$ 1.7524	4,779,859	
Delivery Charge - Summer Next 3,000 Dts	3,362,487	Dts	$ 0.0095	$ 0.5856	$ 0.0523	$ 0.6474	2,176,874	$ 0.2787	$ 0.5856	$ 0.0523	$ 0.9166	3,082,056	
Delivery Charge - Summer Next 9,000 Dts	3,378,740	Dts	$ 0.0345	$ 0.3606	$ 0.0523	$ 0.4474	1,511,648	$ 0.1604	$ 0.3606	$ 0.0523	$ 0.5733	1,937,032	
Delivery Charge - Summer Next 16,500 Dts	2,435,352	Dts	$ 0.0045	$ 0.2656	$ 0.0523	$ 0.3224	785,158	$ 0.0953	$ 0.2656	$ 0.0523	$ 0.4132	1,006,288	
Delivery Charge - Summer Next 30,000 Dts	2,098,027	Dts	$ 0.0095	$ 0.1356	$ 0.0523	$ 0.1974	414,151	$ 0.0657	$ 0.1356	$ 0.0523	$ 0.2536	532,060	
Delivery Charge - Summer Over 60,000 Dts	3,102,903	Dts	$ -	$ 0.0006	$ 0.0523	$ 0.0529	164,144	$ 0.0112	$ 0.0006	$ 0.0523	$ 0.0641	198,896	
Subtotal Summer Delivery Charges	17,105,118						$ 8,181,631					$ 11,536,190	
Integrity Management Rider Revenues							$ 1,922,292					$ -	
Minimum Margin Agreement Revenues							444,658					243,364	
Total Revenues							**$ 28,197,608**					**$ 33,217,479**	**17.8%**

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

			Present Rates					Proposed Rates					
Component	Quantity	Units	Margin Rate	Fixed Gas Rate	Commodity Gas Rate	Total Rate	Revenue	Margin Rate	Fixed Gas Rate	Commodity Gas Rate	Total Rate	Revenue	Change
Rate Schedule 104 Interruptible Sales Service			Interruptible Sales Service					Interruptible Sales Service					
Customer Charge	192	Bills	$ 350.00			$ 350.00	$ 67,216	$ 350.00			$ 350.00	$ 67,216	
Delivery Charge - Winter First 1,500 Dts	113,488	Dts	$ 0.7540	$ 1.1018	$ 2.8023	$ 4.6581	$ 528,638	$ 1.6858	$ 1.1018	$ 2.8023	$ 5.5899	634,386	
Delivery Charge - Winter Next 3,000 Dts	168,727	Dts	$ 0.1790	$ 1.4218	$ 2.8023	$ 4.4031	742,921	$ 0.8934	$ 1.4218	$ 2.8023	$ 5.1175	863,460	
Delivery Charge - Winter Next 9,000 Dts	137,274	Dts	$ 0.2240	$ 1.0768	$ 2.8023	$ 4.1031	563,251	$ 0.4661	$ 1.0768	$ 2.8023	$ 4.3452	596,485	
Delivery Charge - Winter Next 16,500 Dts	6,724	Dts	$ 0.1070	$ 0.8338	$ 2.8023	$ 3.7431	25,169	$ 0.2641	$ 0.8338	$ 2.8023	$ 3.9002	26,226	
Delivery Charge - Winter Next 30,000 Dts	0	Dts	$ 0.1140	$ 0.6418	$ 2.8023	$ 3.5581	-	$ 0.1709	$ 0.6418	$ 2.8023	$ 3.6150	-	
Delivery Charge - Winter Over 60,000 Dts	0	Dts	$ 0.0840	$ 0.5384	$ 2.8023	$ 3.4247	-	$ 0.0544	$ 0.5384	$ 2.8023	$ 3.3951	-	
Subtotal Winter Delivery Charges	426,213						$ 1,859,979					$ 2,120,556	
Delivery Charge - Summer First 1,500 Dts	151,215	Dts	$ 0.5959	$ 0.9749	$ 2.8023	$ 4.3731	$ 661,280	$ 0.9322	$ 0.9749	$ 2.8023	$ 4.7094	712,133	
Delivery Charge - Summer Next 3,000 Dts	160,569	Dts	$ 0.3959	$ 0.8549	$ 2.8023	$ 4.0531	650,804	$ 0.6215	$ 0.8549	$ 2.8023	$ 4.2787	687,028	
Delivery Charge - Summer Next 9,000 Dts	134,731	Dts	$ 0.2959	$ 0.8049	$ 2.8023	$ 3.9031	-525,868	$ 0.4661	$ 0.8049	$ 2.8023	$ 4.0733	548,799	
Delivery Charge - Summer Next 16,500 Dts	4,303	Dts	$ 0.1959	$ 0.6799	$ 2.8023	$ 3.6781	15,829	$ 0.3107	$ 0.6799	$ 2.8023	$ 3.7929	16,323	
Delivery Charge - Summer Next 30,000 Dts	0	Dts	$ 0.0659	$ 0.6549	$ 2.8023	$ 3.5231	-	$ 0.1088	$ 0.6549	$ 2.8023	$ 3.5660	-	
Delivery Charge - Summer Over 60,000 Dts	0	Dts	$ -	$ 0.5749	$ 2.8023	$ 3.3772	-	$ 0.0303	$ 0.5749	$ 2.8023	$ 3.4075	-	
Subtotal Summer Delivery Charges	450,819						$ 1,853,780					$ 1,964,283	
Integrity Management Rider Revenues							$ 90,878					$ -	
Total Revenues							**$ 3,871,853**					**$ 4,152,056**	**7.2%**

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
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Revenues at Present and Proposed Rates

Component	Quantity	Units	Present Rates Margin Rate	Present Rates Fixed Gas Rate	Present Rates Commodity Gas Rate	Present Rates Total Rate	Present Rates Revenue	Proposed Rates Margin Rate	Proposed Rates Fixed Gas Rate	Proposed Rates Commodity Gas Rate	Proposed Rates Total Rate	Proposed Rates Revenue	Change
Rate Schedule 114 Interruptible Transportation Service			Interruptible Transport Service					Interruptible Transport Service					
Customer Charge	2,927	Bills	$ 350.00			$ 350.00	$ 1,024,464	$ 350.00			$ 350.00	$ 1,024,464	
Delivery Charge - Winter First 1,500 Dts	1,587,989	Dts	$ 0.0409	$ 0.9149	$ 0.0523	$ 1.0081	$ 1,600,851	$ 1.6858	$ 0.9291	$ 0.0523	$ 2.6672	4,235,483	
Delivery Charge - Winter Next 3,000 Dts	2,411,477	Dts	$ 0.0184	$ 0.8649	$ 0.0523	$ 0.9356	2,256,178	$ 0.8934	$ 0.8784	$ 0.0523	$ 1.8241	4,398,776	
Delivery Charge - Winter Next 9,000 Dts	3,090,338	Dts	$ 0.1359	$ 0.5649	$ 0.0523	$ 0.7531	2,327,334	$ 0.4661	$ 0.5737	$ 0.0523	$ 1.0921	3,374,958	
Delivery Charge - Winter Next 16,500 Dts	2,213,628	Dts	$ 0.1759	$ 0.2649	$ 0.0523	$ 0.4931	1,091,540	$ 0.2641	$ 0.2690	$ 0.0523	$ 0.5854	1,295,858	
Delivery Charge - Winter Next 30,000 Dts	1,984,247	Dts	$ 0.0909	$ 0.1649	$ 0.0523	$ 0.3081	611,346	$ 0.1709	$ 0.1675	$ 0.0523	$ 0.3907	775,245	
Delivery Charge - Winter Over 60,000 Dts	1,672,575	Dts	$ 0.0575	$ 0.0649	$ 0.0523	$ 0.1747	292,199	$ 0.0544	$ 0.0659	$ 0.0523	$ 0.1726	288,686	
Subtotal Winter Delivery Charges	12,960,254						$ 8,179,448					$ 14,369,007	
Delivery Charge - Summer First 1,500 Dts	2,289,575	Dts	$ 0.6408	$ 0.4300	$ 0.0523	$ 1.1231	$ 2,571,422	$ 0.9322	$ 0.4367	$ 0.0523	$ 1.4212	3,253,945	
Delivery Charge - Summer Next 3,000 Dts	3,345,866	Dts	$ 0.5008	$ 0.3000	$ 0.0523	$ 0.8531	2,854,358	$ 0.6215	$ 0.3047	$ 0.0523	$ 0.9785	3,273,930	
Delivery Charge - Summer Next 9,000 Dts	3,941,221	Dts	$ 0.4508	$ 0.2000	$ 0.0523	$ 0.7031	2,771,072	$ 0.4661	$ 0.2031	$ 0.0523	$ 0.7215	2,843,591	
Delivery Charge - Summer Next 16,500 Dts	2,581,133	Dts	$ 0.3216	$ 0.1000	$ 0.0523	$ 0.4739	1,223,199	$ 0.3107	$ 0.1016	$ 0.0523	$ 0.4646	1,198,194	
Delivery Charge - Summer Next 30,000 Dts	2,323,751	Dts	$ 0.3436	$ 0.0500	$ 0.0523	$ 0.4459	1,036,160	$ 0.1088	$ 0.0508	$ 0.0523	$ 0.2119	492,403	
Delivery Charge - Summer Over 60,000 Dts	1,604,926	Dts	$ 0.0958	$ -	$ 0.0523	$ 0.1481	237,690	$ 0.0303	$ -	$ 0.0523	$ 0.0826	132,567	
Subtotal Summer Delivery Charges	16,086,472						$ 10,693,902					$ 11,195,629	
Integrity Management Rider Revenues							$ 2,730,675					-	
Minimum Margin Agreement Revenues							863,550					746,676	
Total Revenues							**$ 23,492,040**					**$ 27,335,776**	**16.4%**

Piedmont Natural Gas Inc.
North Carolina
Test Period 12 M.E. 12/31/2018
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

Component	Quantity	Units	Present Rates Margin Rate	Present Rates Fixed Gas Rate	Present Rates Commodity Gas Rate	Present Rates Total Rate	Present Rates Revenue	Proposed Rates Margin Rate	Proposed Rates Fixed Gas Rate	Proposed Rates Commodity Gas Rate	Proposed Rates Total Rate	Proposed Rates Revenue	Change
TOTAL SYSTEM REVENUES							***$ 812,816,010***					***$ 932,599,356***	***14.7%***
Special Contract Revenues													
Power Generation Contracts							$ 83,780,874					$ 83,780,874	
Municipal Contracts							9,534,849					9,534,849	
Other Special Contract Revenues							9,069,827					9,069,827	
NGV Special Contract Revenues							1,065,547					1,065,547	
Total Special Contract Revenues							**$ 103,461,097**					**$ 103,461,097**	
TOTAL SYSTEM INCLUDING SPECIAL CONTRACTS							***$ 916,267,106***					***$ 1,036,050,452***	***13.1%***

INCREASE **$ 119,783,346**

Target Base Revenue Increase	118,116,597
Target Fixed Gas Cost Increase	1,665,536
Total Target Increase	**119,782,133**

Difference **$1,213**

1A

North Carolina Utilities Commission
Docket No. G-9 Sub 743

On Behalf of
Piedmont Natural Gas Company, Inc.

EXHIBIT
PMN-2

CASH WORKING CAPITAL REQUIREMENTS

Piedmont Natural Gas Company
Cash Working Capital Requirements
Pro Forma 12 Months Ended Dec 31, 2018
Lead Lag Summary

Line No		Proposed Amounts (1)	(Lead) Lag Days (2)	Day Weighted Amount (3)	Source (4)
	Revenues				
1	Sales and Transportation Revenue	$999,085,991	54.68	$54,634,415,277	Revenues - Line 14
2	Other Revenues	$4,343,375	83.78	$363,868,585	Revenues - Line 22
3	**Total Revenue Lag**	$1,003,429,366	54.81	$54,998,283,862	Revenues - Line 24
4					
5	**Operation & Maintenance Expense**				
6	Purchased Gas	$334,665,780	36.80	$12,314,204,144	Expenses - Line 2
7	Labor	$83,353,778	9.92	$826,569,083	Expenses - Line 3
8	Incentive Pay STIP	$6,627,808	252.46	$1,673,231,239	Expenses - Line 4
9	Incentive Pay LTIP	$2,986,422	621.50	$1,856,061,273	Expenses - Line 5
10	Employee Pensions & Benefits - Acct 926	$15,187,610	9.52	$144,648,712	Expenses - Line 6
11	Prepaid Expenses				
12	Insurance - Other Acct 925	$0	-	$0	Expenses - Line 8
13	Insurance - Property	$138,302	-	$0	Expenses - Line 9
14	Insurance - Liability	$1,031,840	-	$0	Expenses - Line 10
15	Fleet Expense	$3,361,406	38.48	$129,334,424	Expenses - Line 11
16	Credit Card Expense	$10,788,843	31.43	$339,044,082	Expenses - Line 12
17	Virtual Card Expense - Vendors	$4,347,732	31.59	$137,351,206	Expenses - Line 13
18	Regulatory Commission Amortization - Acct 928.000	$11,481,399	-	$0	Expenses - Line 14
19	Regulatory Commission Exp - Acct 928.014	$1,396,989	79.58	$111,168,540	Expenses - Line 15
20	Uncollectible Accounts - Acct 904	$7,243,863	-	$0	Expenses - Line 16
21	Other O&M Expenses	$80,951,287	59.41	$4,809,337,613	Expenses - Line 17
22					
23	**Depreciation Expense**	$136,607,318	-	$0	Expenses - Line 20
24					
25	**Other Taxes**				
26	Other Taxes Excluding Property Taxes	$3,552,442	280.79	$997,506,896	Expenses - Line 23
27	Property Taxes	$21,253,887	185.74	$3,947,712,266	Expenses - Line 24
28	Payroll Taxes	$6,596,374	24.46	$161,376,835	Expenses - Line 25
29					
30	**Income Taxes**				
31	Federal Income Taxes, excluding amort of ITC	$34,892,422	37.75	$1,317,188,931	Expenses - Line 29
32	State Income Taxes	-$4,934,889	37.75	-$186,292,060	Expenses - Line 30
33					
34	**Provision for Deferred Income Taxes**	-$12,253,904	-	$0	Expenses - Line 33
35					
36	**Amort Investment Tax Credit**	-$79,424	-	$0	Expenses - Line 35
37					
38	**Interest On Customers' Deposits**	$796,448	-	$0	Expenses - Line 37
39					
40	**Return**				
41	Interest on Long-Term Debt (Acct 0427460)	$70,820,421	92.54	$6,553,913,273	Expenses - Line 40
42	Interest on Short-Term Debt (Acct 0430216)	$764,566	24.63	$18,830,080	Expenses - Line 41
43	Income for Return	$181,850,646	-	$0	Expenses - Line 42
44					
45	**Total Expense Lag**	$1,003,429,366	35.03	**$35,151,188,538**	
46					
47	**Net of Revenue less Expense Lag**		19.78	$19,847,097,324	Line 3 - Line 45
48	Days			365	
49					
50	**Avg Daily Cash Working Capital Requirements**			$54,375,609	Line 47 / Line 48
51					
52	**Cash Working Capital Requirements**			$54,375,609	Line 50
53					
54	**Purchased Gas Working Capital**				
55	Purchased Gas Net Lag Days		17.89		Line 1 - line 6
56	Purchased Gas Cost			$334,665,780	Line 6
57	Purchased Gas CWC			$16,402,171	Line 56 / 365 X Line 55
58					
59	**Base Revenue Requirements Working Capital**				
60	Total Cash Working Capital Requirements			$54,375,609	Line 52
61	Less: Purchased Gas Cash Working Capital			$16,402,171	Line 57
62	Base Revenue Requirements Working Capital			$37,973,438	Line 60 - Line 61
63	Base Revenue Net Lag Days		20.73		Line 62/(Line45-Line6) X 365
64					
65					

Piedmont Natural Gas Company
Revenues Lag Summary
Pro Forma 12 Months Ended Dec 31, 2018

Line No	Revenue Lag	Revenues Billed	(Lead) Lag Days	Source	Day Weighted Amount
1	Service Lag		15.22	See Note 1	
2					
3	Billing Lag				
4	Cycle Read Customers		6.47	See Exhibit PMN-3 Page 4	
5					
6	Collection Lag		33.00	See Exhibit PMN-3 Page 17	
7					
8	Gas Sales and Transportation	$999,085,991	54.68		$54,634,415,277
9					
10	Gas Sales and Transportation - FIT Deferral	$0	54.68	Line 8	$0
11					
12	COG Cash Outs	$0	54.68	Line 8	$0
13					
14	Total Gas Sales & Transportation Revenues	$999,085,991	54.68		$54,634,415,277
15					
16	Late Payment Charge Revenue	$2,423,246	109.94	See Exhibit PMN-3 Page 18	$266,413,156
17					
18	Miscellaneous Service Rev	$1,794,164	54.68	Line 8	$98,112,804
19					
20	Rent From Gas Property	$125,964	-5.22	See Note 2	-$657,375
21					
22	Total Other Revenues	$4,343,375	83.78		$363,868,585
23					
24	Total Revenue Lag	$1,003,429,366	54.81		$54,998,283,862
25					
26					
27	Notes:				
28	1. Computed as 365.25/12/2				
29					
30	2. Rent for warehouse rental property paid on the 10th of the month for that month				
31					
32					
33					
34					
35					
36					
37					
38					

Piedmont Natural Gas Company
Expense Lag Summary
Pro Forma 12 Months Ended Dec 31, 2018

Line No		Revenue Req Amount	(Lead) Lag Days	Source	Day Weighted Amount	
1	**Operation & Maintenance Expense**					
2	Purchased Gas	$334,665,780	36.80	See Exhibit PMN-3 Page 26	$12,314,204,144	35.03%
3	Labor	$83,353,778	9.92	See Exhibit PMN-3 Page 83	$826,569,083	2.35%
4	Incentive Pay STIP	$6,627,808	252.46	See Exhibit PMN-3 Page 83	$1,673,231,239	4.76%
5	Incentive Pay LTIP	$2,986,422	621.50	See Exhibit PMN-3 Page 249	$1,856,061,273	5.28%
6	Employee Pensions & Benefits - Acct 926	$15,187,610	9.52	See Exhibit PMN-3 Page 250	$144,648,712	0.41%
7	Prepaid Expenses					
8	Insurance - Other Acct 925	$0	0.00	See Note 1	$0	0.00%
9	Insurance - Property	$138,302	0.00	See Note 1	$0	0.00%
10	Insurance - Liability	$1,031,840	0.00	See Note 1	$0	0.00%
11	Fleet Expense	$3,361,406	38.48	See Exhibit PMN-3 Page 291	$129,334,424	0.37%
12	Credit Card Expense	$10,788,843	31.43	See Exhibit PMN-3 Page 292	$339,044,082	0.96%
13	Virtual Card Expense - Vendors	$4,347,732	31.59	See Exhibit PMN-3 Page 293	$137,351,206	0.39%
14	Regulatory Commission Amortization - Acct 928.000	$11,481,399	0.00	See Exhibit PMN-3 Page 271	$0	0.00%
15	Regulatory Commission Exp - Acct 928.014	$1,396,989	79.58	See Exhibit PMN-3 Page 269	$111,168,540	0.32%
16	Uncollectible Accounts - Acct 904	$7,243,863	0.00	See Note 2	$0	0.00%
17	Other O&M Expenses	$80,951,287	59.41	See Exhibit PMN-3 Page 272	$4,809,337,613	13.68%
18	Total Operating & Maintenance Expenses	$563,563,060	39.64		$22,340,950,317	63.56%
19						
20	**Depreciation Expense**	$136,607,318	0.00	See Note 2	$0	0.00%
21						
22	**Other Taxes**					
23	Other Taxes Excluding Property Taxes	$3,552,442	280.79	See Exhibit PMN-3 Page 294	$997,506,896	2.84%
24	Property Taxes	$21,253,887	185.74	See Exhibit PMN-3 Page 301	$3,947,712,266	11.23%
25	Payroll Taxes	$6,596,374	24.46	See Exhibit PMN-3 Page 83	$161,376,835	0.46%
26	Total Other Taxes	$31,402,703	162.62		$5,106,595,998	14.53%
27						
28	**Income Taxes**					
29	Federal Income Taxes, excluding amort of ITC	$34,892,422	37.75	See Exhibit PMN-3 Page 302	$1,317,186,931	3.75%
30	State Income Taxes	-$4,934,889	37.75	See Exhibit PMN-3 Page 303	-$186,292,060	-0.53%
31	Total Income Taxes	$29,957,533	37.75		$1,130,896,871	3.22%
32						
33	**Amort of Overcollected FIT Revenues**	-$12,253,904	0.00	See Note 2	$0	0.00%
34						
35	**Amort Investment Tax Credit**	-$79,424	0.00	See Note 2	$0	0.00%
36						
37	**Interest On Customers' Deposits**	$796,448	0.00	See Note 1	$0	0.00%
38						
39	**Return**					
40	Interest on Long-Term Debt (Acct 0427460)	$70,820,421	92.54	See Exhibit PMN-3 Page 304	$6,553,913,273	18.64%
41	Interest on Short-Term Debt (Acct 0430216)	$764,566	24.63	See Exhibit PMN-3 Page 328	$18,830,080	0.05%
42	Income for Return	$181,850,646	0.00		$0	0.00%
43	Total Return	$253,435,633	25.93		$6,572,743,353	18.70%
44						
45						
46	**Total Requirements**	$1,003,429,367	35.03		$35,151,186,538	100.00%
47						
48	Notes:					
49	1. Included in Rate Base.					
50	2. Zero lag assigned to non cash expenses.					

1A

North Carolina Utilities Commission

Docket No. G-9 Sub 743

On Behalf of
Piedmont Natural Gas Company, Inc.

EXHIBIT
PMN-1

QUALIFICATIONS
OF
PAUL M. NORMAND

QUALIFICATIONS OF PAUL M. NORMAND

Q. Mr. Normand, what is your present position?

A. I am a principal in the consulting firm of Management Applications Consulting, Inc. (MAC), 1103 Rocky Drive, Suite 201, Reading, PA 19609. This company provides consulting services to the utility industry in such field as loss studies, econometric studies, cost analyses, rate design, expert testimony, and regulatory assistance.

Q. What is your educational background?

A. I graduated from Northeastern University in 1975, with a Bachelor of Science Degree and a Master of Science Degree in Electrical Engineering-Power System Analysis. I have attended various conferences and meeting concerning engineering and cost analysis.

Q. What is your professional background?

A. I was employed by the Massachusetts Electric Company in the Distribution Engineering Department while attending Northeastern University. My principal areas of assignment included new service, voltage conversions, and system planning. Upon graduation from Northeastern University, I joined Westinghouse Electric Corporation Nuclear Division in Pittsburgh, Pennsylvania. In that position, I assisted in the procurement and economic analysis of electrical/electronic control equipment for the nuclear reactor system. In 1976, I joined Gilbert Associates as an Engineer providing consulting services in the rate and regulatory area to utility companies. I was promoted to Senior Engineer in 1977, Manager of the Austin office 1980, and Director of Rate Regulatory Service in 1981.

In June, 1983, I left Gilbert to form a separate consulting firm and I am now a principal and President of Management Applications Consulting, Inc. My principal areas of concentration have been in loss studies, economic analyses, and pricing.

Q. Have you testified in support of any cost studies that you participated in or performed?

A. Yes, I have testified about such studies before the following regulatory agencies: the Maine Public Utility Commission, the Public Utility Commission of Texas, Illinois Commerce Commission, New Hampshire Public Utilities Commission, New Jersey Board of Public Utilities, New York Public Service Commission, Pennsylvania Public Utility Commission, the Massachusetts Department of Public Utilities, the Kentucky Public Service Commission, the Arkansas Public Service Commission, the Public Service Commission of Louisiana, the Public Utilities Commission of Ohio, the Public Service Commission of Missouri, the Delaware Public Service Commission, the Montana Public Service Commission, the Maryland Public Service Commission, the Indiana Utility Regulatory Commission, the North Carolina Utilities Commission, the Kansas Corporation Commission, and the Federal Energy Regulatory Commission.

Q. Could you please briefly discuss your technical experience?

A. I have performed numerous accounting and marginal cost of service studies, time differentiated bundled and fully unbundled cost studies for both electric and gas utilities since 1980. I have also used such studies in the design and presentation of detailed rate proposals before regulatory agencies. My additional experience and testimonies have been in the areas of depreciation, lead-lag studies, and unaccounted for loss evaluations for electric and gas utilities for over thirty-five years. These studies include a detailed review of each utility's operations and the calculation of appropriate recovery factors.

* pg 1 of more than 320 pgs previously filed in the docket. KTM

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North Carolina Utilities Commission
Docket No. G-9 Sub 743

On Behalf of
Piedmont Natural Gas Company, Inc.

EXHIBIT
PMN-3

LEAD-LAG STUDY
WORKPAPERS

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Alaska	Regulatory Commission of Alaska	U-18-121	Municipal Power and Light City of Anchorage	2018	Electric Depreciation Study
Various	FERC	RP19-352-000	Sea Robin	2018	Gas Depreciation Study
Texas New Mexico	Federal Energy Regulatory Commission	ER19-404-000	Southwestern Public Service Company	2018	Electric Transmission Depreciation Study
California	Federal Energy Regulatory Commission	ER19-221-000	San Diego Gas and Electric	2018	Electric Transmission Depreciation Study
Kentucky	Kentucky Public Service Commission	2018-00281	Atmos Kentucky	2018	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-18-054	Matanuska Electric Coop	2018	Electric Generation Depreciation Study
California	California Public Utilities Commission	A17-10-007	San Diego Gas and Electric	2018	Electric and Gas Depreciation Study
Texas	Public Utility Commission of Texas	48401	Texas New Mexico Power	2018	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	18-05031	Southwest Gas	2018	Gas Depreciation Study
Texas	Public Utility Commission of Texas	48231	Oncor Electric Delivery	2018	Depreciation Rates
Texas	Public Utility Commission of Texas	48371	Entergy Texas	2018	Electric Depreciation Study
Kansas	Kansas Corporation Commission	18-KCPE-480-RTS	Kansas City Power and Light	2018	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	18-027-U	Liberty Pine Bluff Water	2018	Water Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Kentucky	Kentucky Public Service Commission	2017-00349	Atmos KY	2018	Gas Depreciation Rates
Tennessee	Tennesee Public Utility Commission	18-00017	Chattanooga Gas	2018	Gas Depreciation Study
Texas	Railroad Commission of Texas	10679	Si Energy	2018	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-104	Anchorage Water and Wastewater	2017	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-18488	Michigan Gas Utilities Corporation	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	10669	CemterPoint South Texas	2017	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	17-061-U	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Kansas	Kansas Corporation Commission	18-EPDE-184-PRE	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Oklahoma	Oklahoma Corporation Commission	PUD 201700471	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Missouri	Missouri Public Service Commission	EO-2018-0092	Empire District Electric Company	2017	Depreciation Rates for New Wind Generation
Michigan	Michigan Public Service Commission	U-18457	Upper Peninsula Power Company	2017	Electric Depreciation Study
Florida	Florida Public Service Commission	20170179-GU	Florida City Gas	2017	Gas Depreciation Study
Michigan	FERC	ER18-56-000	Consumers Energy	2017	Electric Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Missouri	Missouri Public Service Commission	GR-2018-0013	Liberty Utilites	2017	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18452	SEMCO	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	47527	Southwestern Public Service Company	2017	Electric Production Depreciation Study
MultiState	FERC	ER17-1664	American Transmission Company	2017	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-17-008	Municipal Power and Light City of Anchorage	2017	Generating Unit Depreciation Study
Mississippi	Mississippi Public Service Commission	2017-UN-041	Atmos Energy	2017	Gas Depreciation Study
Texas	Public Utility Commission of Texas	46957	Oncor Electric Delivery	2017	Electric Depreciation Study
Oklahoma	Oklahoma Corporation Commission	PUD 201700078	CenterPoint Oklahoma	2017	Gas Depreciation Study
New York	FERC	ER17-1010-000	New York Power Authority	2017	Electric Depreciation Study
Texas	Railroad Commission of Texas	GUD 10580	Atmos Pipeline Texas	2017	Gas Depreciation Study
Texas	Railroad Commission of Texas	GUD 10567	CenterPoint Texas	2016	Gas Depreciation Study
MultiState	FERC	ER17-191-000	American Transmission Company	2016	Electric Depreciation Study
New Jersey	New Jersey Public Utilities Board	GR16090826	Elizabethtown Natural Gas	2016	Gas Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
North Carolina	North Carolina Utilities Commission	Docket G-9 Sub 77H	Piedmont Natural Gas	2016	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-18195	Consumers Energy/DTE Electric	2016	Ludington Pumped Storage Depreciation Study
Alabama	FERC	ER16-2313-000	SEGCO	2016	Electric Depreciation Study
Alabama	FERC	ER16-2312-000	Alabama Power Company	2016	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-18127	Consumers Energy	2016	Natural Gas Depreciation Study
Mississippi	Mississippi Public Service Commission	2016 UN 267	Willmut Natural Gas	2016	Natural Gas Depreciation Study
Iowa	Iowa Utilities Board	RPU-2016-0003	Liberty-Iowa	2016	Natural Gas Depreciation Study
Illinois	Illinois Commerce Commission	GRM #16-208	Liberty-Illinois	2016	Natural Gas Depreciation Study
Kentucky	FERC	RP16-097-000	KOT	2016	Natural Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-16-067	Alaska Electric Light and Power	2016	Generating Unit Depreciation Study
Florida	Florida Public Service Commission	160170-EI	Gulf Power	2016	Electric Depreciation Study
Arizona	Arizona Corporation Commission	G-01551A-16-0107	Southwest Gas	2016	Gas Depreciation Study
Texas	Public Utility Commission of Texas	45414	Sharyland	2016	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	16A-0231E	Public Service Company of Colorado	2016	Electric Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Multi-State NE US	FERC	16-453-000	Northeast Transmission Development, LLC	2015	Electric Depreciaiton Study
Arkansas	Arkansas Public Service Commission	15-098-U	CenterPoint Arkansas	2015	Gas Depreciation Study and Cost of Removal Study
New Mexico	New Mexico Public Regulation Commission	15-00296-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
Atmos Energy Corporation	Tennessee Regulatory Authority	14-00146	Atmos Tennessee	2015	Natural Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00261-UT	Public Service Company of New Mexico	2015	Electric Depreciation Study
Hawaii	NA	NA	Hawaii American Water	2015	Water/Wastewater Depreciation Study
Kansas	Kansas Corporation Commission	16-ATMG-079-RTS	Atmos Kansas	2015	Gas Depreciation Study
Texas	Public Utility Commission of Texas	44704	Entergy Texas	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-15-089	Fairbanks Water and Wastewater	2015	Water and Waste Water Depreciation Study
Arkansas	Arkansas Public Service Commission	15-031-U	Source Gas Arkansas	2015	Underground Storage Gas Depreciation Study
New Mexico	New Mexico Public Regulation Commission	15-00139-UT	Southwestern Public Service Company	2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	44746	Wind Energy Transmission Texas	2015	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	15-AL-0299G	Atmos Colorado	2015	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	15-011-U	Source Gas Arkansas	2015	Gas Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	Railroad Commission of Texas	GUD 10432	CenterPoint- Texas Coast Division	2015	Gas Depreciation Study
Kansas	Kansas Corporation Commission	15-KCPE-116-RTS	Kansas City Power and Light	2015	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-120	Alaska Electric Light and Power	2014-2015	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43950	Cross Texas Transmission	2014	Electric Depreciation Study
New Mexico	New Mexico Public Regulation Commission	14-00332-UT	Public Service of New Mexico	2014	Electric Depreciation Study
Texas	Public Utility Commission of Texas	43695	Xcel Energy	2014	Electric Depreciation Study
Multi State – SE US	FERC	RP15-101	Florida Gas Transmission	2014	Gas Transmission Depreciation Study
California	California Public Utilities Commission	A.14-07-006	Golden State Water	2014	Water and Waste Water Depreciation Study
Michigan	Michigan Public Service Commission	U-17653	Consumers Energy Company	2014	Electric and Common Depreciation Study
Colorado	Public Utilities Commission of Colorado	14AL-0660E	Public Service of Colorado	2014	Electric Depreciation Study
Wisconsin	Wisconsin	05-DU-102	WE Energies	2014	Electric, Gas, Steam and Common Depreciation Studies
Texas	Public Utility Commission of Texas	42469	Lone Star Transmission	2014	Electric Depreciation Study
Nebraska	Nebraska Public Service Commission	NG-0079	Source Gas Nebraska	2014	Gas Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Alaska	Regulatory Commission of Alaska	U-14-055	TDX North Slope Generating	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-054	Sand Point Generating LLC	2014	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-14-045	Matanuska Electric Coop	2014	Electric Generation Depreciation Study
Texas, New Mexico	Public Utility Commission of Texas	42004	Southwestern Public Service Company	2013-2014	Electric Production, Transmission, Distribution and General Plant Depreciation Study
New Jersey	Board of Public Utilities	GR13111137	South Jersey Gas	2013	Gas Depreciation Study
Various	FERC	RP14-247-000	Sea Robin	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-078-U	Arkansas Oklahoma Gas	2013	Gas Depreciation Study
Arkansas	Arkansas Public Service Commission	13-079-U	Source Gas Arkansas	2013	Gas Depreciation Study
California	California Public Utilities Commission	Proceeding No.: A.13-11-003	Southern California Edison	2013	Electric Depreciation Study
North Carolina/South Carolina	FERC	ER13-1313	Progress Energy Carolina	2013	Electric Depreciation Study
Wisconsin	Public Service Commission of Wisconsin	4220-DU-108	Northern States Power Company - Wisconsin	2013	Electric, Gas and Common Transmission, Distribution and General
Texas	Public Utility Commission of Texas	41474	Sharyland	2013	Electric Depreciation Study
Kentucky	Kentucky Public Service Commission	2013-00148	Atmos Energy Corporation	2013	Gas Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Minnesota	Minnesota Public Utilities Commission	13-252	Allete Minnesota Power	2013	Electric Depreciation Study
New Hampshire	New Hampshire Public Service Commission	DE 13-063	Liberty Utilities	2013	Electric Distribution and General
Texas	Railroad Commission of Texas	10235	West Texas Gas	2013	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-154	Alaska Telephone Company	2012	Telecommunications Utility
New Mexico	New Mexico Public Regulation Commission	12-00350-UT	Southwestern Public Service Company	2012	Electric Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1269ST	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Colorado	Colorado Public Utilities Commission	12AL-1268G	Public Service Company of Colorado	2012	Gas and Steam Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-149	Municipal Power and Light City of Anchorage	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40824	Xcel Energy	2012	Electric Depreciation Study
South Carolina	Public Service Commission of South Carolina	Docket 2012-384-E	Progress Energy Carolina	2012	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-12-141	Interior Telephone Company	2012	Telecommunications Utility
Michigan	Michigan Public Service Commission	U-17104	Michigan Gas Utilities Corporation	2012	Gas Depreciation Study
North Carolina	North Carolina Utilities Commission	E-2 Sub 1025	Progress Energy Carolina	2012	Electric Depreciation Study
Texas	Texas Public Utility Commission	40606	Wind Energy Transmission Texas	2012	Electric Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	Texas Public Utility Commission	40604	Cross Texas Transmission	2012	Electric Depreciation Study
Minnesota	Minnesota Public Utilities Commission	12-858	Northern States Power Company - Minnesota	2012	Electric, Gas and Common Transmission, Distribution and General
Texas	Railroad Commission of Texas	10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10174	Atmos West Texas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10182	CenterPoint Beaumont/ East Texas	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-KCPE-764-RTS	Kansas City Power and Light	2012	Electric Depreciation Study
Nevada	Public Utility Commission of Nevada	12-04005	Southwest Gas	2012	Gas Depreciation Study
Texas	Railroad Commission of Texas	10147, 10170	Atmos Mid-Tex	2012	Gas Depreciation Study
Kansas	Kansas Corporation Commission	12-ATMG-564-RTS	Atmos Kansas	2012	Gas Depreciation Study
Texas	Texas Public Utility Commission	40020	Lone Star Transmission	2012	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-16938	Consumers Energy Company	2011	Gas Depreciation Study
Colorado	Public Utilities Commission of Colorado	11AL-947E	Public Service of Colorado	2011	Electric Depreciation Study
Texas	Texas Public Utility Commission	39896	Entergy Texas	2011	Electric Depreciation Study
MultiState	FERC	ER12-212	American Transmission Company	2011	Electric Depreciation Study
California	California Public Utilities Commission	A1011015	Southern California Edison	2011	Electric Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Michigan	Michigan Public Service Commission	U-16536	Consumers Energy Company	2011	Wind Depreciation Rate Study
Texas	Public Utility Commission of Texas	38929	Oncor	2011	Electric Depreciation Study
Texas	Railroad Commission of Texas	10038	CenterPoint South TX	2010	Gas Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-070	Inside Passage Electric Cooperative	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	36633	City Public Service of San Antonio	2010	Electric Depreciation Study
Texas	Texas Railroad Commission	10000	Atmos Pipeline Texas	2010	Gas Depreciation Study
Multi State – SE US	FERC	RP10-21-000	Florida Gas Transmission	2010	Gas Depreciation Study
Maine/ New Hampshire	FERC	10-896	Granite State Gas Transmission	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	38480	Texas New Mexico Power	2010	Electric Depreciation Study
Texas	Public Utility Commission of Texas	38339	CenterPoint Electric	2010	Electric Depreciation Study
Texas	Texas Railroad Commission	10041	Atmos Amarillo	2010	Gas Depreciation Study
Georgia	Georgia Public Service Commission	31647	Atlanta Gas Light	2010	Gas Depreciation Study
Texas	Public Utility Commission of Texas	38147	Southwestern Public Service	2010	Electric Technical Update
Alaska	Regulatory Commission of Alaska	U-09-015	Alaska Electric Light and Power	2009-2010	Electric Depreciation Study
Alaska	Regulatory Commission of Alaska	U-10-043	Utility Services of Alaska	2009-2010	Water Depreciation Study
Michigan	Michigan Public Service Commission	U-16055	Consumers Energy/DTE Energy	2009-2010	Ludington Pumped Storage Depreciation Study
Michigan	Michigan Public Service Commission	U-16054	Consumers Energy	2009-2010	Electric Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Michigan	Michigan Public Service Commission	U-15963	Michigan Gas Utilities Corporation	2009	Gas Depreciation Study
Michigan	Michigan Public Service Commission	U-15989	Upper Peninsula Power Company	2009	Electric Depreciation Study
Texas	Railroad Commission of Texas	9869	Atmos Energy	2009	Shared Services Depreciation Study
Mississippi	Mississippi Public Service Commission	09-UN-334	CenterPoint Energy Mississippi	2009	Gas Depreciation Study
Texas	Railroad Commission of Texas	9902	CenterPoint Energy Houston	2009	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	09AL-299E	Public Service Company of Colorado	2009	Electric Depreciation Study
Louisiana	Louisiana Public Service Commission	U-30689	Cleco	2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35763	Southwestern Public Service Company	2008	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Wisconsin	Wisconsin	05-DU-101	WE Energies	2008	Electric, Gas, Steam and Common Depreciation Studies
North Dakota	North Dakota Public Service Commission	PU-07-776	Northern States Power Company - Minnesota	2008	Net Salvage
New Mexico	New Mexico Public Regulation Commission	07-00319-UT	Southwestern Public Service Company	2008	Testimony – Depreciation
Multiple States	Railroad Commission of Texas	9762	Atmos Energy	2007-2008	Shared Services Depreciation Study
Minnesota	Minnesota Public Utilities Commission	E015/D-08-422	Minnesota Power	2007-2008	Electric Depreciation Study
Texas	Public Utility Commission of Texas	35717	Oncor	2008	Electric Depreciation Study

Asset Location	Commission	Docket (If Applicable)	Company	Year	Description
Texas	Public Utility Commission of Texas	34040	Oncor	2007	Electric Depreciation Study
Michigan	Michigan Public Service Commission	U-15629	Consumers Energy	2006-2009	Gas Depreciation Study
Colorado	Colorado Public Utilities Commission	06-234-EG	Public Service Company of Colorado	2006	Electric Depreciation Study
Arkansas	Arkansas Public Service Commission	06-161-U	CenterPoint Energy – Arkla Gas	2006	Gas Distribution Depreciation Study and Removal Cost Study
Texas, New Mexico	Public Utility Commission of Texas	32766	Southwestern Public Service Company	2005-2006	Electric Production, Transmission, Distribution and General Plant Depreciation Study
Texas	Railroad Commission of Texas	9670/9676	Atmos Energy Corp	2005-2006	Gas Distribution Depreciation Study

*pg. 1 of 114 pages previously filed in the docket. KAM

1A

PIEDMONT NATURAL GAS COMPANY

The Carolinas

And Corporate

DEPRECIATION RATE STUDY

AT SEPTEMBER 30, 2018

ALLIANCE CONSULTING GROUP

http://www.utilityalliance.com

Exhibit NP-1

1A

Piedmont Natural Gas Company, Inc.
Docket No. G-9, Sub 743

Class Cost of Service Study Results
at Present as Adjusted and Proposed Rates
using Peak & Average
Test Year Ended December 31, 2018

Line	Customer Class	Rate	Present Rates as Adjusted			Proposed Rates		
			Rate of Return	Relative Rate of Return	Subsidy (000)	Rate of Return	Relative Rate of Return	Subsidy (000)
			(1)	(2)	(3)	(4)	(5)	(6)
1	Residential	101	3.97%	80	$ (19,758)	7.70%	100	$ 306
2	Small General Service	102	7.88%	159	$ 23,256	12.43%	162	$ 37,869
3	Medium General Service	152	19.11%	386	$ 11,160	26.58%	346	$ 14,903
	Large General Service							
4	Sales	103	9.40%	190	$ 1,236	12.93%	168	$ 1,461
5	Transportation	113	0.67%	13	$ (11,025)	2.38%	31	$ (13,612)
6	Total Large General Service		1.52%	31	$ (9,790)	3.42%	44	$ (12,152)
	Interruptible							
7	Sales	104	102.26%	2063	$ 1,119	132.33%	1723	$ 1,433
8	Transportation	114	28.27%	570	$ 8,299	40.88%	532	$ 11,818
9	Total Interruptible		30.58%	617	$ 9,417	43.74%	569	$ 13,251
10	Military Transportation	T-10	1.28%	26	$ (863)	2.30%	30	$ (1,263)
	Special Contracts							
11	Special Contracts		15.24%	307	$ 4,010	14.35%	187	$ 2,601
12	Municipal Contracts		-1.49%	-30	$ (8,489)	-2.33%	-30	$ (13,176)
13	Power Generation Contracts		4.00%	81	$ (8,944)	3.16%	41	$ (42,338)
14	Total Special Contracts		3.74%	76	$ (13,422)	2.90%	38	$ (52,913)
15	Total		4.96%	100	$ -	7.68%	100	$ -

Source: CIGFUR 1-3a_Cost Allocation Study

Exhibit NP-2

1A

Piedmont Natural Gas Company, Inc.
Docket No. G-9, Sub 743

Class Cost of Service Study Results
at Present as Adjusted and Proposed Rates
using Peak Demand
Test Year Ended December 31, 2018

			Present Rates as Adjusted			Proposed Rates		
Line	Customer Class	Rate	Rate of Return	Relative Rate of Return	Subsidy (000)	Rate of Return	Relative Rate of Return	Subsidy (000)
			(1)	(2)	(3)	(4)	(5)	(6)
1	Residential	101	3.63%	73	$ (27,314)	7.26%	94	$ (8,717)
2	Small General Service	102	7.54%	152	$ 20,915	12.01%	156	$ 35,073
3	Medium General Service	152	19.37%	391	$ 11,272	26.90%	350	$ 15,036
	Large General Service							
4	Sales	103	10.45%	211	$ 1,461	14.18%	185	$ 1,729
5	Transportation	113	1.67%	34	$ (7,894)	3.56%	46	$ (9,873)
6	Total Large General Service		2.54%	51	$ (6,433)	4.62%	60	$ (8,143)
	Interruptible							
7	Sales	104	835.59%	16855	$ 1,299	1061.70%	13821	$ 1,649
8	Transportation	114	531.79%	10727	$ 14,281	707.17%	9206	$ 18,962
9	Total Interruptible		548.36%	11061	$ 15,580	726.51%	9458	$ 20,610
10	Military Transportation	T-10	1.10%	22	$ (918)	2.09%	27	$ (1,329)
	Special Contracts							
11	Special Contracts		18.18%	367	$ 4,676	17.29%	225	$ 3,396
12	Municipal Contracts		-1.66%	-33	$ (8,835)	-2.49%	-32	$ (13,589)
13	Power Generation Contracts		4.00%	81	$ (8,944)	3.16%	41	$ (42,338)
14	Total Special Contracts		3.77%	76	$ (13,102)	2.93%	38	$ (52,531)
15	Total		4.96%	100	$ 0	7.68%	100	$ 0

Source: CIGFUR 1-3a_Cost Allocation Study

Exhibit NP-3

1A

Piedmont Natural Gas Company, Inc.
Docket No. G-9, Sub 743

Allocation of Proposed Revenue
Test Year Ended December 31, 2018
(Dollars in Thousands)

Line	Customer Class	Rate	Current Total Revenue (1)	Proposed Base Revenue Increase (2)	Proposed Total Revenue (3)	% Increase (4)
1	Residential	101	$ 478,791	$ 69,577	$ 548,368	14.5%
2	Small General Service	102	$ 227,581	$ 33,072	$ 260,653	14.5%
3	Medium General Service	152	$ 34,765	$ 5,052	$ 39,817	14.5%
4	Natural Gas Vehicle Service	142	$ 898	$ 131	$ 1,029	14.5%
5	Military Transportation Service	T-10	$ 2,290	$ 333	$ 2,623	14.5%
6	Outdoor Gas Light Service	105	$ 86	$ 13	$ 99	14.5%
7	Large General Service	103/113	$ 41,041	$ 5,964	$ 47,005	14.5%
8	Interruptible Service	104/114	$ 27,364	$ 3,976	$ 31,340	14.5%
9	Subtotal		$ 812,816	$ 118,117	$ 930,933	14.5%
10	Special Contracts		$ 102,386	$ -	$ 102,386	0.0%
11	Total		$ 915,202	$ 118,117	$ 1,033,319	12.9%

Source: Exhibit DPY-4, page 1 of 1 and Exhibit DPY-5, page 8 of 8.

Exhibit NP-4

1A

Piedmont Natural Gas Company, Inc.
Docket No. G-9, Sub 743

Allocation of Proposed Revenue
Including Special Contracts and
No Increase for Interruptible Service
using Piedmont Method
Test Year Ended December 31, 2018
(Dollars in Thousands)

Line	Customer Class	Rate	Current Total Revenue (1)	Proposed Base Revenue Increase (2)	Proposed Total Revenue (3)	% Increase (4)
1	Residential	101	$ 478,791	$ 63,698	$ 542,489	13.3%
2	Small General Service	102	$ 227,581	$ 30,277	$ 257,858	13.3%
3	Medium General Service	152	$ 34,765	$ 4,625	$ 39,390	13.3%
4	Natural Gas Vehicle Service	142	$ 898	$ 119	$ 1,017	13.3%
5	Military Transportation Service	T-10	$ 2,290	$ 305	$ 2,595	13.3%
6	Outdoor Gas Light Service	105	$ 86	$ 11	$ 97	13.3%
7	Large General Service	103/113	$ 41,041	$ 5,460	$ 46,501	13.3%
8	Interruptible Service	104/114	$ 27,364	$ -	$ 27,364	0.0%
9	Special Contracts		$ 102,386	$ 13,621	$ 116,007	13.3%
10	Total		$ 915,202	$ 118,117	$ 1,033,319	12.9%

Exhibit NP-5

/A

Piedmont Natural Gas Company, Inc.

Docket No. G-9, Sub 743

Allocation of Proposed Revenue
Including Special Contracts and
No Increase for Interruptible Service
using Rate Base Allocation
Test Year Ended December 31, 2018
(Dollars in Thousands)

Line	Customer Class	Rate	Current Total Revenue (1)	Proposed Base Revenue Increase (2)	Proposed Total Revenue (3)	% Increase (4)
1	Residential	101	$ 478,791	$ 55,192	$ 533,983	11.5%
2	Small General Service	102	$ 227,581	$ 21,899	$ 249,480	9.6%
3	Medium General Service	152	$ 34,765	$ 2,166	$ 36,931	6.2%
4	Natural Gas Vehicle Service*	142	$ 898	$ -	$ 898	0.0%
5	Military Transportation Service	T-10	$ 2,290	$ 645	$ 2,935	28.1%
6	Outdoor Gas Light Service*	105	$ 86	$ -	$ 86	0.0%
7	Large General Service	103/113	$ 41,041	$ 7,825	$ 48,866	19.1%
8	Interruptible Service	104/114	$ 27,364	$ -	$ 27,364	0.0%
9	Special Contracts		$ 102,386	$ 30,390	$ 132,776	29.7%
10	Total		$ 915,202	$ 118,117	$ 1,033,319	12.9%

* Class not included in cost of service study.

Exhibit NP-6

1A

Piedmont Natural Gas Inc.
Docket No. G-9, SUB 743

Revenues at Present and Proposed Rates

Description	Quantity (1)	Present Rates (2)	Present Charge (3)	Proposed Rates (4)	Proposed Charge (5)	Increase Amount (6)	Increase Percent (7)
113 - Large General Transportation Service							
Monthly Charge	3,628	$ 350.00	$ 1,269,800	$ 350.00	$ 1,269,800	$ -	0.0%
Demand Charge per DT	1,651,088	$ 2.75	$ 4,540,492	$ 3.25	$ 5,366,036	$ 825,544	18.2%
Winter - First 1,500 per DT	2,014,321	$ 1.7034	$ 3,431,194	$ 2.2331	$ 4,498,180	$ 1,066,986	31.1%
Winter - Next 3,000 per DT	2,836,557	$ 1.1234	$ 3,186,588	$ 1.6246	$ 4,608,271	$ 1,421,682	44.6%
Winter - Next 9,000 per DT	2,891,338	$ 0.8234	$ 2,380,728	$ 0.9541	$ 2,758,626	$ 377,898	15.9%
Winter - Next 16,500 per DT	1,979,823	$ 0.6034	$ 1,194,625	$ 0.6973	$ 1,380,531	$ 185,905	15.6%
Winter - Next 30,000 per DT	1,682,248	$ 0.6034	$ 1,015,068	$ 0.6193	$ 1,041,816	$ 26,748	2.6%
Winter - Over 60,000 per DT	2,700,814	$ 0.2334	$ 630,370	$ 0.1905	$ 514,505	$ (115,865)	-18.4%
Subtotal Winter	14,105,101		$ 11,838,574		$ 14,801,928	$ 2,963,354	25.0%
Summer - First 1,500 per DT	2,727,607	$ 1.1474	$ 3,129,656	$ 1.7524	$ 4,779,859	$ 1,650,202	52.7%
Summer - Next 3,000 per DT	3,362,487	$ 0.6474	$ 2,176,874	$ 0.9166	$ 3,082,056	$ 905,182	41.6%
Summer - Next 9,000 per DT	3,378,740	$ 0.4474	$ 1,511,648	$ 0.5733	$ 1,937,032	$ 425,383	28.1%
Summer - Next 16,500 per DT	2,435,352	$ 0.3224	$ 785,157	$ 0.4132	$ 1,006,287	$ 221,130	28.2%
Summer - Next 30,000 per DT	2,098,027	$ 0.1974	$ 414,151	$ 0.2536	$ 532,060	$ 117,909	28.5%
Summer - Over 60,000 per DT	3,102,903	$ 0.0529	$ 164,144	$ 0.0641	$ 198,896	$ 34,753	21.2%
Subtotal Summer	17,105,116		$ 8,181,630		$ 11,536,189	$ 3,354,559	41.0%
Subtotal			$ 25,830,496		$ 32,973,953	$ 7,143,457	27.7%
Integrity Management Rider Revenues			$ 1,922,292		$ -	$ (1,922,292)	-100.0%
Minimum Margin Agreement Revenues			$ 444,658		$ 243,364	$ (201,294)	-45.3%
Total Revenues			$ 28,197,446		$ 33,217,317	$ 5,019,871	17.8%
114 - Interruptible Transportation Service							
Monthly Charge	2,927	$ 350.00	$ 1,024,450	$ 350.00	$ 1,024,450	$ -	0.0%
Winter - First 1,500 per DT	1,587,989	$ 1.0081	$ 1,600,852	$ 2.6672	$ 4,235,484	$ 2,634,633	164.6%
Winter - Next 3,000 per DT	2,411,477	$ 0.9356	$ 2,256,178	$ 1.8241	$ 4,398,775	$ 2,142,597	95.0%
Winter - Next 9,000 per DT	3,090,338	$ 0.7531	$ 2,327,334	$ 1.0921	$ 3,374,958	$ 1,047,625	45.0%
Winter - Next 16,500 per DT	2,213,628	$ 0.4931	$ 1,091,540	$ 0.5854	$ 1,295,858	$ 204,318	18.7%
Winter - Next 30,000 per DT	1,984,247	$ 0.3081	$ 611,347	$ 0.3907	$ 775,245	$ 163,899	26.8%
Winter - Over 60,000 per DT	1,672,575	$ 0.1747	$ 292,199	$ 0.1726	$ 288,686	$ (3,512)	-1.2%
Subtotal Winter	12,960,254		$ 8,179,448		$ 14,369,007	$ 6,189,559	75.7%
Summer - First 1,500 per DT	2,289,575	$ 1.1231	$ 2,571,422	$ 1.4212	$ 3,253,944	$ 682,522	26.5%
Summer - Next 3,000 per DT	3,345,866	$ 0.8531	$ 2,854,358	$ 0.9785	$ 3,273,930	$ 419,572	14.7%
Summer - Next 9,000 per DT	3,941,221	$ 0.7031	$ 2,771,072	$ 0.7215	$ 2,843,591	$ 72,518	2.6%
Summer - Next 16,500 per DT	2,581,133	$ 0.4739	$ 1,223,199	$ 0.4646	$ 1,199,194	$ (24,005)	-2.0%
Summer - Next 30,000 per DT	2,323,751	$ 0.4459	$ 1,036,161	$ 0.2119	$ 492,403	$ (543,758)	-52.5%
Summer - Over 60,000 per DT	1,604,926	$ 0.1481	$ 237,690	$ 0.0826	$ 132,567	$ (105,123)	-44.2%
Subtotal Summer	16,086,472		$ 10,693,901		$ 11,195,629	$ 501,727	4.7%
Subtotal			$ 19,897,800		$ 26,589,086	$ 6,691,286	33.6%
Integrity Management Rider Revenues			$ 2,730,675		$ -	$ (2,730,675)	-100.0%
Minimum Margin Agreement Revenues			$ 863,550		$ 746,676	$ (116,874)	-13.5%
Total Revenues			$ 23,492,025		$ 27,335,762	$ 3,843,737	16.4%

Source: Exhibit DPY-5, pages 5 and 7

Exhibit_(BPB-1)
I/A

Piedmont Natural Gas Company, Inc.
NCUC Docket No. G-9, Sub 743
For the Test Period ended December 31, 2018

Summary of Margin Decoupling Tracker (MDT) Impact
Since Last General Rate Case

Year		MDT Amounts Due Company (Customers)
2014	$	(31,283,451)
2015		(9,308,893)
2016		23,666,440
2017		33,092,843
2018		(18,798,098)
Total	$	(2,631,159)

EXHIBIT_(BPB-2) I/A

Piedmont Natural Gas Company, Inc.
DOCKET NO. G-9 Sub 743
EXHIBIT_(BPB-2)
FOR THE TEST PERIOD ENDED December 31, 2018
Excess Deferred Income Tax Rider Calculation

Line No.		Federal EDIT - Protected (A)	Federal EDIT - Unprotected, PP&E related (B)	Federal EDIT - Unprotected, non PP&E related (C)	NC State EDIT (E)	EDIT Sub-total	Deferred Revenue (D)	Total (F)
1	Regulatory liability including gross up as of 12/31/2018	$ (278,969,554)	$ (74,264,373)	$ (24,690,887)	(56,190,417)	(434,115,231)	($36,761,711)	(470,876,942)
2	Annual amortization percentage	1.89%	5.00%	20.00%	20.00%		33.33%	
3	Annual amortization amount (L1 x L2)	(5,275,075)	(3,713,219)	(4,938,177)	(11,238,083)	(25,164,555)	(12,253,904)	(37,418,459)

Piedmont Natural Gas Company, Inc.
DOCKET NO. G-9 Sub 743
EXHIBIT_(BPB-2)
FOR THE TEST PERIOD ENDED December 31, 2018
Excess Deferred Income Tax Rider Calculation

Cost of Capital per Powers Exhibit XX?	Ratio	Rate	After Tax Weighted Average Cost of Capital (WACC)
Long term debt	47.18%	4.55%	1.65%
Short term debt	0.82%	2.82%	0.02%
Equity	52.00%	10.60%	5.51%
			7.18%
Statutory Tax Rate			22.98%
Retention factor for uncollectibles and the regulatory fee			98.7875%

Annual Rider Calculation

Year		EDIT Beginning Balance, Page 1, L1	Amortization - From Page 1, Line 3					Ending Balance before Return	Average of Beginning and Ending Balance	EDIT Balance in Base Rates Per Column A	Change in Regulatory Liability for Rider Return	Return for Rider	Net Rider Revenues - EDIT	Amortization of Deferred Revenue, Page 1, L3	Total Rider Refund to Customers	Rider Revenues Incl. Uncollectibles and Regulatory Fee
			Federal EDIT - Protected	Federal EDIT - Unprotected, PP&E related	Federal EDIT - Unprotected, non PP&E related	NC EDIT	Total Amortization									
		(A)	(B)	(C)	(D)	(E)	(F) =(B)+(C)+(D)+[E]	(G) = (A) - (F)	(H) = ((A) + (G)) /2	(I)	(J) = (H) - (I)	(K) = (J) x After Tax WACC	(L) = (F) + (K)	(M)	(N) = (L) + (M)	(O) = (N) / Retention Factor
Nov 19- Oct 20	1	(434,115,231)	(5,275,075)	(3,713,219)	(4,938,177)	(11,238,083)	(25,164,555)	(408,950,676)	($421,532,954)	(434,115,231)	$12,582,277	$903,408	(24,261,147)	(12,253,904) [1]	(36,515,051)	(36,863,249)
Nov 20- Oct 21	2	(408,950,676)	(5,275,075)	(3,713,219)	(4,938,177)	(11,238,083)	(25,164,555)	(383,786,121)	($396,368,399)	(434,115,231)	$37,746,832	$2,710,223	(22,454,332)	(12,253,904) [1]	(34,708,236)	(35,134,257) [2]
Nov 21- Oct 22	3	(383,786,121)	(5,275,075)	(3,713,219)	(4,938,177)	(11,238,083)	(25,164,555)	(358,621,566)	($371,203,844)	(434,115,231)	$62,911,387	$4,517,038	(20,647,517)	(12,253,904) [1]	(32,901,421)	(33,305,264) [2]

[1] The deferred revenue account bears interest pursuant to the Commission's Order in Docket No. M-100, Sub 148 issued October 5, 2018 and therefore is not included in the return for ride
[2] The rider amounts for years 2 and 3 are shown for illustrative purposes only. Actual rider amounts will be filed each year with updates for Commission approval

Piedmont Natural Gas Company, Inc.
DOCKET NO. G-9 Sub 743
EXHIBIT_(BPB-2)
FOR THE TEST PERIOD ENDED December 31, 2018
Excess Deferred Income Tax Rider Calculation

Projected Deferred Revenue for Federal Tax Rate Change

1	Deferrals booked as of 12/31/2018	($23,247,920)
2	Forecast deferrals for January - October 2019	($13,513,791)
3	Projected Deferred Revenue for Federal Tax Rate Change as of 10/31/2019 (L1 + L2)	($36,761,711)

Piedmont Natural Gas Company, Inc.
DOCKET NO. G-9 Sub 743
EXHIBIT_(BPB-2)
FOR THE TEST PERIOD ENDED December 31, 2018
Excess Deferred Income Tax Rider Calculation

Line No.	Rate Class	Annual Refund	Annual Therms	Rate per Therm
1	Residential - (101)	($23,453,182)	393,102,130	($0.05966)
2	SGS and MGS - (102,142,144,152)	($9,930,546)	320,559,510	($0.03098)
3	Firm Large General - (103,113, T-10, T-12, 12)	($3,322,996)	351,217,530	($0.00946)
4	Interruptible Large General - (104,114)	($256,525)	299,237,580	($0.00086)
5	Total	($36,963,249)		

I/A

Piedmont Natural Gas Company, Inc.
North Carolina
Index of Tariff & Service Regulations

Rate Schedule 101	Residential Sales Service
Rate Schedule 102	Small General Sales Service
Rate Schedule 103	Large General Sales Service
Rate Schedule 104	Large General Interruptible Sales Service
Rate Schedule 105	Outdoor Gaslight Service
Rate Schedule 106	Schedule for Limiting and Curtailing Service
Rate Schedule 107	Balancing, Cash-Out, and Agency Authorization
Rate Schedule 108	Negotiated Service
Rate Schedule 113	Large General Transportation Service
Rate Schedule 114	Large General Interruptible Transportation Service
Rate Schedule 142	Natural Gas Vehicle Fuel
Rate Schedule 143	Experimental Motor Vehicle Fuel Service
Rate Schedule 144	Experimental Medium General Motor Fuel Transportation Service
Rate Schedule 152	Medium General Sales Service
Rate Schedule 12	Service to Military Installations Located in Onslow County
Rate Schedule T-10	Transportation Service to Military Installations with Contract Demand in Excess of 5,000 DT per Day
Rate Schedule T-12	Transportation Service to Military Installations in Onslow County
~~Rate Schedule ST-1~~	~~Standby On-Peak Supply Service~~
Service Regulations	
Appendix A	Procedure for Rate Adjustments Under G.S. 62-133.4
Appendix B	Customer Agent Agreement
Appendix C	Margin Decoupling Tracker
Appendix D	Equal Payment Plan (EPP)
Appendix E	Integrity Management Rider
Appendix F	Statement of Alternative Gas Requirements
Appendix G	EDIT Rider

RATE SCHEDULE 101
RESIDENTIAL SALES SERVICE

Applicability and Character of Service
Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to a residential unit which is individually metered and to family care homes as defined in G.S.168-21, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations. The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service.

Rates and Charges
The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Restriction on Right to Service
Company reserves the right to decline the provision of Service under this Rate Schedule where Customer's Service Line would attach directly to a Company transmission Main.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 25 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained with Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 102
SMALL GENERAL SALES SERVICE

Applicability and Character of Service

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily usage is less than 20 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations. Average daily gas usage will be based on the Customer's usage during the most recent past calendar year ended on December 31 and adjusted for cycle length. Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service. Any reclassification or change in quantity or character of Service to Customer will be subject to the procedures set forth in the Company's Service Regulations.

At its option, a family care home, as defined in G.S. 168-21, may elect service under Rate Schedule 101 – Residential.

Rates and Charges

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Payment of Bills

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 103
LARGE GENERAL SALES SERVICE

Availability

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 103 and the procedures set forth in the Company's Service Regulations.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 113 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer Llarge Ggeneral Ttransportation Service under Rate Schedule 113, (b) the Company is able to provide Service under Rate Schedule 113 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule 113 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

Rates and Charges

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Billing Demand

A Customer's billing demand determinant shall be the highest daily usage during the period from November 1 to March 31 of the previous winter period as metered and reported to the Company by the telemetering equipment installed by the Company.

Changes to the Customer's billing demand determinant will become effective June 1 of each year.

RATE SCHEDULE 103
LARGE GENERAL SALES SERVICE

For Customers commencing initial gas service under this Rate Schedule, the billing demand shall be the highest actual daily consumption to date during that initial partial year, but shall be a minimum of 50 dekatherms. If a Customer has received gas Service from the Company prior to receiving Service under this Rate Schedule but does not have daily telemetered records to determine peak day usage as described above, the Company shall use 6% of that Customer's highest previous winter month's consumption for the billing demand determinant.

The calculation of Customer billing determinants hereunder shall not create any right to Service at a specified level. All changes to character or quantity of Service shall be subject to the Company's consent based on the evaluation and analysis described in the Company's Service Regulations.

Volumetric Charges
The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 104
LARGE GENERAL INTERRUPTIBLE SALES SERVICE

Availability

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina on an interruptible basis to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 104 and the procedures set forth in the Company's Service Regulations.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is interruptible sales Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 114 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer large general interruptible transportation Service under Rate Schedule 114, (b) the Company is able to provide Service under Rate Schedule 114 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule 114 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

Customer at Risk in Case of Interruption or Curtailment of Service

Customers receiving Service under this Rate Schedule shall not be required to maintain alternate fuel capability; provided, however, that all business, operational, mechanical or other risks associated with the interruption or curtailment of service under this Rate Schedule shall be borne exclusively by Customer. Such interruption or Curtailment of Service may be ordered by Company at any time and for any reason deemed necessary or appropriate by Company and is an inherent risk of Service under this Rate Schedule. Such interruption or Curtailment shall be immediately effective upon verbal or written notification by the Company and Customer shall refrain from using gas until permitted to do so by the Company. It is understood and agreed that the Company will have the right to suspend gas Service without further notice to the Customer in the event Customer fails to cease Customer's use of gas in accordance with the Company's notice of interruption or Curtailment.

RATE SCHEDULE 104
LARGE GENERAL INTERRUPTIBLE SALES SERVICE

Rates and Charges
The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Volumetric Charges
The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service" and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 106
SCHEDULE FOR LIMITING AND CURTAILING SERVICE

Applicability and Character of Service

This Rate Schedule defines the types of Ceurtailment, Iinterruption and penalty charges that the Company may invoke for Customers receiving firm or interruptible Service due to the occurrence of extreme weather conditions, operating condition constraints, Force Majeure events, or other causes for limitation of Service specified in the Company's Service Regulations and Rate Schedules and describes the process and procedures to be followed in the implementation of gas Service restrictions.

Curtailment/Interruption of Interruptible Service

Service provided under any Rate Schedule where the character of Service is designated as "interruptible" may be Iinterrupted or Curtailed by the Company at any time and for any reason deemed necessary or appropriate by Company. Customers receiving "interruptible" Service will be Ceurtailed or Iinterrupted prior to Curtailment of Customers receiving "firm" service. Upon Iinterruption or Curtailment of Service to Customers receiving interruptible ~~redelivery~~ Transportation Service from the Company, such Customers shall take all reasonably available measures to adjust their deliveries to the Company in order to minimize any imbalances on upstream pipelines. Customer shall be responsible for resolving all such imbalances ~~on upstream pipelines~~.

Curtailment of Firm Service

Whenever the Company curtails Service to firm Customers pursuant to the Service Regulations and/or Rate Schedules, Service shall be Ceurtailed in accordance with the provisions and priorities set forth in the Service Regulations. Whenever the Company limits or restricts service to firm Customers through the issuance of an Operational Order, such restrictions shall be set forth in the Operational Order. Upon Curtailment, limitation or restriction of Service to Customers receiving ~~redelivery~~ Transportation Service from the Company, such Customers shall take all reasonably available measures to adjust their deliveries to the Company in order to minimize any imbalances ~~on upstream pipelines~~. Customer shall be responsible for resolving all such imbalances on upstream pipelines.

Emergency Service

The Company will make every reasonable effort to deliver plant protection volumes to industrial and commercial Customers that do not have standby fuel systems sufficient to prevent damage to facilities or danger to personnel, or to Customers that find it impossible to continue operations on the Customer's standby or alternate energy source as a result of a bona fide existing or threatened emergency. This includes the protection of such existing material in process that would otherwise be destroyed, or deliveries required to maintain plant production. All emergency gas Service is interruptible and is of a discretionary nature on the part of the Company and implies no present or future obligation of the Company to any Customer to provide such Service on either a temporary or continuing basis. Deliveries of emergency Service hereunder shall be made pursuant only to advance operating arrangements between the Company's authorized personnel and the Customer and shall be subject to curtailment and interruption at any time should the Company deem it necessary.

RATE SCHEDULE 106
SCHEDULE FOR LIMITING AND CURTAILING SERVICE

Rate for Emergency Service

If the Company has authorized the Customer to consume limited quantities of emergency gas as provided in the above paragraph, then all gas so delivered by the Company to the Customer will be at a rate set forth on the Company's "Rates and Charges" tariff sheet plus the higher of two commodity indices - a "Monthly Contract Price" or a "Daily Price" - for each dekatherm of consumption. "Monthly Contract" shall be defined as the monthly contract index price for the applicable calendar month as first published in Inside F.E.R.C.'s - Gas Market Report in the table titled "Monthly Bidweek Spot Gas Prices" under the heading "Louisiana/Southeast –Transco, zone 3" in the column titled "Index", plus Transco's zone 3 to zone 5 IT transportation rate inclusive of all surcharges and fuel. "Daily Price" shall be defined as the daily price for gas defined by Gas Daily as stated in the "Daily Price Survey", "Northeast", "Transco, zone 6 non-N.Y.", "Midpoint" price. For days of consumption when the "Monthly Contract Price" is not published, the "Monthly Contract Price" shall equal the corresponding "Daily Price" published for the first day of the month of flow. For days of consumption when the "Daily Price" is not published, the "Daily Price" shall equal the average of the corresponding "Daily Price" as published on the nearest preceding and nearest subsequent day. The gas delivery to Customer will continue to be billed hereunder until the Company notifies the Customer that either (1) further gas sales or ~~redelivery~~ Transportation may be made under the Customer's regular Rate Schedule or (2) complete curtailment is unavoidable and that further gas sales and ~~redelivery~~ Transportation will be considered unauthorized.

Penalty for Unauthorized Gas

If at any time a Customer fails to discontinue the consumption of gas limited by the Company pursuant to an Operational Order, fails to abide by any restrictions on imbalances imposed by the Company through the issuance of an Operational Order, or otherwise takes or delivers gas at levels in excess of the quantities specified by the Company or in violation of the provisions of the Company's Rate Schedules or Service Regulations, any such quantities shall constitute "Unauthorized Gas". For each dekatherm of such Unauthorized Gas, Customer shall pay to the Company a rate set forth on the Company's "Rates and Charges" tariff sheet plus the higher of two gas commodity indices - a "Monthly Contract Price" or a "Daily Price" as both are defined above plus the maximum transportation unit rate for Rate Schedule 114. Such three-part rate shall constitute the Unauthorized Gas penalty charge applicable except in instances of Customer's failure to abide by restrictions on long imbalances which shall be subject only to the standalone rate set forth on the Company's "Rates and Charges" tariff sheet. Customers causing Unauthorized Gas shall be further subject to immediate termination of Service or disconnection from the Company's system. In the event of such termination of Service or disconnection, Service shall not be restored until the reconnection fee specified in the Company's Service Regulations has been paid by Customer to Company.

The Customer's consumption and/or gas deliveries to the Company will continue to be unauthorized until the Company notifies the Customer that either (1) the Curtailment event, Operational Order or other imposed restriction has been lifted, thereby enabling further gas sales

RATE SCHEDULE 106
SCHEDULE FOR LIMITING AND CURTAILING SERVICE

or ~~redelivery~~ Transportation to be made under the Customer's regular Rate Schedule or (2) the Company agrees to provide emergency Service under this Rate Schedule.

The Customer shall be liable for the above penalty charges together with and in addition to any incremental charges or assessments (including, but not limited to penalties) by the upstream interstate pipeline during the time of the unauthorized usage by such Customer. The payment of a penalty for Unauthorized Gas shall not under any circumstances be considered as giving any such Customer the right to fail to comply with an Operational Order, nor shall such payment be considered as a substitute for any other remedies available to the Company or any other Customer against the offending Customer for failure to adhere to its obligations under the provisions of this Rate Schedule.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 107
BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION

Applicability

The provisions of this Rate Schedule 107 shall apply to all tariffed transportation services provided by the Company under Rate Schedules 113, 114, T-10, and T-12, as well as all transportation special contracts, unless expressly provided otherwise therein.

Limitations on Intra-month Imbalances

Receipts and deliveries of gas hereunder shall be at uniform rates of flow with no significant fluctuations or imbalances. Customers (or its Agent) are responsible to match daily gas deliveries into the Company's system with daily gas consumption by Customer as closely as possible. Any imbalances shall be corrected by the Customer (or its Agent), insofar as practicable, during the month in which they occur. Customers (or its Agent) are expected to proactively manage intra-month imbalances. Customer (or its Agent) may adjust its daily nominations during a month in order to correct any accumulated imbalance and maintain a monthly balance subject to the operating limitations of the Company. The Company reserves the right to limit the amount of such imbalances to avoid operating problems, comply with balancing requirements of the upstream pipeline(s), and to mitigate the need to acquire additional daily supply at prices that would adversely affect sales customers. The Customer (or its Agent) will be responsible for any imbalance charges assessed by upstream pipeline(s) in connection with any gas transported by the Customer under this Rate Schedule.

In the event Customer (or its Agent) fails to abide by the requirements set forth above, the Company shall have the right to curtail deliveries to Customer (Customers in a transportation pool operated by a single Agent will be curtailed on a pro rata basis based on nominated quantities) if an imbalance is negative or reducing Customer's nominated quantities if an imbalance is positive. The Customer will be responsible for any imbalance charges assessed by upstream pipeline(s) in connection with any gas transported by the Customer. The Company reserves the right to take other reasonable action to mitigate system operational problems. The Company will use its reasonable efforts to notify the Customer or the Customer's Agent before proceeding with a unilateral nomination reduction or delivery curtailment and will notify Customer of any reduction to Customer's nomination that has been instituted by the Company. The Company reserves the right to initiate Standby Sales Service if elected by the Customer pursuant to Rate Schedule 113 when, in the judgment of the Company, such action is necessary to reduce or eliminate operational problems resulting from the gas imbalances of the Customer. The Company will use reasonable efforts to notify the Customer or the Customers' Agent before initiating Standby Sales Service hereunder.

No later than one-hour prior to the NAESB deadline for the timely nomination cycle on the fifth business day prior to the beginning of each month, the Customer must inform the Company of the nominating Agent for gas to be transported. If no notification to the contrary is provided, the Agent providing service during the prior month shall be deemed to be the nominating Agent by default. No later than one-hour prior to the NAESB deadline for the timely nomination cycle on the fourth business day prior to the beginning of each month, the Customer shall submit a timely and valid nomination for transportation. Changes to nominations for gas transportation within the month are due to the Company no later than one-hour prior to the NAESB deadline for the timely

RATE SCHEDULE 107
BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION

nomination cycle on the day prior to gas flow. Company will have no obligation to accommodate ~~intraday~~ post-timely nomination changes.

Balancing On Upstream Pipeline(s)

It shall be the Customer's responsibility to remain in balance on a daily and monthly basis with upstream pipeline(s) to avoid any assessment of penalties by such pipeline(s) against the Company. If the Company is assessed a penalty by an upstream pipeline, the Company shall have the right to pass-through all such penalties to the Customer or its Agent if the Customer has had an imbalance with the Company during the period for which the penalty was assessed.

Monthly Imbalance Resolution

Any differences between the monthly quantities delivered to the Company's city gate facilities for the account of the Customer monthly, and the monthly quantities consumed by the Customer as metered by the Company, shall be the monthly imbalance. The Percentage of Imbalance is defined as the monthly imbalance divided by the monthly quantities consumed by the customer. Unless the Company and Customer agree to correct imbalances "in kind," the imbalance shall be resolved monthly by "cashing out" the imbalances as they are known to exist at that time. If the Customer consumes more gas than it has delivered to the Company, the Customer will be deemed to be "short" by the amount of the deficiency, and the Company will sell the amount of the deficiency to the Customer by charging the price as specified below. If the Customer consumes less gas than has been delivered to the Company, the Customer will be deemed to be "long" by the amount of the surplus, and the Company will buy the amount of the surplus from the Customer by paying the price as specified below.

If the Customer's imbalance is less than or equal to 2% of the total monthly volume consumed, or if the total aggregated imbalance for the Agent is less than or equal to 2% of the total volume consumed by all of the Agent's Customers in that transportation pool, then the price paid by the Company if the imbalance is long or the price paid by the Customer (or Agent) if the imbalance is short will be the sum of (a) the average of all published indices for the month as published in Natural Gas Week as stated in the "Gas Price Report" table under "Louisiana, Gulf Coast, Onshore, Spot Delivered to Pipeline" plus (b) the rate under Transcontinental Gas Pipe Line's Rate Schedule IT, including applicable fuel and surcharges, for service from Zone 3 to Zone 5.

If the Customer's Percentage of Imbalance is more than 2%, or if the total aggregated Percentage of Imbalance for the Agent is more than 2% for all of the Agent's Customers in that transportation pool, then the price paid by the Company if the imbalance is long is the lower of the monthly index price listed in Platts Inside FERC's Gas Market Report for Transcontinental Gas Pipe Line Zone 3 deliveries plus applicable fuel and FT variable charges under Transcontinental Gas Pipe Line's Rate Schedule FT for service from Zone 3 to Zone 5 or the lowest weekly index price listed in Natural Gas Week's Gas Price Report "Delivered to Pipeline" for volumes listed under Louisiana – Gulf Coast, Onshore plus applicable fuel and FT variable charges under Transcontinental Gas Pipe Line's Rate Schedule FT for service from Zone 3 to Zone 5. If Customer (or Agent) imbalance is short, then the price paid by the Customer (or Agent) will be the higher of the monthly index price listed in Platts Inside FERC's Gas Market Report for

RATE SCHEDULE 107
BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION

Transcontinental Gas Pipe Line Zone 3 deliveries plus applicable fuel and IT variable charges under Transcontinental Gas Pipe Line's Rate Schedule IT for service from Zone 3 to Zone 5 or the highest weekly index price listed in Natural Gas Week's Gas Price Report "Delivered to Pipeline" for volumes listed under Louisiana -- Gulf Coast, Onshore plus applicable fuel and IT variable charges under Transcontinental Gas Pipe Line's Rate Schedule IT for service from Zone 3 to Zone 5.

If the Percentage of Imbalance for the Customer (or Agent) is "short" by more than 2%, the price paid by the Customer (or Agent) to the Company for each dekatherm of the total deficiency will be equal to the price listed above for short imbalances times the premium percentage corresponding to the percentage of the deficiency listed in the table below.

If the Percentage of Imbalance for the Customer (or Agent) is "long" by more than 2%, the price paid by the Company to the Customer (or Agent) for each dekatherm of the total surplus will be equal to the price listed above for long imbalances times the discount percentage corresponding to the percentage of the surplus listed in the table below.

Percentage of the Imbalance	Short (Premium)	Long (Discount)
Over 2% & equal to or less than 5%	110%	90%
Over 5% & equal to or less than 10%	120%	80%
Over 10% & equal to or less than 15%	130%	70%
Over 15% & equal to or less than 20%	140%	60%
Over 20%	150%	50%

Agency Authorization Form

Certain Rate Schedules permit a Customer to appoint a Customer's Agent to act on its behalf with respect to nominations, imbalance resolution, and/or billing. Customer shall authorize a Customer's Agent by executing an Agency Authorization Form in the form attached to this Rate Schedule. In order to be considered a Customer's Agent, a third party must execute and be in compliance with all of the terms of the Customer Agent Agreement form set forth in Appendix B to the Company's Service Regulations. To the extent that the Agent appointed by the Customer is common to other Customers of the Company, the Company will permit such Agent to aggregate all such qualifying Customers' transportation quantities for purposes of administering service to such Agent. Once a Customer has designated an Agent, the Agent is then authorized to act on behalf of that Customer and as such, the Agent will be considered as the Customer in all corresponding references contained within this Rate Schedule. The Customer may not change Agents within the calendar month without the permission of the Company, unless the Agent's right to conduct business has been suspended by the Company, in which case, the Customer may act without an Agent or may provide written notice to the Company of the new Customer's Agent designated by the Customer. The Company will provide reasonable notice to Customer in the event of any suspension of Customer's Agent and will provide copies to Customer, on an expeditious basis and by electronic or other means, of any formal notices issued to the Customer's Agent. All Agents must utilize the electronic means made available by the Company

RATE SCHEDULE 107
BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION

in order to submit nominations. The Company may recover from the Agent all costs incurred in providing the Agent access to the electronic bulletin board.

Applicable Documents Defining Obligations of the Company and Its Customers

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 107
BALANCING, CASH-OUT, AND AGENCY AUTHORIZATION

AGENCY AUTHORIZATION FORM

EFFECTIVE DATE _____

CUSTOMER _____

NAME OF FACILITY _____

ACCOUNT NUMBER (S) _____

AGENT _____

AGENT CONTACT _____ **PHONE #** _____

This is to advise Piedmont Natural Gas Company that _____ **(Customer)** has authorized _____ **(Agent)** to act on its behalf for the following transactions:

_____nominations, _____imbalance resolution _____billing,

of gas for the above listed account(s). Piedmont Natural Gas Company is hereby authorized to deal with the Agent directly, and the **CUSTOMER AND THE AGENT UNDERSTAND THAT THEY ARE RESPONSIBLE, JOINTLY AND SEVERALLY, FOR ANY AMOUNTS DUE PIEDMONT NATURAL GAS COMPANY ARISING UNDER THIS RATE SCHEDULE, PIEDMONT'S NORTH CAROLINA SERVICE REGULATIONS, OR AGENT'S CUSTOMER AGENT AGREEMENT** which are not paid on these accounts. Customer will provide Piedmont Natural Gas Company with a revised "AGENCY AUTHORIZATION FORM" at least five (5) business days prior to the beginning of the month for the accounts designated, unless the Agent's right to conduct business has been suspended by Piedmont Natural Gas Company without prior notice.

AUTHORIZED SIGNATURE_____	AUTHORIZED SIGNATURE_____
FOR THE CUSTOMER	FOR THE AGENT

Please Print
AGENT'S NAME_____TITLE _____

PHONE #_____FAX #_____

MAILING ADDRESS
Please submit to: ~~End User Transportation~~Pipeline Services ~~End User~~Pipeline Services Transportation Piedmont Natural Gas Company OR Fax Number: (704) 364-8320
P. O. Box 33068
Charlotte, N.C. 28233

RATE SCHEDULE 108
NEGOTIATED SERVICE

Applicability and Character of Service

On occasions, the Company may have gas that it cannot sell or transportation service that it cannot provide pursuant to its Rate Schedules because its maximum rates are not competitive with alternate fuels. On such occasions, a service opportunity is lost to the Company and to its Customers. This Rate Schedule is designed to permit the Company to provide Services at negotiated rates.

Gas Service under this Rate Schedule is available on a limited term basis to Customers in the area served by the Company in the State of North Carolina who receive Services under the Company's Rate Schedules 104 or 114 or those Special Contracts whose contracts permit negotiated service. The Company may provide negotiated transportation and sales Service to Customers who receive service under Rate Schedules 104 or 114 in order to compete with alternate fuels. In addition, the Company may negotiate to permit a Customer to recoup the cost of converting equipment from other fuels to natural gas; to induce any Customer or Applicant to attach new gas loads to Company's system which would not be attached to the system absent Company's agreement to use this Rate Schedule; to provide incentives for any Customer to use gas on weekends, holidays, and other off-peak periods so the Company may meet its obligations to firm suppliers or may avoid uneconomic storage injections or imbalance penalties from its interstate pipeline suppliers; and in similar circumstances where gas sales and/or transportation would otherwise be lost to the Company and its other Customers. Unless otherwise agreed to by the Company, Service under this Rate Schedule is interruptible and the Company has the right to discontinue such Service as provided by the Company's Rate Schedules and Service Regulations.

Rate

The rate to be charged for gas Service pursuant to this Rate Schedule is subject to negotiation between the Customer and the Company.

Payment of Bills

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 113
LARGE GENERAL TRANSPORTATION SERVICE

Availability

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 113 and the procedures set forth in the Company's Service Regulations.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is firm ~~redelivery~~ Transportation Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 103 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer firm sales Service under Rate Schedule 103, (b) the Company is able to acquire firm gas supplies and capacity necessary to provide Service under Rate Schedule 103 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide Service under Rate Schedule 103 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

Balancing, Cash-Out, and Agency Authorization

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

~~**Standby Sales Service**~~

~~The Customer may elect by written notice to the Company prior to March 1 of any year to purchase Standby Sales Service from the Company under this Rate Schedule for an annual period~~

RATE SCHEDULE 113
LARGE GENERAL TRANSPORTATION SERVICE

~~commencing the first June 1 following the notice. Customers that have purchased transportation service under this Rate Schedule without Standby Sales Service may elect such service in future annual periods only with the written consent of the Company received within 30 days of Customer's notice. Having made this election, the Customer may nominate gas supplies from third party providers or nominate gas supplies from the Company for delivery to the Customer at the Company's city gate. The Customer may activate the Standby Sales Service during any month by giving notice to the Company during the normal nomination process described above, or by default, if the Customer (or the Customer's Agent) fails to submit a timely and valid nomination for transportation service. In addition to paying the Standby Sales Service Charge each month and the Monthly Standby Index Price set forth below for quantities actually purchased hereunder, the Customer will utilize the transportation services and incur the charges otherwise applicable under this Rate Schedule to cause such gas supplies to be transported and delivered to the Customer's meter. The gas supply commodity price which the Customer shall pay for the gas supplied under this paragraph will be the Monthly Standby Index Price defined as follows:~~

~~The index price each month as first published in that month in Inside FERC's Gas Market Report in the table titled "Monthly Bidweek Spot Prices" under the heading "Louisiana/Southeast Transco, zone 3" in the column titled "Index". Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price.~~

~~If the Customer has made the annual election to receive Standby Sales Service, and the Customer (or Agent) properly submits a timely and valid nomination for transportation service, and, for whatever reason, the Customer (or Agent) fails to deliver to the Company adequate quantities of gas for the Customer's account, then the Company shall have the right, at its sole discretion, to initiate Standby Sales Service to the Customer. The price for such service shall be the same as set forth above except when the Company is required by such imbalance shortfall to purchase incremental volumes of gas supplies. In this case the Customer receiving Standby Sales Service will pay the higher of (on a daily basis) the Monthly Standby Index Price or the Daily Standby Index Price defined as the absolute high index price as published in Gas Daily for the day of consumption as stated in the "Daily Price Survey," "Louisiana/Southeast," for "Transco, zone 3" in the column titled "Absolute." Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price. For days of consumption when the Monthly Standby Index Price is not published, the Monthly Standby Index Price shall equal the corresponding Daily Standby Index Price. For days of consumption when the Daily Standby Index Price is not published, the Daily Standby Index Price shall equal the average of the corresponding Daily Standby Index Price as published on the nearest preceding and nearest subsequent day.~~

~~The Customer shall also pay all applicable taxes, fees and assessments levied by governmental authorities having jurisdiction.~~

RATE SCHEDULE 113
LARGE GENERAL TRANSPORTATION SERVICE

~~During the month that the Customer receives Standby Sales Service under this provision, the Company shall perform the necessary balancing activities related to such sales and therefore the monthly imbalance resolution provisions will not be applicable.~~

~~Gas cost variances related to the Standby Sales Service will be recorded in compliance with the Company's N.C.U.C. Service Regulations Appendix A (Procedure for Rate Adjustments Under G.S. 62-133.4), except that the "benchmark" cost of gas will be the adjusted Monthly or Daily Standby index price as billed. Increments or decrements which may result from the procedures under G.S. 62-133.4 shall not apply to Standby Sales Service. Any increments or decrements applicable to Rate Schedule 113 shall be applicable to all quantities delivered under Rate Schedule 113, whether purchased from third parties or the Company as Standby Sales Service.~~

Rates and Charges

The rates to be charged for gas service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Billing Demand

A Customer's billing demand determinant shall be the highest daily usage during the period from November 1 to March 31 of the previous winter period as metered and reported to the Company by the telemetering equipment installed by the Company. Changes to the Customer's billing demand determinant will become effective June 1 of each year.

For Customers commencing initial gas Service under this Rate Schedule, the billing demand shall be the highest actual daily consumption to date during the partial year, but shall be a minimum of 50 dekatherms. If a Customer has received gas Service from the Company prior to receiving Service under this Rate Schedule but does not have daily telemetered records to determine peak day usage as described above, the Company shall use 6% of that Customer's highest previous winter month's consumption for the billing demand determinate.

The calculation of Customer billing determinants hereunder shall not create any right to Service at a specified level. All changes to character or quantity of Service shall be subject to the Company's consent based on the evaluation and analysis described in the Company's Service Regulations.

Volumetric Charges

The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

RATE SCHEDULE 113
LARGE GENERAL TRANSPORTATION SERVICE

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service" and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 114
LARGE GENERAL INTERRUPTIBLE TRANSPORTATION SERVICE

Availability

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina **on an interruptible basis** to any full requirements non-residential Customer whose average daily gas usage is reasonably anticipated to equal or exceed 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

Upon commencement of Service under this Rate Schedule, any reclassification or change in quantity or character of Service to Customer shall be subject to the provisions of this Rate Schedule 114 and the procedures set forth in the Company's Service Regulations.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is interruptible ~~redelivery~~ Transportation Service.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule 104 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer interruptible sales Service under Rate Schedule 104, (b) the Company is able to acquire gas supplies and capacity necessary to provide Service under Rate Schedule 104 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations supports such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule 104 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

Customer at Risk in Case of Interruption or Curtailment of Service

Customers receiving Service under this Rate Schedule shall not be required to maintain alternate fuel capability; provided, however, that all business, operational, mechanical or other risks associated with the interruption or Curtailment of Service under this Rate Schedule shall be borne by Customer. Such interruption or Curtailment may be ordered by Company at any time and for any reason deemed necessary or appropriate by Company and is an inherent risk of Service under

RATE SCHEDULE 114
LARGE GENERAL INTERRUPTIBLE TRANSPORTATION SERVICE

this Rate Schedule. Such interruption or curtailment shall be immediately effective upon verbal or written notification by the Company and Customer shall refrain from using gas until permitted to do so by the Company. It is understood and agreed that the Company will have the right to suspend gas Service without further notice to the Customer in the event Customer fails to cease Customer's use of gas in accordance with the Company's notice of interruption or Curtailment.

Balancing, Cash-Out, and Agency Authorization
Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

Rates and Charges
The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Volumetric Charges
The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 142
NATURAL GAS VEHICLE FUEL -INTERRUPTIBLE SALES SERVICE

Applicability and Character of Service
Gas Service under this Rate Schedule is available at Company-operated public stations to Customers seeking to obtain Gas for placement into the fuel tank of a motor vehicle. The nature of Service provided by Company to Customer under this Rate Schedule is interruptible sales Service.

Rates and Charges
The rates to be charged for Gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates applicable to Service hereunder include a per therm charge designed to recover the costs associated with compression and related equipment necessary to provide this Service. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Highway Use Taxes
The rates to be charged for Service pursuant to this Rate Schedule do not include applicable federal, state and/or local road use or motor fuel taxes and fees. Such taxes and fees shall be added to Company's approved rates when calculating total Customer charges for Service under this Rate Schedule.

Payment of Bills
Bills for Service provided pursuant to this Rate Schedule shall be paid at the time of Service with a valid credit or debit card accepted by the Company.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 144
EXPERIMENTAL MEDIUM GENERAL MOTOR FUEL TRANSPORTATION SERVICE

Availability

Gas Service under this Rate Schedule is available, on an experimental basis, in the area served by the Company in the State of North Carolina to qualifying Customers seeking to transport Natural Gas for use as a motor fuel. Customers qualifying for this Service shall be non-residential Customers seeking to utilize Gas for motor fuel purposes only whose actual or projected average daily usage under this Rate Schedule is equal to or greater than 20 dekatherms per day but less than 50 dekatherms per day. All requests for Service under this Rate Schedule shall be subject to application to and consent by the Company to such Service, as provided in the Company's Service Regulations.

This Rate Schedule is experimental in nature and designed to (a) determine if there is a market/need for medium general transportation service by Company to Customers who intend to utilize Gas as a motor fuel, and (b) to determine whether Company's existing facilities and structures can accommodate the provision of such Service. Company reserves the right, upon reasonable notice to the Commission, to suspend Service to new Customers under this Rate Schedule in the event further Service under this Rate Schedule would threaten, interfere with, or impede Piedmont's ability to meet its other contractual obligations or efficiently operate its system and/or facilities. Absent such suspension by Piedmont, this Rate Schedule shall remain in effect for a period of two (2) years after which Service hereunder may continue to be provided subject to any proposal by Piedmont or any other interested party to terminate, extend, modify or adjust the provision of such Service.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is firm ~~Redelivery~~ Transportation Service. Gas redelivered under this Rate Schedule shall be used for motor vehicle fuel purposes only.

All gas delivered pursuant to this Rate Schedule shall be metered and billed by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

The Company will redeliver Gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

Service Interruption and Curtailment

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service" and the Company's Service Regulations.

Balancing, Cash-Out, and Agency Authorization

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

RATE SCHEDULE 144
EXPERIMENTAL MEDIUM GENERAL MOTOR FUEL TRANSPORTATION SERVICE

Rates and Charges
The rates to be charged for Gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. Rates applicable to Service hereunder, to the extent such Service includes compression of Gas for utilization as a motor vehicle fuel, may include a per therm compression charge designed to recover the costs associated with such compression and related equipment. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Volumetric Charges
The rate per therm shall be billed on the quantity of Gas delivered by Company to Customer.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

Resale
Gas delivered to Customer under this Rate Schedule may be resold solely for use as a motor vehicle fuel.

Taxes
Customer shall be solely and exclusively responsible for the payment of any local, state, or federal road tax, motor fuel tax, or similar tax, fee, or charge attributable to or arising out of the utilization of Gas delivered hereunder as a motor vehicle fuel.

RATE SCHEDULE 152
MEDIUM GENERAL SALES SERVICE

Applicability and Character of Service

Gas Service under this Rate Schedule is available in the area served by the Company in the State of North Carolina to any full requirements non-residential Customer whose average daily usage is equal to or greater than 20 dekatherms per day but less than 50 dekatherms per day, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations. Average daily gas usage will be based on the Customer's usage during the most recent calendar year ended on December 31 and adjusted for cycle length. Availability of this Rate Schedule for new Customers or for Customers without at least one full year of usage history will be based on reasonably anticipated usage.

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service. Any reclassification or change in quantity or character of Service to Customer will be subject to procedures set forth in the Company's Service Regulations.

At its option, a family care home, as defined in G.S. 168-21, may elect service under Rate Schedule 101.

Rates and Charges

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Payment of Bills

Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge

A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Service Interruption and Curtailment

Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Applicable Documents Defining Obligations of the Company and Its Customers

The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE 12
SERVICE TO MILITARY INSTALLATIONS LOCATED IN ONSLOW COUNTY

Availability

Gas Service under this Rate Schedule is available for the purchase from Company of natural gas by any military installation (Customer) located in Onslow County adjacent to Company's mains or to whom Company will extend its mains and who enters into a Service Agreement with the Company, pursuant to the Company's Service Regulations and subject to the terms and conditions of this Rate Schedule.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is firm sales Service.

The Service Agreement shall stipulate the maximum hourly and daily demand in therms and gas shall not be consumed hereunder in excess of the maximum hourly or daily demand so specified without specific permission of Company's dispatcher. Consumption in violation of this provision shall be subject to the Unauthorized Over Run Penalty provision of Rate Schedule 106.

Once a qualified Customer is approved by the Company for Service under this Rate Schedule, all Services will be provided under the terms and conditions of this Rate Schedule for a term extending through the following May 31. Subject to the requirements set forth above, a Customer may, subject to the consent of the Company, elect to discontinue Service under this Rate Schedule and receive Service under Rate Schedule T-12 by giving written notice to the Company prior to March 1 of any year. The Company will not withhold such consent provided (a) the Company continues to offer ~~redelivery~~ Transportation Service under Rate Schedule T-12, (b) the Company is able to provide Service under Rate Schedule T-12 under commercially reasonable terms and conditions, and (c) the analyses applicable to reclassifications or changes in Service set forth in the Company's Service Regulations support such consent. If timely notice is received from Customer and consent is provided by Company, the Customer shall discontinue Service under this Rate Schedule and Company shall provide service under Rate Schedule T-12 effective the first June 1 following the notice.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to Customer under any of the Company's other Rate Schedules.

Gas Service hereunder shall be through a single point of delivery or through such number of delivery points as Company and Customer may agree upon.

Rates and Charges

The rates to be charged for gas Service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

RATE SCHEDULE 12
SERVICE TO MILITARY INSTALLATIONS LOCATED IN ONSLOW COUNTY

Minimum Bill
The minimum bill shall be as provided in the Service Agreement.

Volumetric Charges
The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule Limiting and Curtailing Service," and the Company's Service Regulations.

In all cases where continuous operation of Customer's gas-using facilities is necessary, it shall be Customer's responsibility to provide, in useable condition, alternate fuel facilities and the fuel required for their operation to the extent necessary in Customer's opinion to supply 100% of the establishment's gas requirements during periods of gas interruption or curtailment.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Contract Period
The initial Service Agreement contract period for service to the military installations in Onslow County under this Rate Schedule shall be not less than ten years.

Applicable Documents Defining Obligations of the Company and Its Customer
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE T-10
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS WITH CONTRACT DEMAND IN EXCESS OF 5,000 DT PER DAY

Availability

Gas Service under this Rate Schedule is available for the delivery from Company of natural gas on a firm basis by any military installation (Customer) having natural gas requirements in excess of 5,000 dekatherms per day located adjacent to Company's mains or to whom Company will extend its mains upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations, and subject to the terms and conditions of this Rate Schedule.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is firm ~~redelivery~~ Transportation Service.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to or for Customer under any of the Company's other rate schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

Balancing, Cash-Out, and Agency Authorization

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

Rates and Charges

The rates to be charged for transportation service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Minimum Bill

Customer shall pay the monthly Demand Charge multiplied by the maximum daily demand set forth in the Service Agreement, regardless of the quantity of gas transported under this Rate Schedule during such month.

Volumetric Charges

The rate per therm shall be billed on the quantity of gas delivered by the Company to or for Customer.

Delivery Obligation

The Service Agreement shall set forth a maximum quantity in dekatherms per hour and per day that Company is required to deliver to Customer, which quantities shall not exceed the maximum delivery obligation per hour and per day specified in Customer's Service Agreement

RATE SCHEDULE T-10
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS WITH CONTRACT DEMAND IN EXCESS OF 5,000 DT PER DAY

with the Company. Consumption in violation of this provision shall be subject to the Unauthorized Gas~~Over Run P~~penalty provision of Rate Schedule 106.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE T-12
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS IN ONSLOW COUNTY

Availability

Gas Service under this Rate Schedule is available for transportation by Company of natural gas for any military installation (Customer) located in Onslow County adjacent to Company's mains or to whom Company will extend its mains and who enters into a Service Agreement with the Company, upon application to and consent by the Company to such Service, as provided in the Company's Service Regulations, and subject to the terms and conditions of this Rate Schedule.

Character of Service

The nature of Service provided by Company to Customer under this Rate Schedule is firm ~~redelivery~~ Transportation Service.

All gas delivered pursuant to this Rate Schedule shall be metered by the Company separately from any gas delivered to or for Customer under any of the Company's other Rate Schedules.

The Company will redeliver gas received by the Company from upstream pipeline(s) for the Customer's account under this Rate Schedule in accordance with the Customer's scheduled and confirmed nominations and subject to the Company's Operating Conditions.

Balancing, Cash-Out, and Agency Authorization

Service under this Rate Schedule shall be subject to all of the provisions and requirements of Rate Schedule 107, "Balancing, Cash-Out, and Agency Authorization."

~~**Standby Sales Service**~~

~~The Customer may elect by written notice to the Company prior to March 1 of any year to purchase Standby Sales Service from the Company under this Rate Schedule for an annual period commencing the first June 1 following the notice. Customers that have purchased transportation service under this Rate Schedule without Standby Sales Service may elect such service in future annual periods only with the written consent of the Company received within 30 days of Customer's notice. Having made this election, the Customer may nominate gas supplies from third party providers or nominate gas supplies from the Company for delivery to the Customer at the Company's city gate. The Customer may activate the Standby Sales Service during any month by giving notice to the Company during the normal nomination process described above, or by default, if the Customer (or the Customer's Agent) fails to submit a timely and valid nomination for transportation service. In addition to paying the Standby Sales Service Charge each month and the Monthly Standby Index Price set forth below for quantities actually purchased hereunder, the Customer will utilize the transportation services and incur the charges otherwise applicable under this Rate Schedule to cause such gas supplies to be transported and delivered to the Customer's meter. The gas supply commodity price which the Customer shall pay for the gas supplied under this paragraph will be the Monthly Standby Index Price defined as follows:~~

RATE SCHEDULE T-12
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS
IN ONSLOW COUNTY

~~The index price each month as first published in that month in Inside FERC's - Gas Market Report in the table titled "Prices of Spot Gas Delivered to Pipelines" under the heading "Transcontinental Gas Pipe Line Corp. - Zone 3 (pooling points)" in the column titled "Index". Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price.~~

~~If the Customer has made the annual election to receive Standby Sales Service, and the Customer (or Agent) properly submits a timely and valid nomination for transportation service, and, for whatever reason, the Customer (or Agent) fails to deliver to the Company adequate quantities of gas for the Customer's account, then the Company shall have the right, at its sole discretion, to initiate Standby Sales Service to the Customer. The price for such service shall be the same as set forth above except when the Company is required by such imbalance shortfall to purchase incremental volumes of gas supplies. In this case the Customer receiving Standby Sales Service will pay the higher of (on a daily basis) the Monthly Standby Index Price or the Daily Standby Index Price defined as the absolute high index price as published in Gas Daily for the day of consumption as stated in the "Daily Price Survey," "Louisiana - Onshore South," for "Transco, St. 65" in the column titled "Absolute." Applicable firm transportation part 284 tariff commodity charges, fuel and any other surcharges as defined in Transco's FERC approved tariffs from Transco's zone 3 to zone 5 will be added to the above index price. For days of consumption when the Gas Daily is not published, the Gas Daily price shall equal the price as published on the nearest subsequent day by Gas Daily.~~

~~The Customer shall also pay all applicable taxes, fees and assessments levied by governmental authorities having jurisdiction.~~

~~During the month that the Customer receives Standby Sales Service under this provision, the Company shall perform the necessary balancing activities related to such sales and therefore the monthly imbalance resolution provisions will not be applicable.~~

~~Gas cost variances related to the Standby Sales Service will be recorded in compliance with the Company's Service Regulations Appendix A (Procedure for Rate Adjustments Under G.S. 62-133.4), except that the "benchmark" cost of gas will be the adjusted Monthly or Daily Standby index price as billed. Increments or decrements which may result from the procedures under G.S. 62-133.4 shall not apply to Standby Sales Service. Any increments or decrements applicable to this Rate Schedule shall be applicable to all quantities delivered under this Rate Schedule, whether purchased from third parties or the Company as Standby Sales Service.~~

Rates and Charges

The rates to be charged for transportation service pursuant to this Rate Schedule are set forth on the Company's "Rates and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the

RATE SCHEDULE T-12
TRANSPORTATION SERVICE TO MILITARY INSTALLATIONS
IN ONSLOW COUNTY

North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.

Minimum Bill
The minimum bill for service under this rate schedule shall be satisfied by the minimum bill payable under Customer's Service Agreement with Company.

Volumetric Charges
The rate per therm shall be billed on the quantity of gas delivered by the Company to or for Customer.

Delivery Obligation
The Service Agreement shall set forth a maximum quantity in dekatherms per hour and per day that Company is required to deliver to Customer, which quantities shall not exceed the maximum delivery obligation per hour and per day specified in Customer's Service Agreement with the Company. Consumption in violation of this provision shall be subject to the Unauthorized ~~Over Run~~Gas p~~P~~enalty provision of Rate Schedule 106.

Service Interruption and Curtailment
Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.

Payment of Bills
Bills are net and due upon receipt. Bills become past due 15 days after bill date.

Late Payment Charge
A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.

Applicable Documents Defining Obligations of the Company and Its Customers
The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.

RATE SCHEDULE ST-1
STANDBY ON-PEAK SUPPLY SERVICE

~~Availability~~

~~Gas Service under this Rate Schedule is available at Company's sole discretion, and upon application to and consent by the Company to this Service, as provided in the Company's Service Regulations, to any existing Customer who has entered into a Service Agreement for this Rate Schedule prior to November 1, 2003. This Service will only be available in the months from November through March and must be contracted for the full period.~~

~~Character of Service~~

~~The nature of Service provided by Company to Customer under this Rate Schedule is standby on-peak supply Service.~~

~~Customer may request deliveries under this Rate Schedule whenever Company has issued a Curtailment Order to Customer under one or more of Company's other Rate Schedules or special contracts or under its Service Regulations. Customer may not request more than the maximum daily quantity or, cumulatively, more than the maximum seasonal quantity set forth in Customer's Service Agreement for Service hereunder. If Company issues a restoration of service order terminating Company's Curtailment Order, Customer's service shall revert to the Rate Schedule(s) affected by such restoration of service order, as of the effective time of such order, and Customer's request for deliveries under this Rate Schedule shall be deemed to have been reduced to the quantity of gas actually delivered to Customer hereunder prior to the effective time of such restoration of service order.~~

~~Rate~~

~~The applicable monthly per dekatherm Daily Demand Charge and Seasonal Demand Charge and the per therm Commodity Charge are set forth on the Company's "Rate and Charges" tariff sheet and may be viewed at the Company's Web Site at www.piedmontng.com. A copy of the "Rates and Charges" tariff sheet is also on file with the North Carolina Utilities Commission and available from the Company. Rates are subject to adjustment from time to time with the approval of the North Carolina Utilities Commission.~~

~~The Daily Demand Charge and Seasonal Reservation Charge shall be payable for each month of the service period of November through March based on the maximum daily and seasonal quantities set forth in Customer's Service Agreement for Service hereunder.~~

~~Minimum Bill~~

~~Customer shall pay the monthly Daily Demand Charge and monthly Seasonal Reservation Charge multiplied by the maximum daily and seasonal quantities set forth in Customer's Service Agreement for Service hereunder for each month of the service period of November through March regardless of the quantity of gas purchased under this Rate Schedule during each such month.~~

RATE SCHEDULE ST-1
STANDBY ON-PEAK SUPPLY SERVICE

~~**Volumetric Charges**~~
~~The rate per therm shall be billed on the quantity of gas delivered by Company to Customer.~~

~~**Delivery Obligation**~~
~~The maximum daily and seasonal quantities of natural gas which the Company is obligated to deliver to Customer under this Rate Schedule shall be set forth in Customer's Service Agreement.~~

~~**Payment of Bills**~~
~~Bills are net and due upon receipt. Bills become past due 15 days after bill date.~~

~~**Late Payment Charge**~~
~~A late payment charge of 1% per month will be applied to all balances not paid prior to the next month's billing date.~~

~~**Service Interruption And Curtailment**~~
~~Gas Service under this Rate Schedule is subject to the provisions contained within Rate Schedule 106, "Schedule for Limiting and Curtailing Service," and the Company's Service Regulations.~~

~~**Applicable Documents Defining Obligations of the Company and Its Customer**~~
~~The applicable documents defining the obligations of the Company and its Customers are those described in Section 3 of the Company's Service Regulations.~~

1. Foreword. Piedmont Natural Gas Company, Inc. is a natural gas distribution company and is engaged in the business of selling and transporting natural gas for various Customers. The purpose of these Service Regulations is to set forth the respective obligations of the Company and its North Carolina Customers. These Service Regulations, as well as the Company's approved Tariffs and Rate Schedules, apply to all Service rendered by the Company.

2. Definitions. As used in these Service Regulations, the following terms shall have the meanings assigned below:

(a) "Applicant" shall mean any person, firm, association, partnership, joint venture, limited liability company, or corporation, or any agency of the Federal, State or local government applying for gas service from the Company.

(b) "Bill Cycle Month" shall mean the period from a Customer's current meter read date to their previous meter read date.

(c) "British Thermal Unit" (Btu) shall mean the quantity of heat necessary to raise the temperature of one (1) pound of water one (1) degree Fahrenheit from 58.5 to 59.5 degrees Fahrenheit under standard pressure of 30 inches of mercury at or near its point of maximum density.

(d) "City Gate" shall mean the outlet side of the interstate pipeline meter that connects to the Company's system.

(e) "Commission" shall mean the North Carolina Utilities Commission or any subsequent state administrative agency, which regulates gas utilities operating within the State of North Carolina.

(f) "Commission Rules" shall mean the Rules and Regulations of the Commission.

(g) "Company" shall mean Piedmont Natural Gas Company, Inc.

(h) "Cubic Foot of Gas" is the volume of gas which occupies one (1) cubic foot at a temperature of 60 degrees Fahrenheit and at a pressure of 14.73 pounds per square inch absolute (psia), except that when gas is delivered at a pressure normally used for residential appliances, a cubic foot of gas shall be deemed to be that quantity of gas which, at the temperature and pressure existing in the meter, occupies one (1) cubic foot. The Cubic Foot of Gas is the basic measurement unit used by the Company.

(i) "Curtailment" or "Interruption" is the interruption or cessation of gas service as permitted by the Commission rules and the terms of the Company's Rate Schedules, Special Contracts, or Service Regulations.

(j) "Customer" shall mean any person, firm, association, partnership, joint venture, limited liability company, or corporation, or any agency of the Federal, State or local government receiving Service at a Premises and through a single Gas Service Line from the Company. In the case of Service rendered in accordance with Chapter 24 of the Commission's Rules and Regulations, the term Customer shall include Providers as defined in Rule R24-2(d).

(k) "Customer's Agent" shall mean a person or other entity authorized to act for or on behalf of a Customer.

(l) "Cycle Month" is a period beginning on a gas Day, at the point of delivery on the first Day of the calendar month and ending at the aforesaid time on the first Day of the succeeding calendar month.

(m) "Day" is a period of 24 consecutive hours as defined in the FERC Gas Tariff of Transcontinental Gas Pipe Line Corporation, or its successor.

(n) "Dekatherm" is the basic energy unit purchased by the Company and shall mean the unit of energy equivalent to 1,000,000 Btus.

(o) "Force Majeure" shall mean acts of God, extreme weather conditions, strikes, lockouts, or other industrial disturbances, acts of the public enemy or terrorists, war, blockades, insurrections, riots, epidemics, landslides, lightning, earthquakes, fires, hurricanes, tornadoes, storms, floods, washouts, arrests and restraints of governments and people, the order of any court or government authority having jurisdiction while the same is in force and effect, civil disturbances, explosions, act of sabotage or terrorism, breakages or freezing of or accidents or damage to wells, machinery, lines of pipe or the Company's other facilities (including, without limitation, Mains, Gas Service Lines, Service Facilities, Meter Assemblies, LNG facilities, and compression equipment), National Weather Service warnings or advisories, whether official or unofficial, that result in the evacuation of facilities, partial or complete curtailment of deliveries to the Company by its suppliers, reduction in gas pressure by its suppliers, inability to obtain or unavoidable delay in obtaining rights-of-way or permits or materials, equipment or supplies for use in the Company's facilities, and any other causes, whether of the kind herein enumerated or otherwise, not within the control of the Company and which by the exercise of due diligence the Company is unable to prevent

or overcome. It is understood and agreed that the settlement of strikes or lockouts shall be entirely within the discretion of the Company, and that the Company shall not be required to settle strikes or lockouts when such course is inadvisable in the discretion of the Company.

(p) "Gas" or "Natural Gas" shall mean processed or unprocessed natural gas, vaporized liquid natural gas, synthetic gas, gas from coal seams or any mixture of these gases.

(q) "Gas Service Line(s)" shall mean the pipe or pipes that run between a Main or a pipe and a Customer's Meter. As determined by and in the Company's discretion, more than one Gas Service Line may be connected in order to deliver service to multiple Customer Meters from a single Main connection.

(r) "Main" shall mean a gas pipe, owned, operated or maintained by the Company, which is used for the purpose of transmission or distribution of gas, but does not include Gas Service Line.

(s) "Margin" for curtailment purposes, shall mean the filed tariff rate per unit of gas or negotiated rate per unit of gas for a Customer, less the per unit cost of gas, where applicable, as determined in the Company's last general rate case or Purchased Gas Adjustment Procedure, adjusted for any Commission approved temporary decrements or increments in the filed tariff rate.

(t) "Meter", without other qualification, shall mean any device, or instrument which is used by the Company in measuring a quantity of gas.

(u) "Meter Assembly" shall mean Company's meters, regulator, piping, valves, vents, relief valves, gauges and/or other apparatus required to meter and control the flow and/or pressure of gas.

(v) "Operating Conditions" shall mean the prevailing conditions on the Company's system as they relate to conditions under which Piedmont is providing or attempting to provide service, including the impact of any modifications, tests or scheduled or unscheduled repairs to the Company's distribution system, which in the Company's discretion are necessary or appropriate to maintain the integrity of the Company's distribution system or to provide for the safety of the Company or the public.

(w) "Operational Order" shall mean an order by Company's dispatcher, or other Company representative acting on behalf of Company's dispatcher, to limit, modify, curtail or interrupt the use of Natural Gas as required or permitted by the Commission Rules and the Company's Service Regulations, Special Contracts, and Rate Schedules.

(x) "Premises" shall mean a single contiguous piece of land or real estate, including buildings and other appurtenances thereon.

(y) "Rate Schedules" shall mean the Company's various rate schedules approved by and on file with the Commission, as the same may be changed or amended from time to time.

(z) "Service(s)" shall mean any sales, ~~transportation~~Transportation, redelivery or other service provided by the Company to a Customer pursuant to the provisions of the Company's filed and approved Rate Schedules, Special Contracts, or Service Regulations.

(aa) "Service Facilities" are all Natural Gas delivery equipment and gas service piping to a Customer's Meter that the Company considers necessary to safely serve the Customer's connected gas equipment.

(bb) "Service Regulations" shall mean the Company's Service Regulations approved by and on file with the Commission as the same may be changed or amended from time to time.

(cc) "Special Contract" shall mean any contract for Services entered into between the Company and a Customer that provides for rates, terms or conditions of service that vary from those set forth in the Company's tariffs, Rate Schedules or Service Regulations.

(dd) "Transportation" shall mean the receipt of Natural Gas supplies that have been delivered by or on behalf of the Customer to the Company's City Gate and the redelivery of such Natural Gas supplies to the Customer's Premises.

(ee) "Unauthorized Gas" shall have the meaning set forth in Rate Schedule 106.

3. Applicable Documents Defining Obligations of the Company and its Customers. The obligations of the Company to provide Service and the obligations of the Customer upon receipt of Service are governed by and set forth in (a) applicable statutes, including those set forth in Chapter 62 of the North Carolina General Statutes, (b) applicable Commission Rules, (c) applicable tariffs or Rate Schedule(s), (d) these Service Regulations, (e) any application, agreement, Special Contract, or similar document executed by Customer and approved, as necessary, by the Commission pertaining to such service, and (f) any standard operating procedures of the Company reasonably necessary for the provision of such Service and administered on a nondiscriminatory basis. Copies of Chapter 62 of the General Statutes, applicable Commission Rules, Rate Schedules, and these Service Regulations are available from the Company for public inspection, as are

copies of forms of applications, agreements, and other documents approved by the Commission. A copy of the Commission's Rules may also be obtained from the Chief Clerk of the North Carolina Utilities Commission, 4325 Mail Service Center, Raleigh, North Carolina, 27699-430025, upon payment of the applicable fee or at the Commission's Web Site at www.ncuc.net. Unofficial copies of the Company's Rate Schedules and Service Regulations are also available at the Company's Web Site at www.piedmontng.com. The Company shall provide all new non-residential Customers with a copy of the applicable Rate Schedule(s) and written application for Service and/or other documents executed by the Company and the Customer pertaining to such Service. After a Customer has executed a written application and/or contract, no promise, statement or representation by an employee or agent of the Company or by any other person inconsistent with the written application and/or contract shall bind the Company to provide Service or to change the terms and conditions upon which Service will be rendered unless the same is in writing and is executed by an authorized representative of the Company. In the event there is a conflict between these Service Regulations and the provisions of the applicable currently effective Rate Schedule, the provisions of the Rate Schedule shall govern. The Commission Rules shall govern in the event of a conflict with these Service Regulations. The Company may not make any representation that conflicts with Commission Rules, its Rate Schedules or these Service Regulations.

4. Applicable Documents Subject to Change. All of the documents defining the obligations of the Company to provide Service and the obligations of the Customer upon the receipt of Service are subject to change from time to time upon order of or approval by the Commission and by other duly constituted governmental authorities. The Company does not undertake to advise any Customer of any such change except as may be required by the Commission or other duly constituted governmental authority.

5. Delivery Pressure. The Company will provide to Residential Customers a delivery pressure of either 7 inches water column (approximately ¼ pounds per square inch, gauge (psig)) or 2 psig. Small, Medium~~Commercial~~ and Large General Customers can be provided a delivery pressure of up to 5 psig. The Company will consider providing delivery pressures greater than 5 psig on a case-by-case basis provided (l) it receives a request in writing, and (2) greater pressures are justified by requirements of Customer's Gas burning equipment or compression equipment. Approval will be conditioned on the Company's distribution system pressure availability and documentation supporting the need for a delivery pressure greater than 5 psig. Exceptions are subject to the approval of the Company.

6. Non-Waiver. The failure of the Company to enforce any provision of any applicable documents defining the obligations of the Company and its Customers shall not be deemed to be a continuing waiver of such provisions for any Customer or a waiver of any other provision of any of the applicable documents.

7. Process for Obtaining Consent to New or Changed Service. All Customers shall be required to make application to the Company for new or changed Service under any of the Company's Rate Schedules in such form and manner as may reasonably be required by the Company. Such applications shall be required in order to initiate Service under any Rate Schedule irrespective of whether Customer is then receiving service under any other Company Rate Schedule and for changes in the quantity of Service to be provided under an existing Rate Schedule. At a minimum, such application shall set forth the date of the application, the name of the Applicant, the location of the Premises for which Service is requested, the type of Service applied for and estimated Gas consumption. Prior to being obligated to provide Service to Customer pursuant to such application, Company shall conduct an examination and review of Customer's application for Service to determine: (1) that the Company has the operational ability to provide the Service requested, including the requisite upstream supply and/or capacity assets; (2) that the requested Service will not impede or interfere with the Company's ability to maintain Service to existing Customers with the same or a higher priority of service; (3) that provision of the requested Service will not have a materially adverse impact on the Company's ability to recover its approved margin; (4) that provision of the requested Service is economically feasible; and (5) that Customer is creditworthy as determined in accordance with the Commission's Rules and the Company's procedures. Provided that the Company's review and analysis indicates that Service can be provided as requested, the Company will then approve the requested Service. Company shall have no obligation to provide the requested Service absent such approval.

When the requested Service is to be provided to a Residential, Small or Medium General Service Customer, and the provision of such Service is economically feasible, the application and the Company's acceptance thereof may be oral at the Company's option. In such event, the Company's applicable Rate Schedules and these Service Regulations shall become effective and applicable to any Service rendered to such Applicant in the same manner as if the Company's standard written form of application for Service had been signed by the Applicant and accepted by the Company. Upon the provision of Service by the Company to such Customer, such oral service agreement shall be presumed to exist in any case where there is no written application accepted in writing by the Company.

In the event a Customer receiving Service under the Company's ~~commercial or industrial (l~~Large Ggeneral~~)~~ sales Rate Schedules anticipates a reduction in its Gas consumption, it shall provide prompt notice thereof to Company.

8. Gas Quality and **WAIVER OF WARRANTIES**. All Gas delivered by the Company originates from upstream sources of supply over which the Company has no control. The quality requirements associated with such Gas are, for traditional sources of geologic natural gas, matters under the exclusive jurisdiction of the Federal Energy Regulatory Commission and, for non-geologic Alternative Gas, matters governed by Appendix F hereto. As such, the Company shall have no liability to Customer or to any third-party

recipient of Gas (in cases of Customer resales of Gas) for damages of any kind related to or arising from the quality or constituent characteristics of Gas delivered or sold to Customer. **ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE THAT MIGHT OTHERWISE ATTACH OR BE APPLICABLE TO THE SALE OF GAS FOR RESALE IS HEREBYDISCLAIMED AND WAIVED.** Company shall further have no responsibility to process, condition or otherwise modify Gas delivered to its system for ~~redelivery~~ Transportation or sale to Customers. It is Customer's (and any third-party recipient's) sole responsibility to install, adjust, maintain, and operate their Gas burning equipment in a manner consistent with the prevailing quality of Gas delivered to the Company.

9. Non-Assignability of Right to Service. Any rights which accrue to the Customer under any of the applicable documents defining the obligations of the Company and its Customers are personal to Customer and may not be transferred or assigned without the written consent of the Company.

10. Vacated Premises. The Customer will notify the Company before quitting or vacating the Premises served and will pay, upon presentation, all bills due the Company for Service at the Premises. In the absence of the notice required by this paragraph, Customer shall remain fully liable for all Gas usage at the Premises on a continuing basis.

11. Right-of-Way. The Customer shall at all times furnish the Company a satisfactory and lawful right-of-way, at no cost to the Company, onto the Customer's Premises for the installation or servicing of Mains, Gas Service Lines, Meter Assemblies and other apparatus or Service Facilities necessary or incidental to the furnishing of Service to the Customer. The obligation of the Company to supply Service is dependent upon the Company securing and retaining all necessary rights-of-way, privileges, franchises or permits, for the delivery of such Service, and the Company shall not be liable to the Customer for any failure to deliver Service because of the Company's inability to secure or retain such rights-of-way, privileges, franchises or permits.

12. Access to Customer's Premises. The Company shall at all reasonable times have the right of ingress to and egress from the Premises of the Customer for any and all purposes connected with the delivery or termination of Service. The Company shall have the right, at its option and at its own expense, to place demand meters, pressure gauges, or other instruments on the Premises of the Customer for billing, testing, or other purposes with respect to the Customer's Service.

If a condition exists on a Premises, which in the Company's opinion is dangerous to Company employees or facilities and/or prevents normal access to the Company's facilities, including Meters, the Company may at its sole option and at the sole expense of the Customer remove or relocate its Service Facilities, Meter Assemblies and accessory equipment.

13. Installation and Maintenance of Facilities. The Company will install and maintain the necessary Mains, Gas Service Lines, Service Facilities, valves, regulators, Meter Assemblies, over-pressure devices, indexes, gauges, and/or other equipment or facilities required to provide Service. All facilities from the point of connection at the outlet of the Meter Assembly shall be owned, installed and maintained by and at the expense of the Customer. Notwithstanding the foregoing two sentences, Company and Customer may agree that the Company will construct compression and/or metering equipment required for utilization of Gas as a motor vehicle fuel and that such facilities shall remain the property of Company even if some or all such facilities are downstream of Customer's Meter Assembly. The method of recovery of the costs of such additional facilities shall be agreed upon by the Company and Customer. The Company may specify the content and pressure of the Gas to be furnished, the location of the Meter and the point where the service connection shall be made. The Company's obligation to install all such equipment and facilities, and to otherwise provide Service to Customer, shall be subject to Company's prior consent obtained through the processes set forth in paragraph 7 of these Service Regulations. Nothing in this section or any other provision of these Service Regulations shall prevent Customer, at its own expense, from constructing compression and/or metering equipment required for utilization of Gas as a motor vehicle fuel, provided that Customer complies with all other provisions of these Service Regulations and Company's Rate Schedules applicable to the utilization of Gas as a motor vehicle fuel.

For residential Customers, a presumption of the feasibility of providing new Service shall exist, and the connection of facilities needed to provide Service will be at no cost to the residential Customer, if (1) at a minimum, the Customer will be installing central gas primary heating, (2) the Gas Service Line extends along the route selected by the Company, (3) a Company distribution Main borders the Customer's Premises and (4) the Gas Service Line is no more than 100 feet in length. In the event that the above conditions are not met for new residential Customers, and in all cases of applications for changed residential Service or new or changed Service under non-residential Rate Schedules, the Service to be rendered to the Customer must provide a reasonable return to the Company. If the Customer wishes the facilities to be constructed along a route other than the route selected by the Company and/or if the Gas Service Line is more than 100 feet (for residential Customers) and/or the Service to be rendered to the Customer will not produce a reasonable return to the Company, the Company may require the Customer to pay the excess cost of constructing the facilities along the alternate route or in excess of 100 feet, provide a minimum margin commitment for Service to be rendered through the facilities, and/or to make a contribution which will permit the Company to earn a reasonable return on the facilities needed to provide Service.

14. Relocation of Facilities and Placement of Excess Flow Valves.

(a) After a Service connection has been made, it may be relocated on the Customer's Premises by the Company upon request of the Customer. The

Customer must agree to change the location of the right-of-way and to bear the expense of the relocation, except to the extent such expense is offset by any additional load gained in connection with such relocation, as reasonably determined by Company. The relocation will not be made where it will interfere with or jeopardize the Company's Service either to the Customer desiring the change or to any other Customer(s). All rights of the Company incidental to the original location shall apply to the new location.

(b) Customer has the right to request the placement of an Excess Flow Valve ("EFV") on any Gas Service Line that does not already have such a valve installed. Company shall work with the Customer to reasonably determine the date of such installation. The installation will not be made where it will interfere with or jeopardize the Company's Service either to the Customer desiring the installation or to any other Customer(s). As a precondition to installation of an EFV, Customer shall be required to enter into a written agreement with Company reflecting the terms of such installation and assuming responsibility for all of the actual costs of such installation. Company shall be entitled to collect a deposit on such costs prior to initiating installation of the EFV in the amount of the estimated cost of installation.

15. Title to the Facilities. The title to all facilities including Mains, Service Facilities, Gas Service Lines, Meters and accessory equipment up to and including the outlet of the Meter Assembly, and any additional Company owned facilities for the compression or metering of Gas as a motor vehicle fuel downstream of the Meter Assembly, shall be vested in the Company, notwithstanding any charge which may be made to the Customer or payment made by the Customer for placement or relocation thereof.

16. Responsibility Beyond Delivery Point.

(a) All piping and equipment installed by or on behalf of the Customer must be installed and maintained in accordance with the requirements of the local, county, state, and federal authorities, and the Customer shall keep in good and safe repair and condition all such piping and equipment from the outlet side of the Meter.

(b) If the Customer's equipment might create either a vacuum or a backpressure, a device must be installed and maintained by the Customer to protect the Company's facilities.

(c) Company shall not be responsible for equipment failures or malfunctions attributable to the Customer's or third-party recipient's failure to install or operate equipment appropriate for the Service provided by the Company

including but not limited to the pressure and chemical composition of Gas delivered to Customer.

(d) The Company's responsibility is to deliver Gas to the Customer at the outlet side of the Meter Assembly serving Customer in accordance with the applicable documents defining the obligations of the Company and its Customers. The Company is not responsible for the installation or maintenance of any pipes, facilities, gas using equipment or any other property beyond the point of delivery to the Customer, except for any compression and/or metering equipment for the utilization of Gas as a motor vehicle fuel over which Company maintains ownership. As between the Company and the Customer, the installation, maintenance and use of any pipes, facilities, gas using equipment or any other property beyond the outlet side of the Meter Assembly other than that owned by Company is the sole responsibility of the Customer.

17. Interference with Company Property. The Customer shall not tamper, interfere with or alter the Company's Meters or other property or permit the same to be done by any person other than the Company's authorized agents or employees. Damages caused or permitted by the Customer to said property shall be paid for by the Customer. North Carolina law makes it unlawful to alter, tamper with or by-pass a Gas Meter. This law provides for fines and/or imprisonment at the discretion of the court for this offense. In addition, this statute provides for recovery in a civil action by the Company for losses and damages sustained.

18. Excavation in Proximity of Company's Facilities. The Customer shall inform the Company of planned excavation activities in the proximity of the Company's facilities by calling 811 at least 48 business hours in advance of the planned excavation activities. The Customer will notify the Company prior to any additions or changes at the Customer's Premises which will extend over, under, or in close proximity to the Company's facilities, Mains, Meters, Gas Service Lines or Service Facilities.

19. Prohibition Against Resale of Gas. Gas is sold and/or delivered upon the express condition that the Customer shall not directly or indirectly sell or resell, assign, deliver, or otherwise dispose of Gas, or any part thereof, to any person, firm, or corporation, except where (i) Service is provided under a Rate Schedule specifically providing for resale or (ii) is permitted pursuant to Chapter 24 of the Commission's Rules and Regulations.

20. No Liability for Curtailment/Interruption of Service or Damages. In the event of a Curtailment or ~~interruption~~Interruption of Service, regardless of cause, the Company shall use all reasonable diligence to remove the cause or causes thereof, but the Company shall not beliable for any loss or damage resulting directly or indirectly from such Curtailment or interruption. In the event of a resale of Gas by Customer, Company shall

not be liable to Customer or to any third-party with respect to damage to persons, property, or business interests arising from or attributable to the resale and/or utilization of Gas delivered to Customer except to the extent such damage is the direct, proximate, and sole result of Company's gross negligence or intentional wrongful conduct. Company shall not be responsible for the utilization of Gas by Customer or third-parties beyond its facilities.

21. Action to Maintain System Integrity. When the Company, in its sole discretion, determines that it is necessary to modify, curtail or interrupt service to maintain the integrity of its distribution or transmission system, to provide for its or the public's safety, or otherwise when Operating Conditions are such that the Company deems such action to be necessary, the Company shall have the right to limit, modify, curtail or interrupt Service to any Customer through the issuance of an Operational Order. The Company shall not be liable for any loss or damage resulting from such Curtailment or ~~interruption~~Interruption of Service. Violation of such Operational Orders by any Customer shall subject such Customer to disconnection and/or financial penalties as provided in Rate Schedule 106.

22. Discontinuance of Service. The Company, subject to the Commission Rules, shall have the right to modify, suspend or discontinue its Service for (a) repairs or other necessary work on its Mains or systems, (b) nonpayment of bills in accordance with Rules R6-16, R12-8 and R12-10 of the Commission Rules, as the same may be amended from time to time, and (c) for any of the following reasons:

(a) For any material misrepresentation as to the identity of the Customer making the application for Service.

(b) For a material violation by the Customer of any terms or conditions of the documents that are approved by the Commission defining the obligations of the Company to provide Service and the obligations of the Customer upon the receipt of Service.

(c) For the reason that the Customer's use of the Company's Service is detrimental to the service of other Customers. This may cover a Customer's failure, directly or indirectly, to deliver Gas to the Company or the violation by the Custom of an Operational Order.

(d) For the reason that the Customer's use of the Company's Service conflicts with or violates orders, ordinances or laws of the State of North Carolina, or any subdivision thereof, or of the Commission or of any other governmental agency having jurisdiction over the Company or the Customer.

(e) For the reason that piping, equipment, appliances or devices are installed or in use on the Customer's Premises, which permit the Gas to be used without passing through the Company's Meter, or which prevent, or interfere with the accurate measuring of the Gas by the Company's Meter.

(f) For failure of the Customer to make, restore, or increase his deposit as required.

(g) In the event of any condition determined by the Company to be hazardous.

(h) In the event of tampering with the facilities and/or equipment installed and owned by the Company.

(i) In the event of Operating Conditions or events of Force Majeure.

Where the Service has been discontinued for any reason except for the failure to pay for repairs or other necessary work by the Company, the Company shall have the right to refuse Service at the same Premises where there is clear, documented evidence of action taken by the Applicant with the intent to evade payment for utility Services. The Company may require reasonable proof of identity of the Applicant as a condition to providing Service.

23. Removal of Equipment. In the event of discontinuation of Service, the Company may enter the Premises of the Customer at any reasonable time and remove the Company's Meters, apparatus, appliances, fixtures or other property.

24. Non-Waiver of Default. Any delay or omission on the part of the Company in exercising its right to discontinue or suspend Service, or the acceptance of a part of any amount due, shall not be deemed a waiver by the Company of such right so long as any default in whole or in part or breach of contract on the part of the Customer shall continue, and whenever and as often as any default or breach of contract shall occur.

25. Establishment of Credit by Customer. The Company may require an Applicant for Service, or any existing Customer, to satisfactorily establish credit in accordance with the provisions of Rule R12-2 of the Commission Rules or to reestablish credit in accordance with the provisions of Rule R12-3 of the Commission Rules as the same may be amended from time to time. Applicants for new or changed service may be required to provide standard credit information at the request of Company in connection with the establishment or continuation of Service and to evidence continued creditworthiness for continuation of service in accordance with the Company's procedures.

26. Deposits. The Company may require a cash deposit prior to establishing, reestablishing, or continuing existing Service as one way for the Customer to establish credit in accordance with the provisions of Chapter 12 of the Commission Rules as the same may be amended from time to time.

27. Billing Procedure.

(a) Meters will be read and bills rendered monthly for each Customer account on a cycle basis of approximately thirty (30) days. All bills are due and payable when rendered and become past due after twenty-five (25) days in the case of residential Customers and fifteen (15) days in the case of Customers other than residential, from the date the bill is rendered.

~~(a)~~(b) The Company shall measure all Gas in cubic feet and convert the volume of Gas measured to therms or dekatherms, as applicable, for billing purposes by multiplying such volume by the BTU factor. The BTU factor shall be based on the weighted average BTU content of Gas entering Piedmont's eastern and western system, as applicable, for the days of Customer's billing cycle.

~~(b)~~(c) A late payment charge of one percent (1%) per month will be applied to all Customer's balances not paid prior to the next month's billing date.

~~(c)~~(d) The Company will deliver to the Customer a monthly bill of the amount due to the Company by mailing said bill by first-class mail to the mailing address furnished by the Customer or, at the Customer's election with Company agreement, by sending the bill electronically by way of computer internet connection. As long as the Company has placed the bill in the mail or sent the bill electronically on or before the billing date, a Customer's failure to receive a bill will not entitle the Customer to any extension of time for payment beyond the past due date. For Customers that elect, with the consent of the Company, to receive their bills electronically, notices regarding rate or Service changes, account status, or other notices typically provided with written bills, shall also be provided electronically.

~~(d)~~(e) The Company may, in its discretion and upon reasonable terms, accept major credit cards as payment of the monthly bill.

~~(e)~~(f) Where a Meter for any reason is not read at the regular reading date, the Company may estimate the amount of Service used by referring to the Customer's history of consumption for a similar prior period. To the extent practicable, the Company will avoid sending a Customer two successive estimated bills; however, in cases of Force Majeure, including actions or inaction rendering the Meter unreadable, bill estimates may be permitted for two successive billing periods, or greater. The Company will bill the

Customer on the basis of the estimated use and will make any necessary adjustments when the Meter is next read.

~~(f)~~(g) No claim or demand which the Customer may have against the Company shall be offset or counter-claimed against the payment of any sum of money due the Company by the Customer for Services rendered, and all such sums shall be paid in accordance with the applicable documents defining the obligations of the Company and the Customer regardless of such claim or demand.

~~(g)~~(h) Monthly charges will not be prorated and will be assessed in full for provision of Gas Service during a partial billing period, except that if an initial bill covers 5 or fewer days of a billing period, no monthly charge will be assessed.

~~(h)~~(i) Customers shall not be entitled to aggregate usage from different Premises or Customer accounts for billing or any other purposes.

~~(i)~~(j) Customers who elect, with the consent of Company, to receive their bills electronically, shall also receive initial notices of disconnection of Service for nonpayment through electronic means as part of their regular bill, as anticipated by Commission Rule R12-10.

28. Adjustment of Bills Due to Failure or Inaccuracy of Meter. Bills which are incorrect due to meter or billing errors will be adjusted as provided in Rule R6-15 of the Commission Rules as the same may be amended from time to time.

Transportation Customers requiring adjustment to their bills for Meter failure or inaccuracy shall be adjusted in accordance with Rule R6-15 except for the commodity portion which will be cashed out in accordance with Rate Schedule 107.

29. Returned Check Charge. Where the Customer makes payment for Service by check which is not honored or paid by the bank, full payment will immediately be due and payable, and a Commission-approved handling charge will be added.

30. Curtailment Priority. It is contemplated that the Company will from time to time find it necessary to curtail or interrupt Gas Service to those Customers who purchase Gas from the Company under interruptible Rate Schedules. In addition, other factors beyond the control of the Company may make Curtailment or ~~interruption~~Interruption of any Customer necessary. In all such events, to the extent practicable, and in the absence of a Commission directive requiring a different curtailment priority, the Company will curtail Customers based on the priorities established in Commission Rule R6-19.2.

31. Reconnection Fees. When Service has been discontinued at the request of the Customer or the Customer's Agent or for nonpayment of bills or pursuant to Section 22

of these Service Regulations, and if reconnection is requested by the same Customer or the Customer's Agent at the same Premises, the Commission-approved Reconnection Fees will be charged.

32. Applicable Rate Schedules. The Company will at all times have current Rate Schedules on file with the Commission. The rates contained in these Rate Schedules aresubject to change from time to time as permitted by the North Carolina Purchased Gas Adjustment Procedure attached hereto as Appendix A, the Margin Decoupling Mechanism attached hereto as Appendix C, the Integrity Management Rider Mechanism attached hereto as Appendix E, the TCJA EDIT Rider Mechanism attached hereto as Appendix G, and/or any lawful order of the Commission. The rates approved by and on file with the Commission shall prevail in the event of conflict with rates posted on the Company's website~~Web Site~~.

33. Equal Payment Plan. The Equal Payment Plan ("EPP" or "Plan") is available to customers receiving service under Rate Schedules 101, 102 and 152. The availability and conditions of the Plan are attached hereto as Appendix D.

34. Small and Medium General Rate Service Classification. Small and Medium General Rate Service Classification under the Company's Rate Schedules 102 and 152 shall be based on the following criteria:

A. Definitions: As used in Small and Medium General Rate Service Classification, the following terms shall have the meanings assigned below:

(1) "Annual Review Period" shall mean the twelve (12) months ended on December 31 of each year.

(2) "Actual Annual Usage" shall mean the actual Natural Gas volumes consumed by the Customer during the Annual Review Period as reflected on the Company's invoices for the Customer.

(3) "Average Dekatherm per Day" shall be the Customer's Actual Annual Usage divided by the number of Service Days within the Annual Review Period.

(4) "Classification Usage" shall mean the usage criteria that establishes the minimum and/or maximum average daily usage that must be maintained in order to receive Service under a Rate Schedule. The classification usage for Rate Schedule 102 shall be less than an average of 20 Dekatherms per day. The classification usage for Rate Schedule 152 shall equal or exceed an average of 20 Dekatherms per day but be less than an average of 50 Dekatherms per day.

(5) "Involuntary Curtailment Days" shall mean those days or portions of days in a given Annual Review Period where Curtailment of the Customer's Natural Gas Service was imposed by the Company's decision to curtail.

(6) "Service Days" shall mean 365 days less the number of Involuntary Curtailment Days.

B. Procedures:

(1) During January and February of each year, the Company will determine for each Customer served under Rate Schedule 102 and Rate Schedule 152 that Customer's Average Dekatherm per Day usage for each of the two most recent Annual Review Periods.

(2) Those Customers currently receiving Service under Rate Schedule 102 whose usage in each of the most recent two (2) Annual Review Periods is equal to or exceeds 20 Dekatherms a day, will be eligible for transfer to Rate Schedule 152.

(3) Those Customers currently receiving Service under Rate Schedule 152 whose usage in each of the most recent two (2) Annual Review Periods is less than 20 Dekatherms a day, will be eligible for transfer to Rate Schedule 102.

(4) Those Customers currently receiving Service under Rate Schedule 102 or 152 whose usage in each of the two (2) most recent Annual Review Periods is equal to or greater than 110% of 50 Dekatherms per day will be eligible for transfer to Rate Schedule 103, 104, 113, or 114, as applicable.

(5) All changes in rate classification under this section shall be subject to Company consent as provided under Section 7 of these Service Regulations. All changes in rate classification under this section shall be effective on the first day of June following the review. The Company shall not be liable for any loss or damage resulting from a change in rate classification.

(6) Customers who are reclassified shall be notified of the change in Rate Schedule, and receive a copy of the tariff sheets applicable to the Customer's old and new Rate Schedules at least 21 days prior to the effective date of the change.

C. Exceptions: If a Customer currently being billed under Rate Schedule 102 adds Natural Gas equipment that increases the Customer's Average Dekatherms per Day to the point where the Customer will qualify for Rate Schedules 152, 103 or 104, the Company may, upon notification from the Customer and subject to

installation verification by the Company, transfer the Customer to the new Rate Schedule prior to June 1 of that year.

35. Large General Rate Service Classification. Large General Rate Service classification under the Company's Rate Schedules 103, 104, 113 and 114 shall be based on the following criteria:

A. Definitions: As used in Large General Rate Service Classification, the following terms shall have the meanings assigned below:

(1) "Actual Annual Usage" shall mean the actual Natural Gas volumes sold or transported for the Customer by the Company as reflected on the Company's bills for that Customer.

(2) "Annual Review Period" shall mean the twelve (12) months ended on December 31 of each year.

(3) "Average Dekatherm per Day" shall mean the Actual Annual Usage of a Customer divided by the number of Service Days within the Annual Review Period.

(4) "Classification Usage" shall mean the usage criteria that establishes the minimum and/or maximum average usage that must be maintained in order to receive service under any rate schedule. For existing Customers, the classification usage for Rate Schedule 102 and 152 shall not exceed an average usage of 50 Dekatherms per day. For existing Customers, the classification usage for Rate Schedules 103, 104, 113 and 114 shall exceed an average usage of 50 Dekatherms per day.

(5) "Involuntary Curtailment Days" shall mean those days or portions of days in a given Annual Review Period where curtailment of the Customer's Natural Gas Service was imposed by the Company's decision to curtail.

(6) "Service Days" shall mean 365 days less the sum of the number of Involuntary Curtailment Days and the number of days that Customer consumed an alternative fuel to Natural Gas.

B. Procedures:

(1) During January and February of each year, the Company will determine for each Customer served under Rate Schedules 103, 104, 113 and 114 the Customer's Average Dekatherm per Day usage for each of the two (2) most recent Annual Review Periods.

(2) A Rate Schedule 102 or 152 Customer whose usage is equal to or greater than 110% of the 50 Dekatherms threshold in the two most recent Review periods will be eligible for transfer to Rate Schedule 103, 104, 113 or 114, as applicable. A Rate Schedule 103, 104, 113 or 114 Customer whose usage is equal to or less than 90% of the 50 Dekatherms threshold in both of the two (2) most recent Annual Review Periods will be eligible for transfer to the appropriate Small or Medium General Service Rate Schedule. Customers receiving Service under Rate Schedules 103 or 104 shall be eligible to elect ~~transportation~~Transportation service to be effective with the rate reclassification.

(3) All changes in rate classification under this section shall be subject to Company consent as provided under Section 7 of these Service Regulations. All changes in rate classification under this section shall be effective on the first day of June following the review. The Company shall not be liable for any loss or damage resulting from a change in rate classification, including any loss resulting from the purchase of gas by a ~~transportation~~Transportation Customer who has been reclassified to a sales Rate Schedule.

(4) Customers who are reclassified shall be notified of the change in Rate Schedule, and receive a copy of the tariff sheets applicable to the Customer's old and new Rate Schedules at least 21 days prior to the effective date of the change.

C. Exceptions: If a Customer adds or retires a major piece of gas-burning equipment, changes the hours of operations or otherwise materially alters the Customer's business that will clearly increase, or decrease, the Customer's consumption on an ongoing basis to a level that will change the Customer's ability to qualify for a particular Rate Schedule, the Customer shall report such changes to the Company and afford the Company an opportunity to inspect the change in equipment and to meet with the Customer to review and discuss the anticipated future level of consumption. If, after such inspection and meeting, the Company is satisfied that reclassification is appropriate, utilizing the mechanisms set forth in Section 7 of these Service Regulations, the reclassification will occur within two months after the new equipment is in place and operational, or the retirement is completed, and the first Meter reading reflects the higher anticipated usage resulting from the new equipment or the lower anticipated usage resulting from the retirement. Any reclassification pursuant to this paragraph is subject to correction if actual experience so warrants. If the reclassification results in qualification for Large General Service, the Customer shall provide an election form at least one week prior to reclassification if a ~~transportation~~Transportation election is desired. Otherwise, Service will be provided under Rate Schedule 103 or 104, by default, dependent upon rate qualification.

D. Requirements: Upon reclassification from Rate 102 or 152 to either Rate 103, 104, 113, or 114, as well as new Customers on these Rate Schedules, the Customer will be responsible for installing and maintaining, at the Customer's expense, a dedicated 110v electrical service in a location suitable to provide electrical service for the Company's telemetering equipment.

36. Extra Facilities. At the request of the Customer with Company agreement, the Company will furnish, install, own and maintain facilities which are in addition to those necessary for delivery of Service at one point, through one Meter, at a maximum pressure in accordance with the applicable Rate Schedule, such additional facilities to be furnished under an "Extra Facilities Clause" added to and made a part of the Company's standard form of contract and containing the following provisions:

A. Service shall be used solely by the contracting Customer in a single enterprise located entirely on a single, contiguous Premises, and there shall be no exemption from any of the other provisions of these Service Regulations.

B. "Extra Facilities" shall consist of such of the following as may be required: Meter, Meter Assembly, Gas Service Line, Main, telemetering equipment or other equipment installed for the exclusive use of the contracting Customer, other than facilities which the Company would furnish to the Customer without cost under its standard form of contract.

C. The facility to be supplied shall be Company standard Main, Gas Service Lines and Meter equipment installed only on the Company side of the point of delivery.

D. A monthly "Extra Facilities Charge" equal to 1.7% of the installed cost of the facilities, but not less than $25, shall be billed to the Customer in addition to the billing for facilities charge, demand charge and sales or ~~transportation~~Transportation charges.

E. The "Installed Cost of Extra Facilities" shall be the original cost of material used, including spare equipment, if any, plus applicable labor, ~~transportation~~Transportation, stores, tax, engineering and general expenses, all estimated if not known. The original cost of materials used is the current market price of the equipment at the time the equipment is installed, whether said equipment is new or out of inventory.

F. When the Extra Facilities requested by the Customer consist of those required to furnish Service at either more than one delivery point on the Premises or at more than one pressure, or both, the Installed Cost of the Extra Facilities to be used in the computation of the Extra Facilities Charge shall be the difference between the installed cost of the facilities made necessary by the Customer's request, and the

installed cost of the facilities which the Company would furnish without cost to the Customer under its standard form of contract.

G. The Company shall have the option of refusing requests for Extra Facilities if, on its own determination, the requested facilities are not feasible, or may adversely affect the Company's Service to other customers.

H. Contracts containing the Extra Facilities clause shall have a minimum original term of 5 years to continue from year to year thereafter, but the Company may require the payment of removal costs in contracts with original terms of 10 years or less, and may require advance payment of the Extra Facilities Charge for a period equal to one-half the original term of the contract.

37. Complaints. Customers who have a disagreement with the Company may call the Public Staff Consumer Services Division at telephone number (919) 733-9277 for assistance, or write to the address below:

Public Staff - NC Utilities Commission
Consumer Services Division
4326 Mail Service Center
Raleigh, NC 27699-4300

38. Taxes. Customer shall be responsible for payment of all taxes or tax liabilities attributable to or due in connection with the provision of any Service by the Company to the Customer, including any excise or sales tax required by Chapter 105 of the North Carolina General Statutes. With respect to any local, state, or federal tax, charge, or fee attributable to or arising out of the utilization of Gas delivered by the Company as a motor vehicle fuel, Customer shall be solely and exclusively responsible for the payment of any such tax, charge, or fee.

39. Agency Authorization. Certain Rate Schedules permit a Customer to authorize a Customer's Agent to act on its behalf with respect to nominations, imbalance resolution, and/or billing. In order to be considered a Customer's Agent, the agent must execute and be in compliance with all of the terms of the Customer Agent Agreement form set forth in Appendix B to these Service Regulations.

PIEDMONT NATURAL GAS COMPANY, INC.
NORTH CAROLINA SERVICE REGULATIONS

APPENDIX B

CUSTOMER AGENT AGREEMENT

This Customer Agent Agreement ("Agreement") is made this____ day of_____, 201_, by and between Piedmont Natural Gas Company, Inc. ("Piedmont") and _____("Agent").

WHEREAS, Piedmont's natural gas transportation tariffs provide for the ability of customers receiving Piedmont's transportation services to designate and utilize a third-party agent for purposes of making nominations for and delivering natural gas to Piedmont on behalf of such customers and managing imbalances on the Piedmont system resulting from such activities; and

WHEREAS, in undertaking such activities on behalf of Piedmont's customers, such Agents have the capacity to create material economic and operational risks for Piedmont and its customers; and

WHEREAS, Agent desires to act as a Customer Agent on Piedmont's system; and

WHEREAS, Piedmont is willing to permit Agent to operate on its system under the terms and conditions set forth herein and under the parameters of Piedmont's approved tariffs and service regulations.

NOW, THEREFORE, in consideration of the premises, and other good and valuable consideration the receipt and sufficiency of which is hereby acknowledged, Piedmont and Agent agree as follows:

1. Establishment and Maintenance of Creditworthiness. Except as otherwise expressly provided in this Paragraph 1, each Agent must establish credit with Piedmont in the form of a Letter of Credit, escrow deposit, parental guaranty, or otherwise, in form and substance acceptable to Piedmont, in an amount equal to or greater than the dollar value obtained by the following formula at all times:

> The higher of Agent's average daily load for the previous month or Agent's First-of-Month confirmed daily nomination quantity for the new month x 3 days x (NYMEX prompt month close) x 1.25

Each month, at Piedmont's discretion and prior to accepting nominating transactions for the first of the month business, an evaluation maywill be made to ensure that the established credit does not fall below the value obtained from the formula shown above. In the event Agent's established credit falls below the value obtained through application of the formula shown above,

either during this monthly evaluation or at any other time, Piedmont may require that the value of said Letter of Credit, escrow deposit, parental guaranty, or other form of assurance be changed at any time in order to reestablish adequate creditworthiness hereunder. In the event Agent fails to establish creditworthiness as set forth above, or fails to comply within 5 days with directions from Piedmont to increase the amount of its credit instruments as provided herein, then Agent's right to conduct business on the Piedmont system shall be suspended until such time as Agent shall be in compliance with the creditworthiness provisions set forth herein (including any requirements to increase said creditworthiness). The foregoing creditworthiness requirements shall not apply to any Agent to the extent that and for so long as such Agent's creditworthiness obligations under this Paragraph 1 would be less than or equal to $100,000.

2. Customer Agent Imbalance Restrictions. Agent shall use all reasonable efforts to minimize intra-month imbalances. Agent agrees to adhere to the imbalance provisions set forth in Piedmont's Service Regulations, Rate Schedules and Operational Orders, as in effect from time to time.

3. Allocation of Imbalance Quantities/Penalties. Concurrent with the submission of monthly nominations, Agent shall provide Piedmont with a schedule of allocated nominations for customers to be served by Agent for the following month. This allocation shall serve as the basis for resolving imbalances with Agent's customers to the extent those imbalances are not resolved by Agent. In the event Agent fails to submit such schedule, and further fails to resolve any monthly imbalance during the term hereof, those imbalances and any attendant penalties shall be allocated to Agent's customers, *pro rata*, based upon the actual usage of each such customer during the month to which the unresolved imbalance and/or penalties is attributable.

4. Failure to Comply with Operational Notices, and Agent Creditworthiness and Imbalance Requirements. If Agent fails to adhere to the imbalance and credit requirements set forth above, or to obey specific instructions issued by Piedmont and designed to preserve the operational integrity of Piedmont's system, Agent (a) shall be subject to the Unauthorized Gas penalty provisions of Piedmont's Rate Schedule 106, and (b) shall have its right to transact business on Piedmont's system suspended. Upon any such suspension, Agent's authorization to conduct business on the Piedmont system shall not be restored until such time as Agent is in full compliance with the provisions hereof and all applicable provisions of Piedmont's tariffs and service regulations.

5. Term. This Agreement shall become effective as of the date first written above and shall continue in full force or effect until terminated by either party hereto upon sixty (60) days written notice.

Supplemental Nature of Agreement. This Agreement is supplemental to the provisions of Piedmont's approved tariffs and service regulations, the provisions of which shall also apply to services rendered hereunder. As such, the restrictions and requirements set forth herein are cumulative in nature and in addition to any other imbalance or penalty provisions set forth in

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Piedmont's approved tariffs and service regulations.

6. Billing and Payment. Billings to Agent for any amounts due hereunder, and payments by Agent on such billings, shall be made in a manner consistent with the billing and payment provisions of the underlying transportation tariffs pursuant to which service is rendered.

7. Miscellaneous.

A. Modification. This Agreement may not be modified or amended except by the execution of a written agreement by the parties hereto.

B. Waiver. No failure by any party to enforce this agreement with respect to any default in the performance of any of the provisions of this Agreement shall operate or be construed to operate as a waiver thereof or of any similar future default.

C. Assignment. This Agreement may not be assigned by any party hereto without the express written consent of the other party hereto.

D. Jurisdiction. This Agreement and the respective obligations of the parties hereto are subject to all valid laws, orders, rules and regulations of the North Carolina Utilities Commission and any other governmental bodies having jurisdiction.

E. Conflict of Laws. The construction, interpretation, and performance of this Agreement shall be in accordance with the substantive laws of the State of North Carolina without regard to any conflicts of laws provisions thereof.

IN WITNESS WHEREOF, the undersigned parties have executed this agreement as of the year and date first written above.

AGENT

_____
By: _____
Title: _____

MAILING ADDRESS

PIEDMONT NATURAL GAS COMPANY, INC.

_____
By: _____
Title: _____

PIEDMONT NATURAL GAS COMPANY, INC.
NORTH CAROLINA SERVICE REGULATIONS

Please submit to:

Transportation & Pipeline Services
Piedmont Natural Gas Company
P.O. Box 33068
Charlotte, N.C. 28233

OR

Transportation & Pipeline Services
Fax Number: (704) 364-8320

PIEDMONT NATURAL GAS COMPANY, INC.
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APPENDIX E

Integrity Management Rider

Pursuant to G.S. 62-133.7A, "[i]n setting rates for a natural gas local distribution company in a general rate case proceeding under G.S. 62-133, the Commission may adopt, implement, modify, or eliminate a rate adjustment mechanism to enable the company to recover the prudently incurred capital investment and associated costs of complying with federal gas pipeline safety requirements, including a return based on the company's then authorized return." These capital investment and associated costs are required in order to comply with federal laws and regulations, will generate no additional revenue for Piedmont Natural Gas Company, Inc. (Company), and vary significantly in nature, scope, and scale from prior system reinforcement/maintenance projects and also from the Company's more usual system expansion projects.

1. Provision for Adjustment

The base rates per therm (100,000 Btu) for gas service set forth in Rate Schedules 101, 102, 152, 142, 103, 104, 113, 114, T-10, 12, and T-12 of the Company shall be adjusted by an amount hereinafter described which amount is referred to as the "Integrity Management Adjustment." The Integrity Management Adjustment shall be calculated as an increment and applied to Applicable Rate Schedules to recover the Integrity Management Revenue Requirement (IMRR). The Integrity Management Adjustment shall be implemented on a biannual basis subject to an audit and adjustment process as described herein. The Integrity Management Deferred Account shall be established to track the Company's recovery of the IMRR.

2. Definitions

For the purposes of this revised Rider:

"Applicable Rate Schedules" means Rate Schedules 101, 102, 152, 142, 103, 104, 113, 114, T-10, 12, and T-12.

"Commission" means the North Carolina Utilities Commission.

"Relevant Rate Order" means the final order of the Commission in the most recent litigated rate case of the Company fixing the rates of the Company or the most recent final order of the Commission specifically prescribing or fixing the factors and procedures to be used in the application of this revised Rider.

"Integrity Management Plant Investment" means the gross plant and associated costs incurred by the Company resulting from prevailing federal standards for pipeline integrity and safety and not otherwise included in current base rates. At the time of the Company's next general rate case proceeding, all prudently incurred Integrity Management Plant Investment associated with this revised Rider shall be included in base rates.

APPENDIX E

Integrity Management Rider

~~"Special Contracts" has the same meaning as set forth in Section 2(cc) of the Company's Service Regulations and includes electric generation contracts.~~

"Vintage Period~~Year~~" means the period of time~~fiscal year~~ during which the Integrity Management Plant Investment is made.

3. Computation of Integrity Management Revenue Requirement (IMRR)

The Company shall file by October 31st and April 30th of each year information showing the computation of the IMRR that forms the basis of the next biannual Integrity Management Adjustment [1] The total annual revenue requirement will be calculated for each Vintage Year of Integrity Management Plant Investment, as follows:

Integrity Management Plant Investment	$X,XXX,XXX
Less: Accumulated Depreciation	XXX,XXX
Less: Accumulated Deferred Income Taxes	XXX,XXX
Net Plant Investment	$X,XXX,XXX
Pre-Tax ROR set forth in the Relevant Rate Order	X.XX%
Allowed Pre-Tax Return	$X,XXX,XXX
Plus: Depreciation Expense	XXX,XXX
Total	$X,XXX,XXX

The total of the annual revenue requirements for each Vintage Year of Integrity Management Plant Investment is the annual IMRR. ~~The IMRR shall be reduced by a Special Contract Credit to compute the Net IMRR that forms the basis for determining the Integrity Management Adjustment. The Special Contract Credit represents the amount provided by the Special Contracts towards the Integrity Management Plant Investment. The Special Contract Credit applicable to each twelve month period beginning February 1 are as follows:~~

~~February 1, 2015~~	~~$2,232,000~~
~~February 1, 2016~~	~~$4,605,000~~
~~February 1, 2017~~	~~$6,821,000~~
~~February 1, 2018~~	~~$8,889,000~~
~~February 1, 2019~~	~~$11,685,000~~

~~The amount of the Special Contract Credit shall be amended one year after the effective date of any new contract or amendment, approved by the Commission after the effective date of~~

[1] ~~The Company shall file by November 1, 2015 the computation of the Integrity Management Adjustment effective December 1, 2015, which is the first Integrity Management Adjustment under this revised Rider.~~

APPENDIX E

Integrity Management Rider

~~this revised Rider, where the Company provides natural gas redelivery service to an electric generation customer at a levelized rate.~~

~~For the purposes of determining the Net IMRR on a biannual basis, the Special Contract Credit shall be prorated by month using the Integrity Management Month Factors shown below in this Section 3.~~

Each month the Company shall charge its Integrity Management Deferred Account for the portion of the ~~Net~~ IMRR ~~(the IMRR as reduced by the Special Contract Credit),~~ that corresponds to that month. The monthly IMRR is the product of the annual ~~Net~~ IMRR and the Integrity Management Month Factor. The Integrity Management Month Factor represents the percentage of annualized and normalized therms as set forth in the Relevant Rate Order by month for the Applicable Rate Schedules. The Integrity Management Month Factors for each month are as follows:

January	14.04%
February	13.2~~5~~1%
March	11~~0~~.12~~54~~%
April	8.43~~28~~%
May	5~~6~~.98~~21~~%
June	5.09~~14~~%
July	4.93~~2~~%
August	5.13~~21~~%
September	4~~5~~.54~~13~~%
October	6.22~~60~~%
November	9.31~~09~~%
December	12~~1~~.00~~36~~%
January	14.01%

4. Computation of Biannual Integrity Management Adjustment

The Company will file for Commission approval by November 15th and May 15th of each year information showing the computation of the Integrity Management Adjustment for each rate schedule and the revised tariffs that it proposes to charge customers during the six month period beginning the following December 1st and June 1st, respectively. To compute the Integrity Management Adjustment, the ~~Net~~ IMRR shall first be apportioned to each customer class based on margin apportionment established in the Relevant Rate Order. The customer class apportionment percentages are as follows:

Residential 64.01~~64~~%	Rate Schedule 101
Commercial 29.74~~3~~%	Rate Schedules 102, 142, 152

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Large General - Firm	Rate Schedules 103, 113, T-10, T-12, 12
32.4667%	
Large General - Interruptible	Rate Schedules 104, 114
2.783.26%	

The amount of the ~~Net~~ IMRR apportioned to each rate schedule shall then be divided by the annual therms as set forth in the Relevant Rate Order for each rate schedule to determine the Integrity Management Adjustment to the nearest one-thousandth cent per therm. The annual therms of throughput used in the computation of the Integrity Management Adjustment for each rate schedule are as follows:

Residential	Rate Schedule 101
39365,10247,13510	
Commercial	Rate Schedules 102, 142, 152
32074,559482,510630	
Large General - Firm	Rate Schedules 103, 113, T-10, T-12, 12
3501,217885,53090	
Large General - Interruptible	Rate Schedules 104, 114
299346,237693,5780	

Each month the Company shall credit the Integrity Management Deferred Account for the amount of the Integrity Management Adjustment collected from customers. The amount of the Integrity Management Adjustment collected from customers shall be computed by multiplying the Integrity Management Adjustment for each rate schedule by the corresponding actual therms of usage billed customers for the month.

5. Computation of Integrity Management Deferred Account True-Up Adjustment

The Company shall file with the Commission by November 15th to recover the balance in the Integrity Management Deferred Account as of October 31st. The Integrity Management Deferred Account True-Up Adjustment shall be computed by multiplying the balance of the Integrity Management Deferred Account as of October 31st, by the customer class apportionment percentages shown in Section 4 above. The Integrity Management Deferred Account balance apportioned to each customer class shall then be divided by the annual therms of throughput for each rate schedule shown in Section 4 above to determine the Integrity Management Deferred Account True-Up Adjustment applicable to each rate schedule for the following twelve-month period beginning December 1st. The Integrity Management Deferred Account True-Up Adjustment shall be computed to the nearest one-thousandth cent per therm. The Company may, at its discretion, file for further Integrity Management Deferred Account True-Up Adjustments throughout the year, upon 14 days notice to the Commission.

6. Interest

Interest will be applied to the Integrity Management Deferred Account at the Company's

APPENDIX E

Integrity Management Rider

authorized net-of-tax overall rate of return.

7. Integrity Management Deferred Account

The Company shall maintain an Integrity Management Deferred Account for the purpose of recording the monthly (a) ~~net~~ IMRR, (b) Integrity Management Adjustment, (c) Integrity Management Deferred Account True-Up Adjustment, and (d) interest on the Integrity Management Deferred Account.

8. Monthly Filing with Commission

The Company shall file monthly (a) detail of the current month's Integrity Management Plant Investment, including supporting documentation for the amount incurred, (b) the cumulative Integrity Management Plant Investment subject to this revised Rider, and (c) a report of the activity recorded for the month in the Integrity Management Deferred Account. Such reports will be filed within 45 days after the end of the month for which the report is being filed.

9. Annual Integrity Management Plant Investment Forecast

The Company shall file by October 31st its projected three-year plan of Integrity Management Plant Investment, which will encompass Integrity Management Plant Investment planned for its next three fiscal years.

10. Review and Approval of Annual IMR Report and Rates

The Company shall file the Annual IMR Report summarizing the Integrity Management Plant Investment for the prior 12-month period ending September 30th and the data substantiating and supporting its IMRR calculation for the next biannual Integrity Management Adjustment by October 31st.[2]

Upon the Annual IMR Report filing, the Public Staff and any other intervenors of record shall have until the following February 15th to review such filing and to prepare and file with the Commission a report of such review to include supporting testimony if disallowances or adjustments are proposed in such report. The Company shall have until March 1st to respond to any report or testimony filed with the Commission and, to the extent necessary to resolve disputes regarding the Company's Annual IMR Report, such disputes shall be promptly scheduled for hearing by the Commission with the goal of resolving such disputes by Commission order issued by May 15th with corresponding rate adjustments made on a prospective basis on June 1st.

11. Commission Review

[2] ~~The Company shall file by November 1, 2015 its first Annual IMR Report under this revised Rider.~~

APPENDIX E

Integrity Management Rider

The terms and conditions of this revised Rider shall be reviewed, and prospective modifications considered by the Commission: (1) in the Company's next general rate case; or (2) at the end of four years from the effective date of this revised Rider, whichever first occurs. Further any interested party may petition the Commission to modify or terminate the revised Rider on the grounds that the revised Rider, as approved, is no longer in the public interest

PIEDMONT NATURAL GAS COMPANY, INC.
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APPENDIX G

EDIT Rider

This Rider mechanism facilitates the return to customers of amounts arising out of the Federal Tax Cuts and Jobs Act of 2017 and North Carolina House Bill 998, an Act to Simplify the North Carolina Tax Structure and To Reduce Individual and Business Tax Rates. Specifically, this Rider mechanism mandates the amortization and recalculation, where appropriate, of amounts of Deferred Revenues (accumulated pursuant to the Commission's January 3, 2018 Order in Docket No. M-100, Sub 148) and Excess Deferred Income Taxes (required to be returned to customers by the Commission's October 5, 2018 Order Addressing the Impacts of the Federal Tax Cuts and Jobs Act on Public Utilities in Docket No. M-100, Sub 148 and its May 13, 2014 Order Addressing the Impacts of HB 998 on North Carolina Public Utilities in Docket No. M-100, Sub 138).

1. Provision for Adjustment

The base rates per therm (100,000 Btu) for gas service set forth in Rate Schedules 101, 102, 152, 142, 103, 104, 113, 114, T-10, 12, and T-12 of the Company shall be adjusted through a decrement to base rates calculated as provided below. These decrements shall be recalculated on an annual basis with revised decrements to be effective on each anniversary of the effective date of rates ordered by the Commission in Docket No. G-9, Sub 743 to and until the Regulatory Liability accounts subject to this Rider mechanism have been fully amortized. Upon the full amortization of all of the Regulatory Liabilities identified herein, this Rider will become null and void and no longer of any effect.

2. Definitions

For the purposes of this Rider:

"Applicable Rate Schedules" means Rate Schedules 101, 102, 152, 142, 103, 104, 113, 114, T-10, 12, and T-12.

"Commission" means the North Carolina Utilities Commission.

"Deferred Revenues" means base rate revenues ordered to be deferred by the January 3, 2018 Commission Order in Docket No. M-100, Sub 148 representing the difference between a federal income tax rate of 35% and a federal income tax rate of 21% effective January 1, 2018.

"EDIT" or "Excess Deferred Income Taxes" means the various categories of excess deferred income taxes created as a result of the reduction of federal and state corporate income tax rates mandated by TCJA 2017 or North Carolina House Bill 998.

APPENDIX G

EDIT Rider

"NC House Bill 998" means An Act to Simplify the North Carolina Tax Structure and To Reduce Individual and Business Tax Rates enacted by the North Carolina General Assembly on July 23, 2013.

"NC State Excess Deferred Income Taxes" means excess deferred income taxes related to the operation of NC House Bill 998.

"PPE" means Piedmont plant, property and equipment accounts.

"Rate Decrement" means the annual rate decrement applied to usage under the Applicable Rate Schedules during the operation of this Rider mechanism.

"Relevant Rate Order" means the final order of the Commission in the most recent litigated rate case of the Company fixing the rates of the Company or the most recent final order of the Commission specifically prescribing or fixing the factors and procedures to be used in the application of this revised Rider.

"Regulatory Liability" means one of the deferred asset accounts identified under the definition of Regulatory Liabilities below.

"Regulatory Liabilities" means each of the following categories of Deferred Revenues or excess deferred income taxes resulting from and/or created by either the TCJA 2017 or NC House Bill 998:

i. Federal Protected EDIT;
ii. Federal Unprotected EDIT related to PPE accounts;
iii. Federal Unprotected EDIT unrelated to PPE accounts
iv. Deferred Revenues;
v. NC State Excess Deferred Income Taxes.

"TCJA 2017" means the Federal Tax Cuts and Jobs Act of 2017.

3. Calculation of Rate Decrement.

Beginning with the effective date of rates in Docket No. G-9, Sub 743 and continuing for a twelve (12) month period thereafter, the rates to be used for billing for the Applicable Rate Schedules will be as ordered by the Commission in Docket No. G-9, Sub 743 and will be calculated using Commission-approved Regulatory Liabilities balances, annual amortizations, cost allocation methodology, return, and therms.

4. Adjustments to Billing Rates.

APPENDIX G

EDIT Rider

For periods following the initial twelve (12) month period of effectiveness of this Rider, Piedmont shall propose billing rates annually to include changes, as appropriate, in the Regulatory Liabilities, Federal Protected EDIT amortization rate, retention factor, return for rider related to EDIT amounts returned to customers, and interest on the outstanding Deferred Revenue.

Piedmont will file such recalculations with the Commission for approval no later than thirty (30) days prior to the proposed effective date of such revised rates – which shall be the anniversary date of the effective date of rates in Docket No. G-9, Sub 743 or any subsequent general rate case filed by Piedmont.

5. Carrying Charges.

EDIT amounts refunded will earn a net of tax return pursuant to the methodology approved by the Commission in Docket No. G-9, Sub 743.

Deferred Revenue will bear interest as required by Commission Order issued October 5, 2018 in Docket No. M-100, Sub 148.

I/A

Exhibit JRW-1

Piedmont Natural Gas Company, Inc.
Recommended Cost of Capital

Panel A - Primary Cost of Capital Recommendation

Capital Source	Capitalization Ratios*	Cost Rate	Weighted Cost Rate
Short-Term Debt	0.85%	2.82%	0.02%
Long-Term Debt	49.15%	4.55%	2.24%
Common Equity	50.00%	9.00%	4.50%
Total Capitalization	100.00%		6.76%

* Capital Structure Ratios are developed in Exhibit JRW-3.

Panel B - Alternative Cost of Capital Recommendation

Capital Source	Capitalization Ratios*	Cost Rate	Weighted Cost Rate
Short-Term Debt	0.82%	2.82%	0.02%
Long-Term Debt	47.18%	4.55%	2.15%
Common Equity	52.00%	8.70%	4.52%
Total Capitalization	100.00%		6.69%

* Capital Structure Ratios are developed in Exhibit JRW-3.

I/A

Exhibit JRW-2

Piedmont Natural Gas Company, Inc.

Gas Proxy Group

Company	Operating Revenue ($mil)	Percent Elec Revenue	Percent Gas Revenue	Net Plant ($mil)	Market Cap ($mil)	S&P Issuer Credit Rating	Pre-Tax Interest Coverage	Primary Service Area	Common Equity Ratio	Return on Equity	Market to Book Ratio
Atmos Energy Company (NYSE-ATO)	$2,759.7	0%	96%	$9,259.2	$9.0	A	6.03	Ten States	52.6%	10.8%	2.32
Chesapeake Utilities (NYSE-CPK)	$617.58	4%	43%	$1,126.03	$1.2	NR	6.73	DE,MD,FL	51.5%	12.5%	2.54
New Jersey Resources Corp. (NYSE-NJR)	$2,268.6	0%	31%	$2,609.7	$3.0	A	4.04	NJ	46.4%	11.0%	2.96
Northwest Natural Gas Co. (NYSE-NWN)	$762.2	0%	96%	$2,255.0	$1.7	BBB+	(1.24)	OR,WA	47.1%	-7.0%	2.26
ONE Gas, Inc.(NYSE-OGS)	$1,539.6	0%	100%	$4,007.6	$3.8	A	6.56	OK,KS,TX	55.8%	8.5%	1.94
South Jersey Industries, Inc. (NYSE-SJI)	$1,243.1	0%	41%	$2,700.2	$2.5	BBB	0.37	NJ	43.7%	-0.3%	2.06
Southwest Gas Corporation (NYSE-SWX)	$2,548.8	0%	51%	$4,523.7	$3.9	BBB+	4.32	AZ,NV,CA	47.1%	11.2%	2.14
Spire (NYSE-SR)	$1,740.7	0%	95%	$3,665.2	$3.2	A-	3.68	MO	43.6%	8.6%	1.61
Mean	$1,685.0	1%	69%	$3,768.3	$3.54	A-	3.81		48.5%	6.9%	2.23
Median	$1,640.2	0%	73%	$3,182.7	$3.10	A-	4.18		47.1%	9.7%	2.20

Data Source: Company 2018 SEC 10-K filings; *Value Line Investment Survey*, 2019

Exhibit JRW-2

Piedmont Natural Gas Company, Inc.
Value Line Risk Metrics

Gas Proxy Group

Company	Beta	Financial Strength	Safety	Earnings Predictability	Stock Price Stability
Atmos Energy Company (NYSE-ATO)	0.65	A+	1	100	100
Chesapeake Utilities (NYSE-CPK)	0.65	B++	2	90	75
New Jersey Resources Corp. (NYSE-NJR)	0.70	A+	1	50	80
Northwest Natural Gas Co. (NYSE-NWN)	0.60	A	1	10	95
ONE Gas, Inc. (NYSE-OGS)	0.65	A	2	95	100
South Jersey Industries, Inc. (NYSE-SJI)	0.80	A	2	65	80
Southwest Gas Corporation (NYSE-SWX)	0.70	B++	3	90	80
Spire (NYSE-SR)	0.65	B++	2	70	95
Mean	0.68	A	1.8	71	88

Data Source: *Value Line Investment Survey*, 2018.

Value Line Risk Metrics

Beta

A relative measure of the historical sensitivity of a stock's price to overall fluctuations in the New York Stock Exchange Composite Index. A beta of 1.50 indicates a stock tends to rise (or fall) 50% more than the New York Stock Exchange Composite Index. The ''coefficient'' is derived from a regression analysis of the relationship between weekly percentage changes in the price of a stock and weekly percentage changes in the NYSE Index over a period of five years. In the case of shorter price histories, a smaller time period is used, but two years is the minimum. Betas are adjusted for their long-term tendency to converge toward 1.00.

Financial Strength

A relative measure of the companies reviewed by *Value Line* . The relative ratings range from A++ (strongest) down to C (weakest).

Safety Rank

A measurement of potential risk associated with individual common stocks. The Safety Rank is computed by averaging two other *Value Line* indexes the Price Stability Index and the Financial strength Rating. Safety Ranks range from 1 (Highest) to 5 (Lowest). Conservative investors should try to limit their purchases to equities ranked 1 (Highest) and 2 (Above Average) for Safety.

Earnings Predictability

A measure of the reliability of an earnings forecast. Earnings Predictability is based upon the stability of year-to-year comparisons, with recent years being weighted more heavily that earlier ones. The most reliable forecasts tend to be those with the highest rating (100); the least reliable, the lowest (5). The earnings stability is derived from the standard deviation of percentage changes in quarterly earnings over an eight-year period. Special adjustments are made for comparisons around zero and from plus to minus.

Stock Price Stability

A measure of the stability of a stock's price. It includes sensitivity to the market (see Beta as well as the stock's inherent volatility. *Value Line's* Stability ratings range from 1 (highest) to 5 (lowest).

Source: *Value Line Investment Analyzer* .

Exhibit JRW-3

I/A

Piedmont Natural Gas Company, Inc.
Capital Structure Ratios and Debt Cost Rates

Panel A - Piedmont's Proposed Capital Structure and Debt Cost Rates

	Percent of Total	Cost
Short-Term Debt	0.82%	2.82%
Long-Term Debt	47.18%	4.55%
Common Equity	52.00%	
Total Capital	100.00%	

Panel B - Proxy Group Average Capital Structure Ratios

	Q4 2018	Q3 2018	Q2 2018	Q1 2018	Mean
Short-Term Debt	13.03%	18.06%	15.28%	10.11%	14.12%
Long-Term Debt	40.87%	37.60%	37.90%	40.17%	39.14%
Preferred Stock	0.00%	0.00%	0.00%	0.00%	0.00%
Common Equity	46.10%	44.34%	46.82%	49.72%	46.75%
Total Capital	100.00%	100.00%	100.00%	100.00%	100.00%

Panel C - Average Quarterly Capitalization Ratios (2018-19)
Piedmont Natural Gas Company, Inc.

Common Stockholders' Equity	48.1%
Preferred Stock	0.0%
Long Term Debt (excludes Current Maturities)	42.3%
Total Short Term Debt	9.6%
Total	100.0%

Duke Energy Corporation

Common Stockholders' Equity	42.9%
Preferred Stock	0.2%
Long Term Debt (excludes Current Maturities)	50.6%
Current Maturities of Long Term Debt	0.0%
Total Short Term Debt	6.3%
Total	100.0%

Source: Company Response to AG-2-20.

Panel D- AG's Capital Structure Ratios and Debt Cost Rates

	Piedmont Proposed	Adjustment	AG Proposed	Cost
Short-Term Debt	0.82%	1.041667	0.85%	2.82%
Long-Term Debt	47.18%	1.041667	49.15%	4.55%
Common Equity	52.00%	0.961538	50.00%	
Total Capital	100.00%		100.00%	

Exhibit JRW-3

Piedmont Natural Gas Company, Inc.
Quarterly Capital Structure Ratios

Panel A - Average Quarterly Capitalization Ratios (2018-19)

Piedmont Natural Gas Company, Inc.

Common Stockholders' Equity	48.1%
Preferred Stock	0.0%
Long Term Debt (excludes Current Matur	42.3%
Total Short Term Debt	9.6%
Total	100.0%

Duke Energy Corporation

Common Stockholders' Equity	42.9%
Preferred Stock	0.2%
Long Term Debt (excludes Current Matur	50.6%
Current Maturities of Long Term Debt	
Total Short Term Debt	6.3%
Total	100.0%

Panel B - Quarterly Capitalization Ratios (2016-19)

Piedmont Natural Gas Capitalization Structure including Short-term Debt (GAAP view)

	3/31/2019		12/31/2018		9/30/2018		6/30/2018		3/31/2018		12/31/2017		9/30/2017		6/30/2017		3/31/2017		12/31/2016	
Common Stockholders' Equit	$ 2,213	48.6%	$ 2,091	47.2%	$ 2,043	48.9%	$ 2,064	50.3%	$ 1,772	45.3%	$ 1,662	40.9%	$ 1,599	40.8%	$ 1,810	43.2%	$ 1,767	45.9%	$ 1,672	47.9%
Preferred Stock	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	$ -	0.0%	$ -	0.0%	$ -	0.0%	$ -	0.0%
Long Term Debt (excludes Cu	1,788	39.3%	1,788	40.4%	1,788	42.8%	1,787	43.6%	1,787	45.6%	1,787	44.0%	$ 2,036	52.0%	$ 1,911	51.3%	$ 1,786	46.4%	$ 1,786	51.1%
Notes Payable and Commerc	201		198		-		-		107		364		$ 284		$ 167		$ 261		$ -	
Current Maturities of Long Te	350		350		350		250		250		250		$ -		$ 35		$ 35		$ 35	
Total Short	551	12.1%	548	12.4%	350	8.4%	250	6.1%	357	9.1%	614	15.1%	$ 284	7.2%	$ 202	5.4%	$ 296	7.7%	$ 35	1.0%
Total	$ 4,552	100%	$ 4,427	100%	$ 4,181	100%	$ 4,101	100%	$ 3,916	100%	$ 4,063	89%	$ 3,919	100%	$ 3,723	100%	$ 3,849	100%	$ 3,493	100%

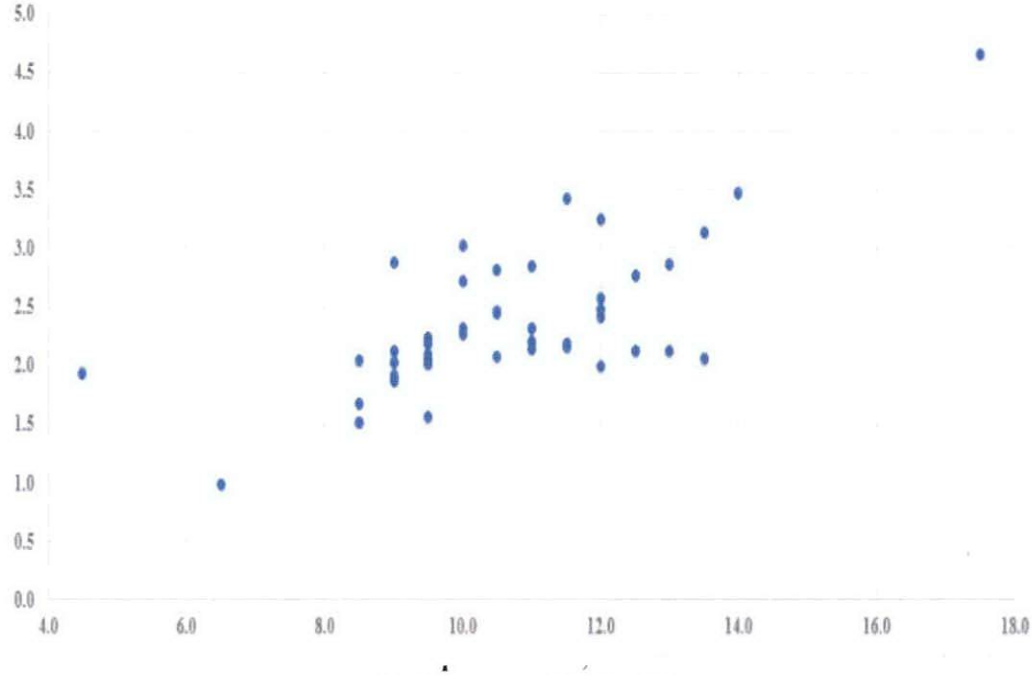
Duke Energy Corporation Capitalization Structure including Short-term Debt (GAAP view)

	3/31/2019		12/31/2018		9/30/2018		6/30/2018		3/31/2018		12/31/2017		9/30/2017		6/30/2017		3/31/2017		12/31/2016	
Common Stockholders' Equity (1)	$ 44,056	42.3%	$ 43,817	43.1%	$42,995	43.1%	$42,507	43.1%	$41,792	42.8%	$41,739	43.4%	$41,891	43.8%	$41,294	43.8%	$41,179	43.9%	$41,033	44.9%
Preferred Stock	974	0.9%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	-	0.0%	$ -	0.0%	$ -	0.0%	$ -	0.0%	$ -	0.0%
Long Term Debt	53,841	51.5%	51,123	50.2%	50,507	50.6%	49,863	50.6%	49,030	50.2%	49,035	51.0%	$48,929	51.3%	$46,043	48.8%	$47,021	50.2%	$45,376	49.6%
Notes Payable and Commercial Paper	3,029		3,410		2,891		3,329		2,869		2,163		$ 1,899		$ 3,488		$ 3,558		$ 2,487	
Current Maturities of Long Term Debt	2,501		3,406		3,455		2,852		3,951		3,244		$ 2,485		$ 3,472		$ 1,877		$ 2,319	
Total Short Term Debt	5,530	5.3%	6,816	6.7%	6,346	6.4%	6,181	6.3%	6,920	7.1%	5,407	5.6%	$ 4,384	4.6%	$ 6,960	7.4%	$ 5,535	5.9%	$ 4,806	5.3%
Total	$ 104,241	100%	$ 101,756	100%	$ 99,848	100%	$ 99,551	100%	$ 97,742	100%	$ 96,181	100%	$ 94,944	100%	$ 94,297	100%	$ 93,793	100%	$ 91,415	100%

I/A

Exhibit JRW-4
Electric Utilities and Gas Distribution Companies

Market-to-Book



R-Square = .50, N=43

Source: *Value Line Investment Survey*, 2019.

I/A

Exhibit JRW-5
Long-Term 'A' Rated Public Utility Bonds

Data Source: Mergent Bond Record

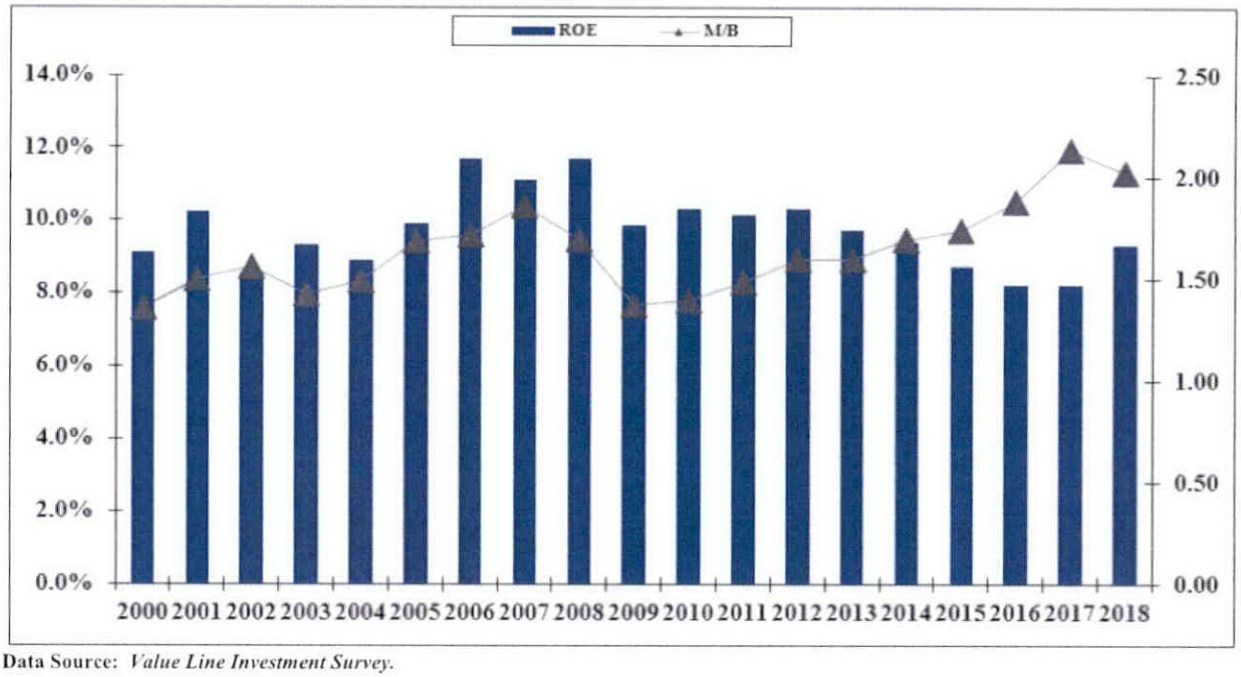
Exhibit JRW-5

Gas Distribution Company Average Dividend Yield

Data Source: *Value Line Investment Survey.*

Exhibit JRW-5

Gas Distribution Company Average Return on Equity and Market-to-Book Ratios



Data Source: *Value Line Investment Survey.*

I/A

Exhibit JRW-6

Industry Average Betas*
Value Line Investment Survey Betas**
22-Jan-19

Rank	Industry	Beta	Rank	Industry	Beta	Rank	Industry	Beta
1	Petroleum (Producing)	1.71	34	Telecom. Equipment	1.15	67	Medical Services	1.01
2	Metals & Mining (Div.)	1.64	35	Internet	1.15	68	Recreation	1.01
3	Natural Gas (Div.)	1.63	36	Financial Svcs. (Div.)	1.15	69	IT Services	1.01
4	Oilfield Svcs/Equip.	1.61	37	Retail (Hardlines)	1.14	70	Med Supp Non-Invasive	0.99
5	Maritime	1.51	38	Semiconductor Equip	1.14	71	Telecom. Services	0.99
6	Steel	1.49	39	Entertainment Tech	1.13	72	Retail Store	0.98
7	Oil/Gas Distribution	1.40	40	Publishing	1.13	73	Pharmacy Services	0.98
8	Metal Fabricating	1.37	41	Computer Software	1.13	74	Information Services	0.97
9	Chemical (Specialty)	1.34	42	Paper/Forest Products	1.13	75	Investment Co.(Foreign)	0.96
10	Chemical (Diversified)	1.33	43	Precision Instrument	1.12	76	Healthcare Information	0.96
11	Pipeline MLPs	1.33	44	Public/Private Equity	1.12	77	Funeral Services	0.95
12	Heavy Truck & Equip	1.31	45	Retail Automotive	1.12	78	Med Supp Invasive	0.95
13	Chemical (Basic)	1.30	46	Power	1.12	79	Reinsurance	0.92
14	Building Materials	1.30	47	Wireless Networking	1.12	80	Environmental	0.91
15	Petroleum (Integrated)	1.30	48	Retail Building Supply	1.11	81	Cable TV	0.90
16	Homebuilding	1.28	49	Bank (Midwest)	1.11	82	Insurance (Prop/Cas.)	0.90
17	Railroad	1.27	50	Packaging & Container	1.11	83	Thrift	0.89
18	Auto Parts	1.27	51	Furn/Home Furnishings	1.11	84	Restaurant	0.88
19	Biotechnology	1.27	52	Human Resources	1.10	85	Tobacco	0.88
20	Engineering & Const	1.25	53	Drug	1.10	86	Household Products	0.86
21	Office Equip/Supplies	1.24	54	Advertising	1.10	87	Investment Co.	0.85
22	Hotel/Gaming	1.24	55	Shoe	1.09	88	Beverage	0.83
23	Automotive	1.24	56	Bank	1.09	89	Food Processing	0.82
24	Insurance (Life)	1.24	57	Newspaper	1.08	90	R.E.I.T.	0.82
25	Semiconductor	1.21	58	Toiletries/Cosmetics	1.08	91	Precious Metals	0.82
26	Machinery	1.20	59	Entertainment	1.07	92	Retail/Wholesale Food	0.80
27	Air Transport	1.20	60	Telecom. Utility	1.07	93	Water Utility	0.70
28	Electrical Equipment	1.20	61	Foreign Electronics	1.07	94	Natural Gas Utility	0.67
29	Electronics	1.20	62	Aerospace/Defense	1.05	95	Electric Util. (Central)	0.63
30	Trucking	1.19	63	Industrial Services	1.05	96	Electric Utility (West)	0.62
31	E-Commerce	1.18	64	Apparel	1.05	97	Electric Utility (East)	0.55
32	Computers/Peripherals	1.16	65	Educational Services	1.03			
33	Diversified Co.	1.16	66	Retail (Softlines)	1.02		Mean	1.10

* Industry averages for 97 industries using *Value Line*'s database of 1,710 companies.

** *Value Line* computes betas using monthly returns regressed against the New York Stock Exchange Index for five years. These betas are then adjusted as follows: *VL* Beta = [{(2/3) * Regressed Beta} + {(1/3) * (1.0)}] to account to tendency for Betas to regress toward average of 1.0. See M. Blume, "On the Assessment of Risk," *Journal of Finance*, March 1971.

I/A

Exhibit JRW-7
DCF Model

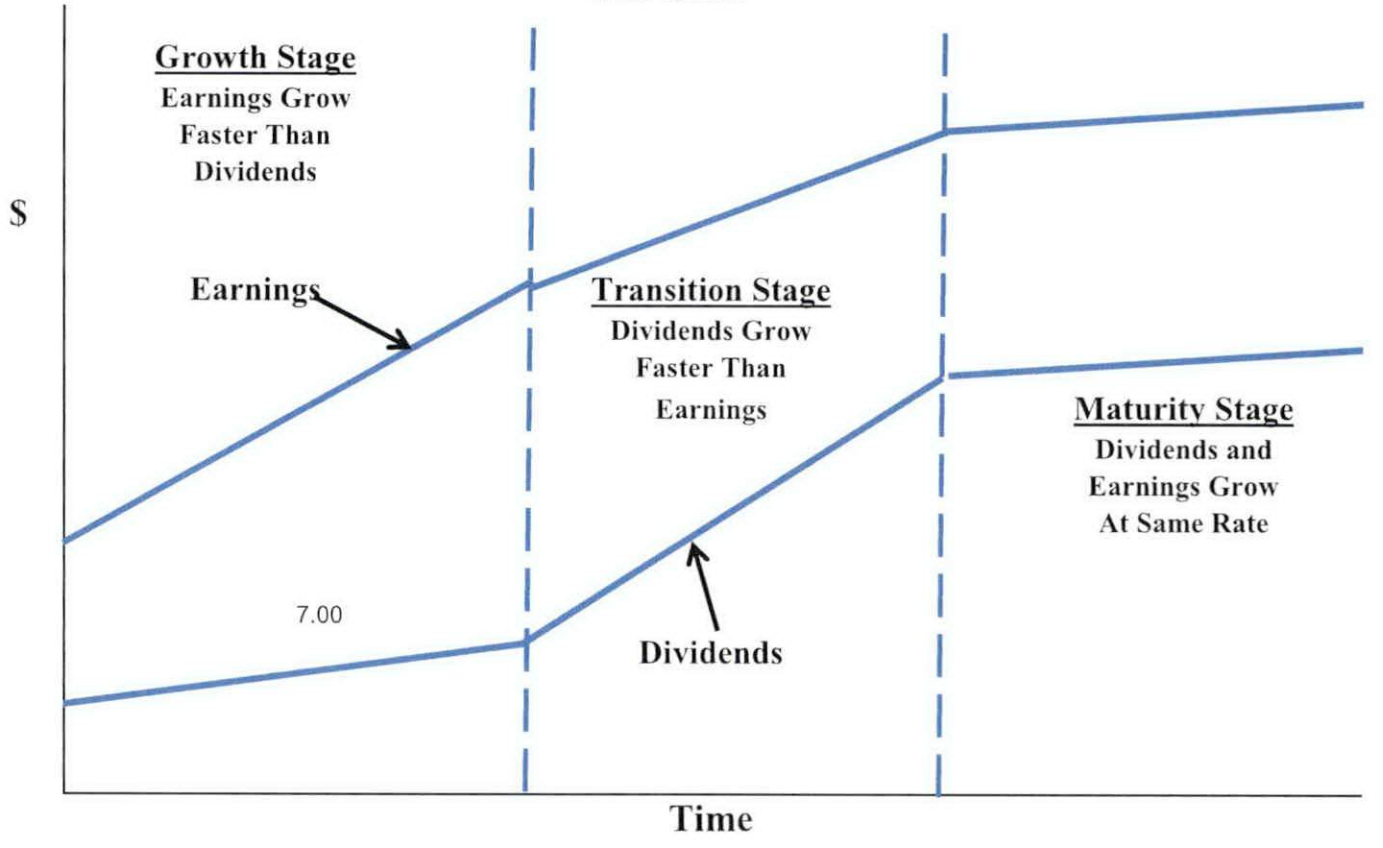


Exhibit JRW-7

DCF Model
Consensus Earnings Estimates
Atmos Energy Corporatrion (ATO)
www.reuters.com
June, 2019

Date	# of Estimates	Mean	High	Low
Quarter Ending Jun-19	6	$0.72	$0.87	$0.66
Quarter Ending Sep-19	6	$0.50	$0.65	$0.45
Year Ending Sep-19	7	$4.33	$4.39	$4.27
Year Ending Sep-20	9	$4.59	$4.66	$4.45
LT Growth Rate (%)	2	6.45%	6.90%	6.00%

I/A

Exhibit JRW-8

Piedmont Natural Gas Company, Inc.
Discounted Cash Flow Analysis

Gas Proxy Group

Dividend Yield*	2.60%
Adjustment Factor	1.03
Adjusted Dividend Yield	2.68%
Growth Rate**	6.00%
Equity Cost Rate	8.70%

* Page 2 of Exhibit JRW-8

** Based on data provided on pages 3, 4, 5, and 6 of Exhibit JRW-8

Exhibit JRW-8

Piedmont Natural Gas Company, Inc.
Monthly Dividend Yields

Gas Proxy Group

Company	Annual Dividend	Dividend Yield 30 Day	Dividend Yield 90 Day	Dividend Yield 180 Day
Atmos Energy Company (NYSE-ATO)	$2.10	2.0%	2.1%	2.1%
Chesapeake Utilities (NYSE-CPK)	$1.62	1.7%	1.8%	1.8%
New Jersey Resources Corp. (NYSE-NJR)	$1.17	2.4%	2.4%	2.4%
Northwest Natural Gas Co. (NYSE-NWN)	$1.90	2.8%	2.8%	2.9%
One Gas, Inc. (NYSE-OGS)	$2.00	2.2%	2.3%	2.4%
South Jersey Industries, Inc. (NYSE-SJI)	$1.15	3.5%	3.6%	3.7%
Southwest Gas Corporation (NYSE-SWX)	$2.18	2.5%	2.6%	2.7%
Spire (NYSE-SR)	$2.37	2.8%	2.9%	3.0%
Mean		2.5%	2.5%	2.6%
Median		2.4%	2.5%	2.5%

Data Sources: http://quote.yahoo.com, June, 2019.

Exhibit JRW-8

Piedmont Natural Gas Company, Inc.
DCF Equity Cost Growth Rate Measures
***Value Line* Historic Growth Rates**

Gas Proxy Group

Company	*Value Line* Historic Growth					
	Past 10 Years			Past 5 Years		
	Earnings	Dividends	Book Value	Earnings	Dividends	Book Value
Atmos Energy Company (NYSE-ATO)	6.5	3.5	5.5	10.0	5.5	7.0
Chesapeake Utilities (NYSE-CPK)	9.0	5.0	10.0	8.0	6.0	10.5
New Jersey Resources Corp. (NYSE-NJR)	7.0	7.5	7.0	5.5	6.5	8.0
Northwest Natural Gas Co. (NYSE-NWN)	-10.5	2.5	2.0	-18.0	1.0	
ONE Gas, Inc. (NYSE-OGS)						
South Jersey Industries, Inc. (NYSE-SJI)	1.5	8.0	6.5	-2.5	6.0	6.0
Southwest Gas Corporation (NYSE-SWX)	7.0	8.5	5.5	4.5	10.5	6.0
Spire (NYSE-SR)	4.0	4.0	7.5	7.5	5.0	8.0
Mean	3.5	5.6	6.3	2.1	5.8	7.6
Median	6.5	5.0	6.5	5.5	6.0	7.5
Data Source: *Value Line Investment Survey.*	Average of Median Figures =			6.2		

Exhibit JRW-8

Piedmont Natural Gas Company, Inc.
DCF Equity Cost Growth Rate Measures
Value Line Projected Growth Rates

Gas Proxy Group

Company	*Value Line* Projected Growth Est'd. '16-'18 to '22-'24			*Value Line* Sustainable Growth		
	Earnings	Dividends	Book Value	Return on Equity	Retention Rate	Internal Growth
Atmos Energy Company (NYSE-ATO)	7.5	7.0	7.0	10.0%	52.0%	5.2%
Chesapeake Utilities (NYSE-CPK)	9.0	9.0	9.0	10.0%	57.0%	5.7%
New Jersey Resources Corp. (NYSE-NJR)	3.5	4.0	7.0	11.5%	47.0%	5.4%
Northwest Natural Gas Co. (NYSE-NWN)	27.0	2.5	1.0	12.0%	37.0%	4.4%
ONE Gas, Inc. (NYSE-OGS)	8.0	8.5	4.5	10.0%	44.0%	4.4%
South Jersey Industries, Inc. (NYSE-SJI)	10.5	4.0	4.5	12.0%	40.0%	4.8%
Southwest Gas Corporation (NYSE-SWX)	9.0	5.0	7.5	9.5%	55.0%	5.2%
Spire (NYSE-SR)	5.5	4.0	4.0	4.5%	47.0%	2.1%
Mean	10.0	5.5	5.6	9.9%	47.4%	4.7%
Median	8.5	4.5	5.8	10.0%	47.0%	5.0%
Average of Median Figures =		6.3			Median =	5.0%

* 'Est'd. '16-'18 to '22-'24' is the estimated growth rate from the base period 2016 to 2018 until the future period 2021 to 2023.

Data Source: *Value Line Investment Survey.*

Exhibit JRW-8

Piedmont Natural Gas Company, Inc.
DCF Equity Cost Growth Rate Measures
Analysts Projected EPS Growth Rate Estimates

Gas Proxy Group

Company	Yahoo	Reuters	Zacks	Mean
Atmos Energy Company (NYSE-ATO)	6.5%	6.5%	6.5%	6.5%
Chesapeake Utilities (NYSE-CPK)	6.0%	7.2%	7.0%	6.7%
New Jersey Resources Corp. (NYSE-NJR)	6.0%	6.0%	7.0%	6.3%
Northwest Natural Gas Co. (NYSE-NWN)	4.0%	4.0%	4.5%	4.2%
ONE Gas, Inc. (NYSE-OGS)	5.0%	5.0%	5.9%	5.3%
South Jersey Industries, Inc. (NYSE-SJI)	5.9%	5.9%	7.2%	6.3%
Southwest Gas Corporation (NYSE-SWX)	6.1%	6.1%	6.2%	6.1%
Spire (NYSE-SR)	2.8%	2.8%	4.9%	3.5%
Mean	5.3%	5.4%	6.1%	5.6%
Median	6.0%	6.0%	6.3%	6.2%

Data Sources: www.reuters.com, www.zacks.com, http://quote.yahoo.com, June, 2019.

Exhibit JRW-8

Piedmont Natural Gas Company, Inc.
DCF Growth Rate Indicators

Gas Proxy Group

Growth Rate Indicator	Gas Proxy Group
Historic *Value Line* Growth in EPS, DPS, and BVPS	6.2%
Projected *Value Line* Growth in EPS, DPS, and BVPS	6.3%
Sustainable Growth ROE * Retention Rate	5.0%
Projected EPS Growth from Yahoo, Zacks, and Reuters - Mean/Median	5.6%/6.2%

I/A

Exhibit JRW-9

Piedmont Natural Gas Company, Inc.
Capital Asset Pricing Model

Gas Proxy Group

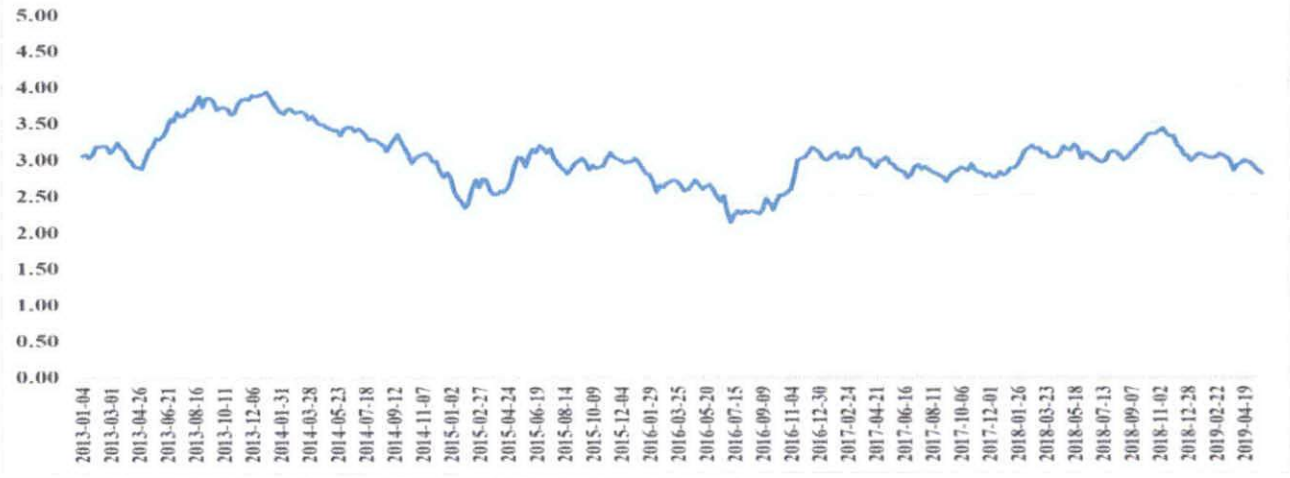
Risk-Free Interest Rate	4.00%
Beta*	0.65
Ex Ante Equity Risk Premium**	5.50%
CAPM Cost of Equity	7.6%

* See page 3 of Exhibit JRW-9

** See pages 5 and 6 of Exhibit JRW-9

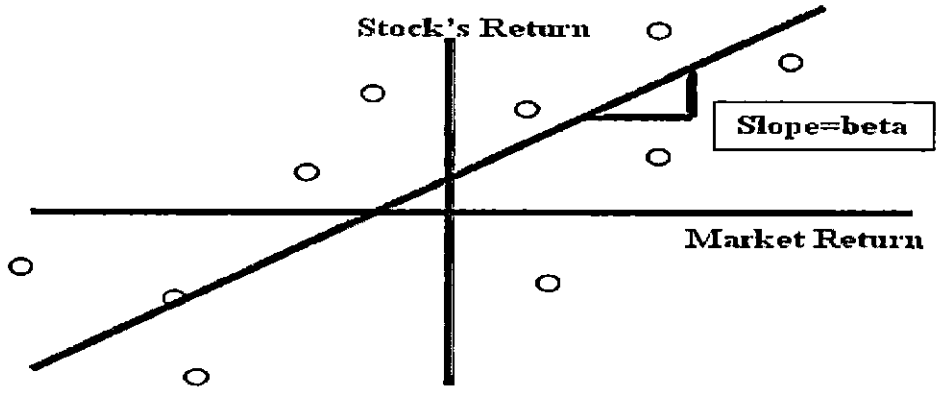
Exhibit JRW-9

Thirty-Year U.S. Treasury Yields
2013-2019



Source: Federal Reserve Bank of St. Louis, FRED Database: https://fred.stlouisfed.org/series/DGS30

Calculation of Beta



Gas Proxy Group

Company	Beta
Atmos Energy Company (NYSE-ATO)	0.65
Chesapeake Utilities (NYSE-CPK)	0.65
New Jersey Resources Corp. (NYSE-NJR)	0.70
Northwest Natural Gas Co. (NYSE-NWN)	0.60
ONE Gas, Inc. (NYSE-OGS)	0.65
South Jersey Industries, Inc. (NYSE-SJI)	0.80
Southwest Gas Corporation (NYSE-SWX)	0.70
Spire (NYSE-SR)	0.65
Mean	0.68
Median	0.65

Data Source: *Value Line Investment Survey*, 2019.

Exhibit JRW-9
Risk Premium Approaches

	Historical Ex Post Returns	Surveys	Expected Return Models and Market Data
Means of Assessing The Market Risk Premium	Historical Average Stock Minus Bond Returns	Surveys of CFOs, Financial Forecasters, Companies, Analysts on Expected Returns and Market Risk Premiums	Use Market Prices and Market Fundamentals (such as Growth Rates) to Compute Expected Returns and Market Risk Premiums
Problems/Debated Issues	Time Variation in Required Returns, Measurement and Time Period Issues, and Biases such as Market and Company Survivorship Bias	Questions Regarding Survey Histories, Responses, and Representativeness Surveys may be Subject to Biases, such as Extrapolation	Assumptions Regarding Expectations, Especially Growth

Source: Adapted from Antti Ilmanen, Expected Returns on Stocks and Bonds," *Journal of Portfolio Management*, (Winter 2003).

Exhibit JRW-9

Capital Asset Pricing Model
Market Risk Premium

Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low	Range High	Midpoint of Range	Mean	Median
Historical Risk Premium										
	Ibbotson	2016	1928-2015	Historical Stock Returns - Bond Returns	Arithmetic				6.00%	
					Geometric				4.40%	
	Damodaran	2019	1928-2018	Historical Stock Returns - Bond Returns	Arithmetic				6.26%	
					Geometric				4.66%	
	Dimson, Marsh, Staunton Credit Suisse Repos	2019	1900-2018	Historical Stock Returns - Bond Returns	Arithmetic				5.50%	
					Geometric					
	Bate	2008	1900-2007	Historical Stock Returns - Bond Returns	Geometric				4.50%	
	Shiller	2006	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				7.00%	
					Geometric				5.50%	
	Siegel	2005	1926-2005	Historical Stock Returns - Bond Returns	Arithmetic				6.10%	
					Geometric				4.60%	
	Dimson, Marsh, and Staunton	2006	1900-2005	Historical Stock Returns - Bond Returns	Arithmetic				5.50%	
	Goyal & Welch	2006	1872-2004	Historical Stock Returns - Bond Returns					4.77%	
	Median									5.50%
Ex Ante Models (Puzzle Research)										
	Claus Thomas	2001	1985-1998	Abnormal Earnings Model					3.00%	
	Arnott and Bernstein	2002	1810-2001	Fundamentals - Div Yld + Growth					2.40%	
	Constantinides	2002	1872-2000	Historical Returns & Fundamentals - P/D & P/E					6.90%	
	Cornell	1999	1926-1997	Historical Returns & Fundamental GDP/Earnings		3.50%	5.50%	4.50%	4.50%	
	Easton, Taylor, et al	2002	1981-1998	Residual Income Model					5.30%	
	Fama French	2002	1951-2000	Fundamental DCF with EPS and DPS Growth		2.55%	4.32%		3.44%	
	Harris & Marston	2001	1982-1998	Fundamental DCF with Analysts' EPS Growth					7.14%	
	McKinsey	2002	1962-2002	Fundamental (P/E, D P, & Earnings Growth)		3.50%	4.00%		3.75%	
	Siegel	2005	1802-2001	Historical Earnings Yield	Geometric				2.50%	
	Grabowski	2006	1926-2005	Historical and Projected		3.50%	6.00%	4.75%	4.75%	
	Maheu & McCurdy	2006	1885-2003	Historical Excess Returns, Structural Breaks,		4.02%	5.10%	4.56%	4.56%	
	Bostock	2004	1960-2002	Bond Yields, Credit Risk, and Income Volatility		3.90%	1.30%	2.60%	2.60%	
	Bakshi & Chen	2005	1982-1998	Fundamentals - Interest Rates					7.31%	
	Donaldson, Kamstra, & Kramer	2006	1952-2004	Fundamental, Dividend yld., Returns,, & Volatility		3.00%	4.00%	3.50%	3.50%	
	Campbell	2008	1982-2007	Historical & Projections (D P & Earnings Growth)		4.10%	5.40%		4.75%	
	Best & Byrne	2001	Projection	Fundamentals - Div Yld + Growth					2.00%	
	Fernandez	2007	Projection	Required Equity Risk Premium					4.00%	
	DeLong & Magin	2008	Projection	Earnings Yield - TIPS					3.22%	
	Siegel - Rethink ERP	2011	Projection	Real Stock Returns and Components					5.50%	
	Duff & Phelps	2019	Projection	Normalized with 3.5% Long-Term Treasury Yield					5.50%	
	Mschchowski - VL - 2014	2014	Projection	Fundamentals - Expected Return Minus 10-Year Treasury Rate					5.50%	
	American Appraisal Quarterly ERP	2015	Projection	Fundamental Economic and Market Factors					6.00%	
	Market Risk Premia	2019	Projection	Fundamental Economic and Market Factors					4.29%	
	KPMG	2019	Projection	Fundamental Economic and Market Factors					5.50%	
	Damodaran - 3-1-19	2019	Projection	Fundamentals - Implied from FCF to Equity Model (Trailing 12 month, with adjusted payout)					4.98%	
	Social Security									
	Office of Chief Actuary		1900-1995							
	John Campbell	2001	1860-2000	Historical & Projections (D P & Earnings Growth)	Arithmetic	3.00%	4.00%	3.50%	3.50%	
			Projected for 75 Years		Geometric	1.50%	2.50%	2.00%	2.00%	
	Peter Diamond	2001	Projected for 75 Years	Fundamentals (D/P, GDP Growth)		3.00%	4.80%	3.90%	3.90%	
	John Shoven	2001	Projected for 75 Years	Fundamentals (D/P, P/E, GDP Growth)		3.00%	3.50%	3.25%	3.25%	
	Median									4.29%
Surveys										
	New York Fed	2015	Five-Year	Survey of Wall Street Firms					5.70%	
	Survey of Financial Forecasters	2019	10-Year Projection	About 20 Financial Forecasters					1.85%	
	Duke - CFO Magazine Survey	2019	10-Year Projection	Approximately 200 CFOs					3.15%	
	Welch - Academics	2008	30-Year Projection	Random Academics		5.00%	5.74%	5.37%	5.37%	
	Fernandez - Academics, Analysts, and Compan	2019	Long-Term	Survey of Academics, Analysts, and Companies					5.60%	
	Median									5.37%
Building Block										
	Ibbotson and Chen	2015	Projection	Historical Supply Model (D/P & Earnings Growth)	Arithmetic			6.22%	5.21%	
					Geometric			4.20%		
	Chen - Rethink ERP	2010	20-Year Projection	Combination Supply Model (Historic and Projection)	Geometric				4.00%	
	Ilmanen - Rethink ERP	2010	Projection	Current Supply Model (D P & Earnings Growth)	Geometric				3.00%	
	Grinold, Kroner, Siegel - Rethink ERP	2011	Projection	Current Supply Model (D P & Earnings Growth)	Arithmetic			4.63%	4.12%	
					Geometric			3.60%		
	Median									4.06%
Mean										4.81%
Median										4.83%

Exhibit JRW-9

Capital Asset Pricing Model
Market Risk Premium

Summary of 2010-19 Equity Risk Premium Studies

Category	Study Authors	Publication Date	Time Period Of Study	Methodology	Return Measure	Range Low	Range High	Midpoint of Range	Mean	Average
Historical Risk Premium										
	Ibbotson	2016	1928-2015	Historical Stock Returns - Bond Returns	Arithmetic				6.00%	
					Geometric				4.40%	
	Damodaran	2019	1928-2018	Historical Stock Returns - Bond Returns	Arithmetic				6.26%	
					Geometric				4.66%	
	Dimson, Marsh, Staunton _Credit Suisse Repon	2019	1900-2018	Historical Stock Returns - Bond Returns	Arithmetic				5.50%	
					Geometric					
	Median									5.36%
Ex Ante Models (Puzzle Research)										
	Siegel - Rethink ERP	2011	Projection	Real Stock Returns and Components					5.50%	
	Duff & Phelps	2019	Projection	Normalized with 3.5% Long-Term Treasury Yield					5.50%	
	Mschchowski - VL - 2014	2014	Projection	Fundamentals - Expected Return Minus 10-Year Treasury Rate					5.50%	
	American Appraisal Quarterly ERP	2015	Projection	Fundamental Economic and Market Factors					6.00%	
	Market Risk Premia	2019	Projection	Fundamental Economic and Market Factors					4.29%	
	KPMG	2019	Projection	Fundamental Economic and Market Factors					5.50%	
	Damodaran - 3-1-19	2019	Projection	Fundamentals - Implied from FCF to Equity Model (Trailing 12 month, with adjusted payout)					4.98%	
	Median									5.50%
Surveys										
	New York Fed	2015	Five-Year	Survey of Wall Street Firms					5.70%	
	Survey of Financial Forecasters	2019	10-Year Projection	About 20 Financial Forecastsers					1.85%	
	Duke - CFO Magazine Survey	2019	10-Year Projection	Approximately 200 CFOs					3.15%	
	Fernandez - Academics, Analysts, and Companies	2019	Long-Term	Survey of Academics, Analysts, and Companies					5.60%	
	Median									4.38%
Building Block										
	Ibbotson and Chen	2015	Projection	Historical Supply Model (D/P & Earnings Growth)	Arithmetic			6.22%	5.21%	
					Geometric			4.20%		
	Chen - Rethink ERP	2010	20-Year Projection	Combination Supply Model (Historic and Projection)	Geometric				4.00%	
	Ilmanen - Rethink ERP	2010	Projection	Current Supply Model (D/P & Earnings Growth)	Geometric				3.00%	
	Grinold, Kroner, Siegel - Rethink ERP	2011	Projection	Current Supply Model (D/P & Earnings Growth)	Arithmetic			4.63%	4.12%	
					Geometric			3.60%		
	Median									4.06%
Mean										4.82%

Duff & Phelps Risk-Free Interest Rates and Equity Risk Premium Estimates

Duff & Phelps Recommended U.S. Equity Risk Premium (ERP) and Corresponding Risk-free Rates (R_f); January 2008–Present

For additional information, please visit www.duffandphelps.com/CostofCapital

Date	Risk-free Rate (R_f)	R_f (%)	Duff & Phelps Recommended ERP (%)	What Changed
Current Guidance: December 31, 2018 – UNTIL FURTHER NOTICE	**Normalized 20-year U.S. Treasury yield**	**3.50**	**5.50**	**ERP**
September 5, 2017 - December 30, 2018	Normalized 20-year U.S. Treasury yield	3.50	5.00	ERP
November 15, 2016 - September 4, 2017	Normalized 20-year U.S. Treasury yield	3.50	5.50	R_f
January 31, 2016 - November 14, 2016	Normalized 20-year U.S. Treasury yield	4.00	5.50	ERP
December 31, 2015	Normalized 20-year U.S. Treasury yield	4.00	5.00	
December 31, 2014	Normalized 20-year U.S. Treasury yield	4.00	5.00	
December 31, 2013	Normalized 20-year U.S. Treasury yield	4.00	5.00	
February 28, 2013 - January 30, 2016	Normalized 20-year U.S. Treasury yield	4.00	5.00	ERP
December 31, 2012	Normalized 20-year U.S. Treasury yield	4.00	5.50	
January 15, 2012 - February 27, 2013	Normalized 20-year U.S. Treasury yield	4.00	5.50	ERP
December 31, 2011	Normalized 20-year U.S. Treasury yield	4.00	6.00	
September 30, 2011 - January 14, 2012	Normalized 20-year U.S. Treasury yield	4.00	6.00	ERP
July 1 2011 - September 29, 2011	Normalized 20-year U.S. Treasury yield	4.00	5.50	R_f
June 1, 2011 - June 30, 2011	Spot 20-year U.S. Treasury yield	Spot	5.50	R_f
May 1, 2011 - May 31, 2011	Normalized 20-year U.S. Treasury yield	4.00	5.50	R_f
December 31, 2010	Spot 20-year U.S. Treasury yield	Spot	5.50	
December 1, 2010 - April 30, 2011	Spot 20-year U.S. Treasury yield	Spot	5.50	R_f
June 1, 2010 - November 30, 2010	Normalized 20-year U.S. Treasury yield	4.00	5.50	R_f
December 31, 2009	Spot 20-year U.S. Treasury yield	Spot	5.50	
December 1, 2009 - May 31, 2010	Spot 20-year U.S. Treasury yield	Spot	5.50	ERP
June 1, 2009 - November 30, 2009	Spot 20-year U.S. Treasury yield	Spot	6.00	R_f
December 31, 2008	Normalized 20-year U.S. Treasury yield	4.50	6.00	
November 1, 2008 - May 31, 2009	Normalized 20-year U.S. Treasury yield	4.50	6.00	R_f
October 27, 2008 - October 31, 2008	Spot 20-year U.S. Treasury yield	Spot	6.00	ERP
January 1, 2008 - October 26, 2008	Spot 20-year U.S. Treasury yield	Spot	5.00	Initialized

"Normalized" in this context means that in months where the risk-free rate is deemed to be abnormally low, a proxy for a longer-term sustainable risk-free rate is used.

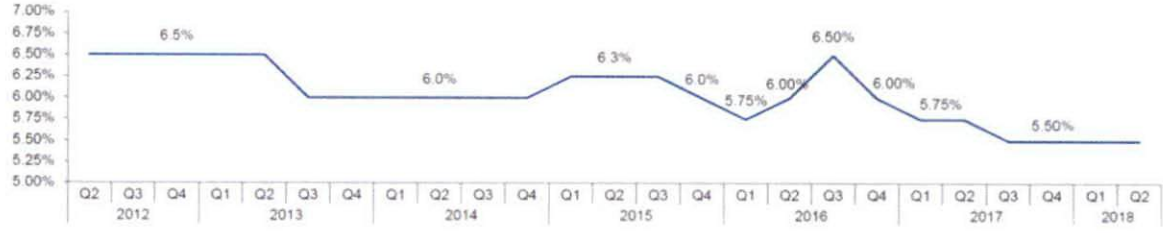
Source: https://www.duffandphelps.com/-/media/assets/pdfs/publications/valuation/coc/erp-risk-free-rates-jan-2008-present.ashx?la=en

Panel A
KPMG Equity Risk Premium Recommendation

Appendix

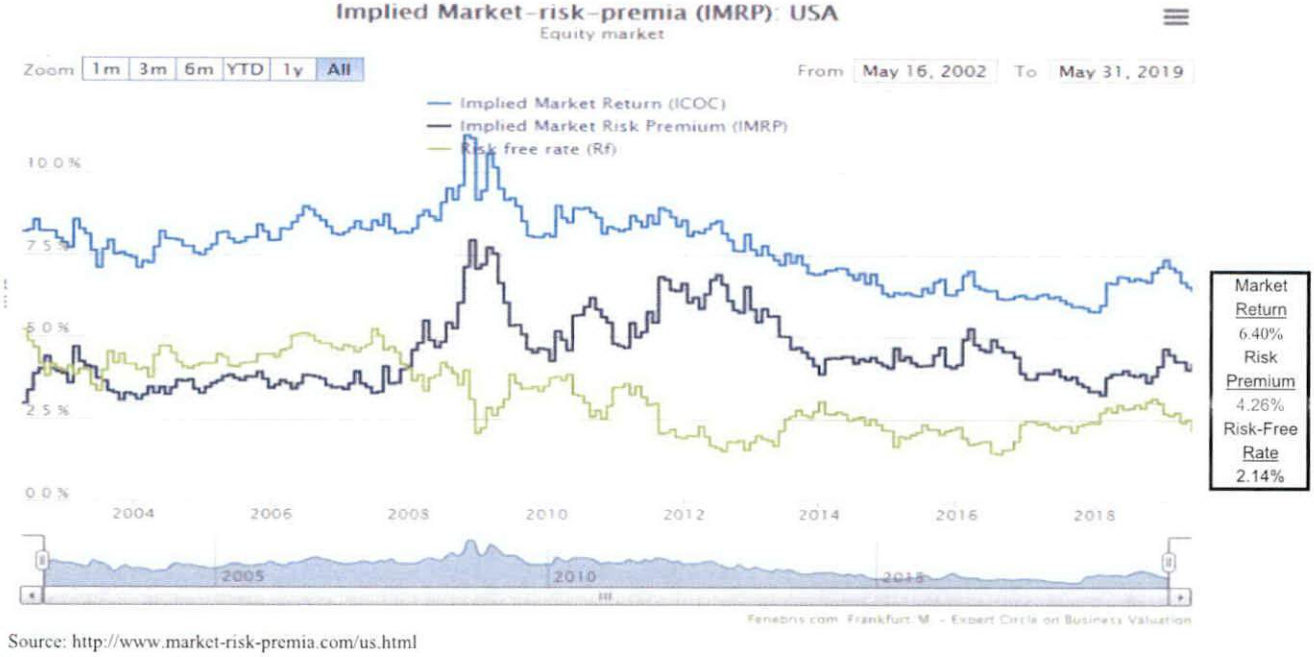
Historic MRP estimates

Please find an overview of the historic MRP estimates by KPMG in the graph below



Source: https://assets.kpmg/content/dam/kpmg/nl/pdf/2019/advisory/equity-market-research-summary.pdf

Panel B
Market-Risk-Premia.com Implied Market Risk Premium
31-May-19



Source: http://www.market-risk-premia.com/us.html

I/A

Exhibit JRW-10

Piedmont Natural Gas Company, Inc.
Company's Proposed Cost of Capital

	Percent of Total	Cost	Weighted Cost Rate
Short-Term Debt	0.82%	2.82%	0.02%
Long-Term Debt	47.18%	4.55%	2.15%
Common Equity	52.00%	10.60%	5.51%
Total Capital	100.00%		7.68%

I/A

Panel A - Discounted Cash Flow Results

	Median	Median High
30-Day Average	9.60%	11.94%
90-Day Average	9.63%	11.97%
180-Day Average	9.65%	12.03%

Panel B - CAPM Results

	Bloomberg Derived Market Risk Premium	Value Line Derived Market Risk Premium
Average Bloomberg Beta Coefficient		
Current 30-Year Treasury (3.04%)	9.26%	11.08%
Near Term Projected 30-Year Treasury (3.25%)	9.47%	11.30%
Long Term Projected 30-Year Treasury (4.05%)	10.27%	12.10%
Average Value Line Beta Coefficient		
Current 30-Year Treasury (3.04%)	10.36%	12.50%
Near Term Projected 30-Year Treasury (3.25%)	10.57%	12.72%
Long Term Projected 30-Year Treasury (4.05%)	11.37%	13.52%

Panel C - Bond Yield Risk Premium Results

Treasury Yield	*Return on Equity*
Current 30-Year Treasury (3.04%)	9.89%
Near Term Projected 30-Year Treasury (3.25%)	9.92%
Long Term Projected 30-Year Treasury (4.05%)	10.11%

Panel D - Expected Earnings Approach

	Return on Equity
Low	9.58%
Average	10.73%
High	12.13%

Panel A
***Value Line* Projected EPS Growth Rates**

Gas Proxy Group	Zacks Earnings Growth	First Call Earnings Growth	Value Line Earnings Growth
Atmos Energy Corporation	6.50%	6.40%	7.50%
Chesapeake Utilities Corporation	6.00%	6.00%	9.00%
New Jersey Resources Corporation	7.00%	6.00%	2.50%
Northwest Natural Gas Company	4.30%	4.00%	25.50%
ONE Gas, Inc.	5.90%	5.00%	9.00%
South Jersey Industries, Inc.	9.50%	9.50%	9.50%
Southwest Gas Corporation	5.00%	6.20%	8.50%
Spire Inc.	3.90%	2.42%	5.50%
Proxy Group Mean	6.01%	5.69%	9.63%
Proxy Group Median	5.95%	6.00%	8.75%

Panel B
***NWN's Value Line* Projected EPS Growth Rate**

ANNUAL RATES of change (per sh)	Past 10 Yrs.	Past 5 Yrs.	Est'd '15-'17 to '22-'24
Revenues	-3.5%	-3.0%	1.5%
"Cash Flow"	-3.0%	-6.5%	8.5%
Earnings	-11.5%	-22.0%	25.5%
Dividends	3.0%	1.5%	2.5%
Book Value	2.5%	1.0%	.5%

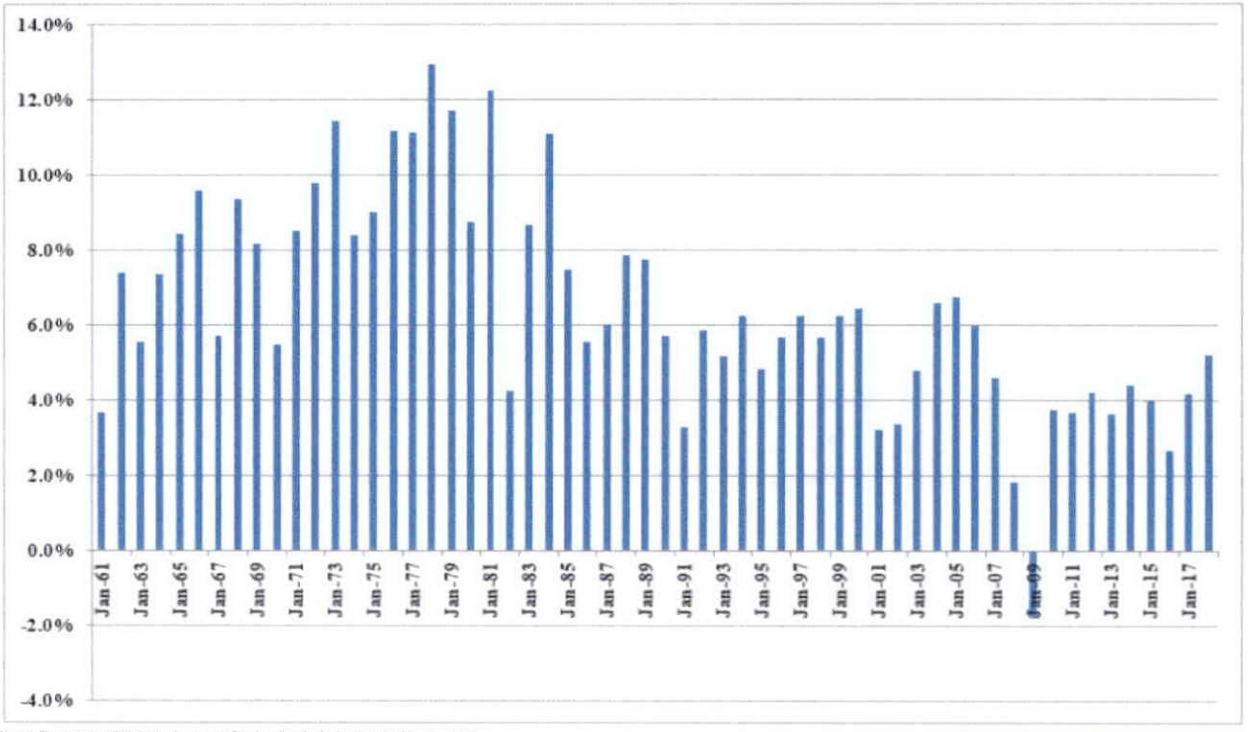
Northwest Natural Gas Company	**2015**	**2016**	**2017**	**2018**	**2019**	**2022-24**
Earnings Per Share	$ 1.96	$ 2.12	$ (1.94)	$ 2.20	$ 2.45	$ 3.50
Three-Year Base and Projected Periods		2015-17				2022-24
Base and Projected EPS Figures		$ 0.71				$ 3.50
Base Period to Projected Period Growth Rate				25.5%		

I/A

Growth Rates
GDP, S&P 500 Price, EPS, and DPS

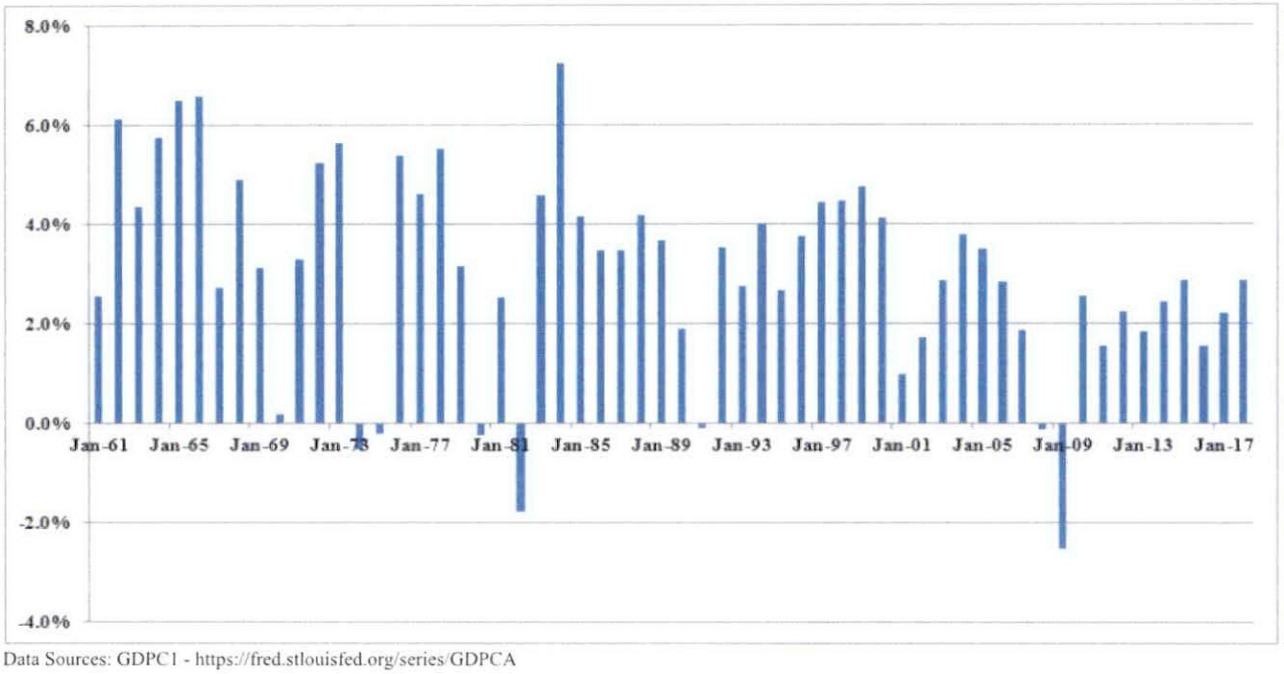
	GDP	S&P 500	S&P 500 EPS	S&P 500 DPS	
1960	542.38	58.11	3.10	1.98	
1961	562.21	71.55	3.37	2.04	
1962	603.92	63.10	3.67	2.15	
1963	637.45	75.02	4.13	2.35	
1964	684.46	84.75	4.76	2.58	
1965	742.29	92.43	5.30	2.83	
1966	813.41	80.33	5.41	2.88	
1967	859.96	96.47	5.46	2.98	
1968	940.65	103.86	5.72	3.04	
1969	1017.62	92.06	6.10	3.24	
1970	1073.30	92.15	5.51	3.19	
1971	1164.85	102.09	5.57	3.16	
1972	1279.11	118.05	6.17	3.19	
1973	1425.38	97.55	7.96	3.61	
1974	1545.24	68.56	9.35	3.72	
1975	1684.90	90.19	7.71	3.73	
1976	1873.41	107.46	9.75	4.22	
1977	2081.83	95.10	10.87	4.86	
1978	2351.60	96.11	11.64	5.18	
1979	2627.33	107.94	14.55	5.97	
1980	2857.31	135.76	14.99	6.44	
1981	3207.04	122.55	15.18	6.83	
1982	3343.79	140.64	13.82	6.93	
1983	3634.04	164.93	13.29	7.12	
1984	4037.61	167.24	16.84	7.83	
1985	4338.98	211.28	15.68	8.20	
1986	4579.63	242.17	14.43	8.19	
1987	4855.22	247.08	16.04	9.17	
1988	5236.44	277.72	24.12	10.22	
1989	5641.58	353.40	24.32	11.73	
1990	5963.14	330.22	22.65	12.35	
1991	6158.13	417.09	19.30	12.97	
1992	6520.33	435.71	20.87	12.64	
1993	6858.56	466.45	26.90	12.69	
1994	7287.24	459.27	31.75	13.36	
1995	7639.75	615.93	37.70	14.17	
1996	8073.12	740.74	40.63	14.89	
1997	8577.55	970.43	44.09	15.52	
1998	9062.82	1229.23	44.27	16.20	
1999	9630.66	1469.25	51.68	16.71	
2000	10252.35	1320.28	56.13	16.27	
2001	10581.82	1148.09	38.85	15.74	
2002	10936.42	879.82	46.04	16.08	
2003	11458.25	1111.91	54.69	17.88	
2004	12213.73	1211.92	67.68	19.41	
2005	13036.64	1248.29	76.45	22.38	
2006	13814.61	1418.30	87.72	25.05	
2007	14451.86	1468.36	82.54	27.73	
2008	14712.85	903.25	65.39	28.05	
2009	14448.93	1115.10	59.65	22.31	
2010	14992.05	1257.64	83.66	23.12	
2011	15542.58	1257.60	97.05	26.02	
2012	16197.01	1426.19	102.47	30.44	
2013	16784.85	1848.36	107.45	36.28	
2014	17521.75	2058.90	113.01	39.44	
2015	18219.30	2043.94	106.32	43.16	
2016	18707.19	2238.83	108.86	45.03	
2017	19485.39	2673.61	124.94	49.73	
2018	20500.64	2506.85	148.34	53.61	Average

Nominal GDP Growth Rates
Annual Growth Rates - 1961-2018



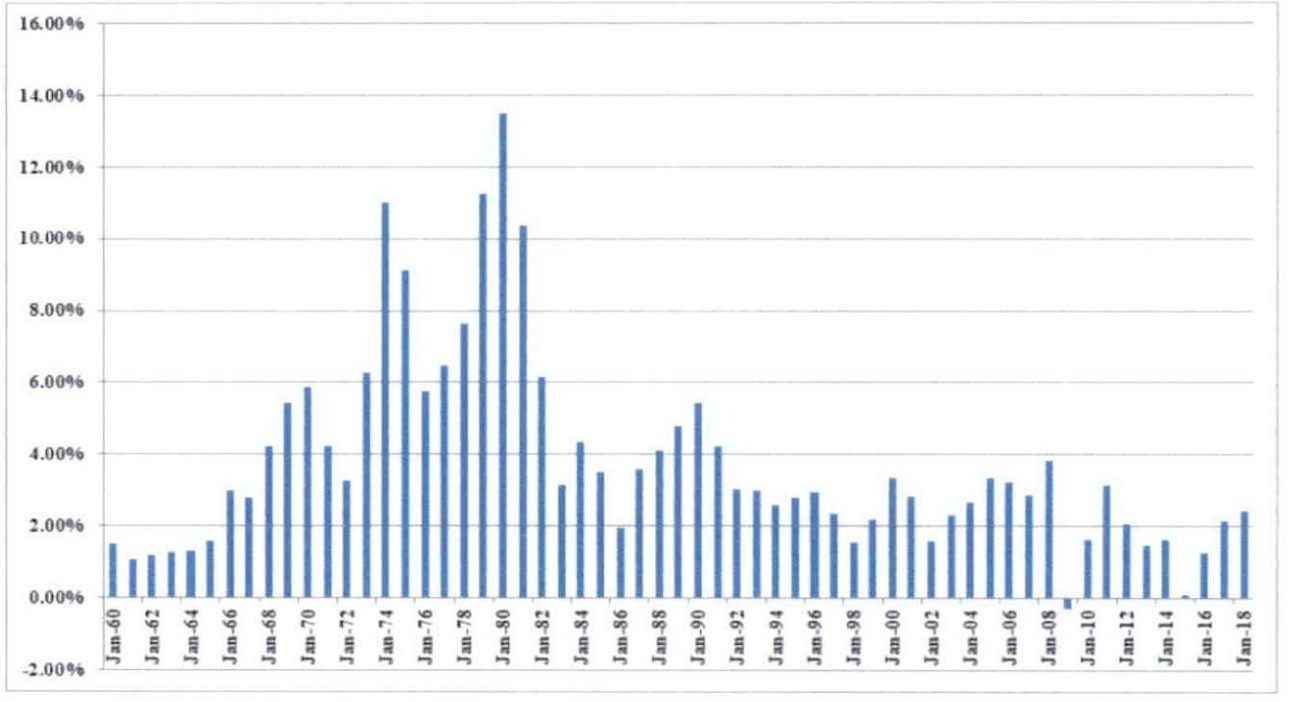
Data Sources: GDPA -https://fred.stlouisfed.org/series/GDPA

Annual Real GDP Growth Rates
1961-2018



Data Sources: GDPC1 - https://fred.stlouisfed.org/series/GDPCA

Annual Inflation Rates
1961-2018



Data Sources: CPIAUCSL - https://fred.stlouisfed.org/series/CPIAUCSL

Panel A
Historic GDP Growth Rates

10-Year Average		3.37%
20-Year Average		4.17%
30-Year Average		4.65%
40-Year Average		5.56%
50-Year Average		6.36%

Calculated using GDP data on Page 1 of Exhibit JRW-10

Panel B
Projected GDP Growth Rates

	Time Frame	Projected Nominal GDP Growth Rate
Congressional Budget Office	2018-2048	4.0%
Survey of Financial Forecasters	Ten Year	4.3%
Social Security Administration	2018-2095	4.4%
Energy Information Administration	2017-2050	4.3%

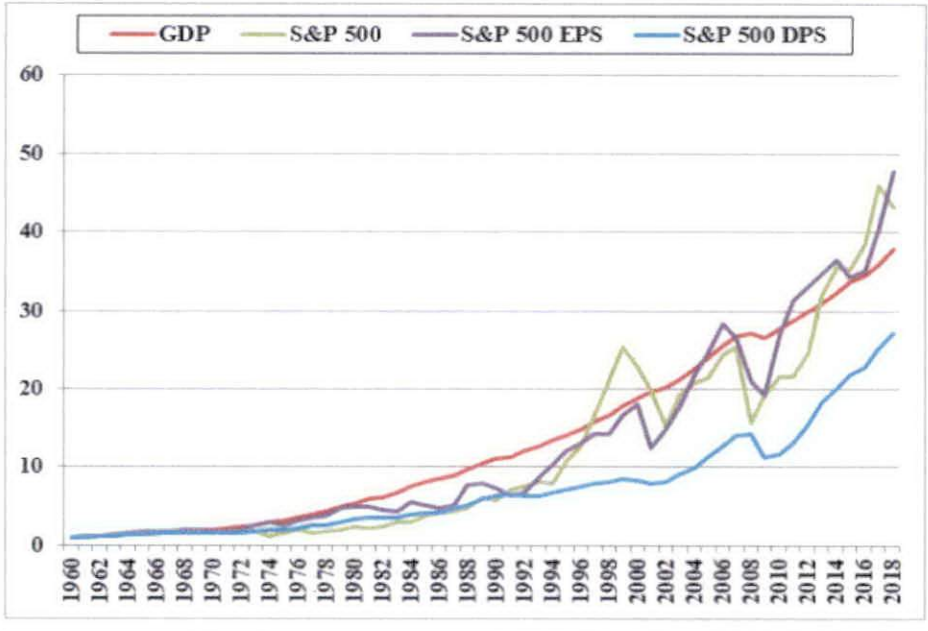
Sources:

Congressional Budget Office,The *2018 Long-Term Budget Outlook*, June 1, 2018. https://www.cbo.gov/system/files?file=2018-06/53919-2018ltbo.pdf

U.S. Energy Information Administration, *Annual Energy Outlook 2018*, Table: Macroeconomic Indicators, *https://www.eia.gov/outlooks/aeo/data/browser/#/?id=18-AEO2018&sourcekey=0.*

Social Security Administration, 2018 Annual Report of the Board of Trustees of the Old-Age, Survivors, and Disability Insurance (OASDI) Program, Table VI.G4, p. 211(June 15, 2018), https://www.ssa.gov/oact/tr/2018/lr6g4.html. The 4.4% represents the compounded growth rate in projected GDP from $20,307 trillion in 2018 to $548,108 trillion in 2095.

Long-Term Growth of GDP, S&P 500, S&P 500 EPS, and S&P 500 DPS



	GDP	S&P 500	S&P 500 EPS	S&P 500 DPS
Growth Rates	6.47	6.95	6.70	5.82

I/A

Docket No. G-9, Sub 743
Exhibit JRW-13
The Revenue Implications of Piedmont and the AG's Rate of Return Recommendations
Page 1 of 2

Piedmont Natural Gas Company, Inc.
Docket No. G-9, Sub 743
North Carolina Operations
Return on Common Equity and Original Cost Net Investment
At December 31, 2018

EXHIBIT_(PKP-7)
Page 2 of 5

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	Test Period			After Accounting and Pro Forma Adjustments				
	Per Books @ 12/31/2018	Per Books Ratio	Cost Net Investment	Pro Forma Ratio	Cost Net Investment	Embedded Cost	Weighted Cost	Net Operating Income
Long-Term Debt	1,783,237,924	45.56%	1,416,243,157	47.18%	1,556,492,778	4.55%	2.15%	70,820,421
Short-Term Debt Prox	39,714,182	1.01%	31,540,905	0.82%	27,112,267	2.82%	0.02%	764,566
Common Equity	2,091,229,831	53.43%	1,660,849,569	52.00%	1,715,572,132	5.36%	2.79%	91,974,506
Total	$ 3,914,181,937	100.00%	$ 3,108,633,631	100.00%	$ 3,299,177,177		4.96%	$ 163,559,493

After Adjustments for Proposed Rates

	Cost Net Investment	Embedded Cost	Weighted Cost	Net Operating Income
Long-Term Debt	1,556,492,778	4.55%	2.15%	70,820,421
Short-Term Debt Proxy	27,112,267	2.82%	0.02%	764,566
Common Equity	1,715,572,132	10.60%	5.51%	181,850,646
Total	$ 3,299,177,177		7.68%	$ 253,435,633

After Adjustments for Proposed Rates

	Retention Factor	(Pre-Tax ROR) Gross Rev. Factor	Tax Factor	Net of Tax Weighted Cost
Long-Term Debt	0.9878745	2.18%	0.7609103	1.64%
Short-Term Debt Proxy	0.9878745	0.02%	0.7609103	0.02%
Common Equity	0.7609103	7.24%	1.0000000	5.51%
Total		9.44%		7.16%

Piedmont Natural Gas Company, Inc.
Docket No. G-9, Sub 743
North Carolina Operations
Return on Common Equity and Original Cost Net Investment
At December 31, 2018

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
	Test Period			After Accounting and Pro Forma Adjustments				
	Per Books @ 12/31/2018	Per Books Ratio	Cost Net Investment	Pro Forma Ratio	Cost Net Investment	Embedded Cost	Weighted Cost	Net Operating Income
Long-Term Debt	1,783,237,924	45.56%	1,416,243,157	0.85%	28,180,472	4.55%	0.04%	1,282,211
Short-Term Debt Pro	39,714,182	1.01%	31,540,905	49.15%	1,621,408,117	2.82%	1.39%	45,723,709
Common Equity	2,091,229,831	53.43%	1,660,849,569	50.00%	1,649,588,589	6.72%	3.36%	110,906,532
Total	$ 3,914,181,937	100.00%	$ 3,108,633,631	100.00%	$ 3,299,177,178		4.79%	$ 157,912,452

	After Adjustments for Proposed Rates			
	Cost Net Investment	Embedded Cost	Weighted Cost	Net Operating Income
Long-Term Debt	28,180,472	4.55%	0.04%	1,282,211
Short-Term Debt Proxy	1,621,408,117	2.82%	1.39%	45,723,709
Common Equity	1,649,588,589	9.00%	4.50%	148,462,973
Total	$ 3,299,177,178		5.92%	$ 195,468,893

	After Adjustments for Proposed Rates			
	Retention Factor	(Pre-Tax ROR) Gross Rev. Factor	Tax Factor	Net of Tax Weighted Cost
Long-Term Debt	0.9878745	0.04%	0.7609103	0.03%
Short-Term Debt Proxy	0.9878745	1.41%	0.7609103	1.06%
Common Equity	0.7609103	5.91%	1.0000000	4.50%
Total		7.36%		5.59%

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of		
Application by Aqua North Carolina, Inc., 202 MacKenan Court, Cary, North Carolina 27511, for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All Service Areas in North Carolina	)))))	ORDER APPROVING PARTIAL SETTLEMENT AGREEMENT AND STIPULATION, GRANTING PARTIAL RATE INCREASE, AND REQUIRING CUSTOMER NOTICE

HEARD: Tuesday, May 8, 2018, at 7:00 p.m., Davie County Courthouse, District Courtroom, 140 South Main Street, Mocksville, North Carolina

Wednesday, May 9, 2018, at 7:00 p.m., Gaston County Courthouse, Courtroom 4C, 325 Dr. Martin Luther King Jr. Way, Gastonia, North Carolina

Monday, June 25, 2018, at 7:00 p.m., Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina

Tuesday, June 26, 2018, at 7:00 p.m., New Hanover County Courthouse, Courtroom 317, 316 Princess Street, Wilmington, North Carolina

Tuesday, September 11, 2018, at 1:30 p.m., and continuing as required through Tuesday, September 25, 2018, in Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina

BEFORE: Commissioner ToNola D. Brown-Bland, Presiding; Chairman Edward S. Finley, Jr., and Commissioners Jerry C. Dockham, James G. Patterson, Lyons Gray, Daniel G. Clodfelter, and Charlotte A. Mitchell

APPEARANCES:

For Aqua North Carolina, Inc.:

Jo Anne Sanford, Sanford Law Office, PLLC, Post Office Box 28085, Raleigh, North Carolina 27611

Robert H. Bennink, Jr., Bennink Law Office, 130 Murphy Drive, Cary, North Carolina 27513

Dwight Allen, Britton Allen, and Brady Allen, Allen Law Offices, PLLC, 1514 Glenwood Avenue, Suite 200, Raleigh, North Carolina 27612

For Eric Galamb (pro se):

Eric Galamb, 12208 Glenlivet Way, Raleigh, North Carolina 27616

For the Using and Consuming Public:

William E. Grantmyre, Elizabeth D. Culpepper, and Megan Jost, Staff Attorneys, Public Staff – North Carolina Utilities Commission, 4326 Mail Service Center, Raleigh, North Carolina 27699

Margaret A. Force, Assistant Attorney General, and Teresa Townsend, Special Deputy Attorney General, North Carolina Department of Justice, Post Office Box 629, Raleigh, North Carolina 27602

BY THE COMMISSION: On February 5, 2018, pursuant to Commission Rule R1-17(a), Aqua North Carolina, Inc. (Aqua NC or the Company) submitted notice of its intent to file a general rate case application.

On March 7, 2018, Aqua NC filed its verified application for a general rate increase (Application), seeking authority to: (1) increase and adjust its rates for water and sewer utility service in all of its service areas in North Carolina; (2) pass through to rates any increases in purchased bulk water rates, subject to Aqua NC providing sufficient proof of the increases, as well as any increased costs of wastewater treatment performed by third parties and billed to Aqua NC; and (3) increase certain other charges. Included with this filing were certain information and data required by NCUC Form W-1. The Company stated in its Application that it serves approximately 78,739 water customers and 17,940 sewer customers in North Carolina.

In Docket No. W-218, Sub 363 (Aqua NC's last general rate case), the Commission issued on May 2, 2014, an Order Granting Partial Rate Increase, Approving Rate Adjustment Mechanism, and Requiring Customer Notice. Except for approved tariff revisions to the rates of bulk purchased water and/or sewer systems, the present rates for water and sewer service have been in effect since January 1, 2017, pursuant to the Commission's December 20, 2016 Order Approving Tariff Revision and Customer Notice issued in Docket Nos. W-218, Sub 363; M-100, Sub 138; and M-100, Sub 142. The present Water and Sewer System Improvement Charges (WSIC/SSIC) have been in effect since January 1, 2018, pursuant to the Commission's December 18, 2017 Order Approving Water and Sewer System Improvement Charges on a Provisional Basis and Requiring Customer Notice issued in Docket No. W-218, Sub 363A.

On April 2, 2018, Aqua NC filed its Ongoing Three-Year WSIC/SSIC Plan in this docket.

On April 5, 2018, the Commission issued an Order Establishing General Rate Case, Suspending Rates, Scheduling Hearings, and Requiring Public Notice. By that Order, the Commission declared the matter to be a general rate case pursuant to N.C.G.S. § 62-137, suspended the proposed new rates for up to 270 days pursuant to N.C.G.S. § 62-134, required the parties to prefile testimony and exhibits, scheduled the

matter for hearing, and required notice to all affected customers. The Order also scheduled customer hearings in Mocksville, Gastonia, Raleigh, and Wilmington, North Carolina, and set the evidentiary hearing in Raleigh, North Carolina. Additionally, the Order required Aqua NC to file reports addressing all customer service and/or service quality complaints expressed at the public hearings within 20 days of each respective hearing.

On April 6, 2018, the Commission issued an Errata Order correcting inadvertent errors contained in Appendix C of its April 5, 2018 Order.

On April 23, 2018, Aqua NC filed its certificate of service of the customer notice as required by the Commission.

On June 8, 2018, Aqua NC filed the direct testimony and exhibits of John J. Spanos, Senior Vice President, Gannett Fleming Valuation and Rate Consultants, LLC. The exhibits included depreciation studies of Aqua NC's water and wastewater plant assets as of September 30, 2017.

Public hearings were held as scheduled. The following public witnesses testified at the public hearings held in this proceeding:

May 8, 2018	Mocksville	None
May 9, 2018	Gastonia	Steve Gordon, Ashley Norris
June 25, 2018	Raleigh	Representative Joseph R. John, Sr., Rebecca Daniel, Rich Vitale, Debra Cook, Reece Dillard, Darlene Kinsey, Pat Fleming, Melissa Mitchell, Don Hess, Shannon Brien, Mark Sullivan, Susie Holmes, Kristina Heinz, Peter Jogodka, Michael Dowd, Ralph Sandle, Aimee Bickers, Robert Strazis, Chris Jones, Jack Robinson
June 26, 2018	Wilmington	Joseph Napoli, Guenter Kass, David Hough, Ronald Hess, Michael Smith, Dan Graney

Aqua NC responded to public witness testimony by its filings of May 29, July 16, and July 20, 2018.

On July 27, 2018, Aqua NC filed the direct testimony and exhibits of Shannon V. Becker, President, Aqua NC; Dr. Christopher Crockett, Chief Environmental Officer, Aqua America, Inc.[1] (Aqua America); Dylan W. D'Ascendis, Director, ScottMadden, Inc.; Dean R. Gearhart, Manager of Rates and Planning, Aqua NC; and Robert A. Kopas, Consultant, Aqua Services, Inc.[2]

[1] Aqua NC is a wholly-owned subsidiary of Aqua America, Inc.

[2] Mr. Kopas retired from his position as Regional Controller for Aqua Services, Inc. on July 1, 2018. Following his retirement, Mr. Kopas served as a consultant through the conclusion of the proceedings in this docket. Tr. Vol. 5, p. 240.

On August 6, 2018, Aqua NC filed the revised direct testimony of its witness Kopas.

On August 10, 2018, the North Carolina Attorney General's Office (AGO) filed a notice of intervention in this proceeding. The Commission recognizes the AGO's intervention pursuant to N.C.G.S. § 62-20.

The Public Staff's participation in this proceeding is recognized pursuant to N.C.G.S. § 62-15(d) and Commission Rule R1-19.

On August 20, 2018, Eric Galamb, an Aqua NC customer, filed a motion to intervene, including as attachments his proposed direct testimony and exhibits.

On August 21 and 22, 2018, the Public Staff filed the direct testimony and exhibits of Windley E. Henry, Accounting Manager, Water/Communications Section, Public Staff Accounting Division; Manasa L. Cooper, Staff Accountant, Public Staff Accounting Division; Charles Junis, Utilities Engineer, Public Staff Water, Sewer, and Telephone Division; Lindsay Darden, Utilities Engineer, Public Staff Water, Sewer, and Telephone Division; and John R. Hinton, Director, Public Staff Economic Research Division.

On August 24, 2018, Aqua NC responded to Eric Galamb's motion to intervene, arguing that Mr. Galamb's motion "actually presents a service quality complaint," and requesting that the Commission deny Mr. Galamb's motion and direct Mr. Galamb, Aqua NC, and the Public Staff "to attempt to resolve [Mr. Galamb's] complaint and report back to the Commission by a date-certain."

On August 30, 2018, Aqua NC filed a motion for extension of time to file its rebuttal testimony until September 4, 2018. Aqua NC also moved to postpone the start of the evidentiary hearing to September 11, 2018, at 1:30 p.m. These motions were granted by Commission Order of August 31, 2018.

Also on August 31, 2018, the Commission issued an Order granting, for the limited purpose of addressing whether Aqua NC's application for a general rate increase is supported by sufficient evidence, Mr. Galamb's motion to intervene in this proceeding.

On September 4, 2018, Aqua NC filed the rebuttal testimony and exhibits of its witnesses Becker; Gearhart; D'Ascendis; Kopas; Amanda Berger, Manager of Environmental Compliance, Aqua NC; Joseph Pearce, Director of Operations, Aqua NC; and Bernard F. Thompson, Director of Procurement, Aqua Services, Inc.

On September 5, 2018, the Public Staff filed the testimony and exhibits of Michelle M. Boswell, Staff Accountant, Public Staff Accounting Division, and the supplemental testimony and exhibits of its witnesses Henry, Cooper, and Junis.

On September 6, 2018, Aqua NC filed a motion requesting that the Commission enter an order excusing Company witness John J. Spanos from appearing at the evidentiary hearing, and requesting that witness Spanos' testimony and exhibits be admitted into the record as if given orally from the stand. By Order entered that same day, the Commission granted Aqua NC's motion to excuse witness Spanos.

Also on September 6, 2018, Aqua NC filed a motion to strike a portion of the prefiled direct testimony of Public Staff witness Junis. The Public Staff filed a response in opposition to Aqua NC's Motion to Strike on September 7, 2018.

On September 7, 2018, Aqua NC filed the supplemental rebuttal testimony of witness Becker.

On September 11, 2018, the Public Staff filed a motion to recess the evidentiary hearing due to Hurricane Florence, which was expected to impact Raleigh later that week.

The evidentiary hearing began as scheduled at 1:30 p.m. on September 11, 2018, in Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina. Thereafter, the evidentiary hearing continued as necessary until its conclusion on Tuesday, September 25, 2018.

Prior to the presentation of testimony, the Commission denied Aqua NC's pending motion to strike. Thereafter, Mr. Galamb presented his direct testimony. Aqua NC presented the direct testimony of its witnesses Becker, Kopas, and Gearhart, and the direct and rebuttal testimony of its witness D'Ascendis. The Public Staff presented the direct testimony of its witness Hinton. The hearing was adjourned at 11:38 a.m. on September 12, 2018, due to the expected impact of Hurricane Florence.

On September 12, 2018, the Public Staff filed revised Exhibits 1 and 3 of its witness Boswell and refiled Boswell Exhibit 2.

On September 12, 2018, as requested by Presiding Commissioner Brown-Bland, the AGO filed copies of its communications with the North Carolina Department of Environmental Quality (DEQ) concerning Aqua NC.

On September 13, 2018, the Public Staff filed a motion requesting that the Commission issue an order ruling that excerpts of an audio recording made by Company witness Berger not be treated as confidential, and requesting that they be accepted into evidence.

Also on September 13, 2018, the Public Staff filed the revised supplemental exhibits of its witnesses Cooper and Henry.

On September 17, 2018, Aqua NC and the Public Staff entered into and filed a Partial Settlement Agreement and Stipulation (Stipulation). The Stipulation resolved some of the contested issues between Aqua NC and the Public Staff (Stipulating Parties) in this proceeding. However, the following disputed issues remained: (1) Return on Equity; (2) the Public Staff's removal of 50% of four Company operators' salaries and related benefits; (3) the Public Staff's reduction of executive compensation and benefits by 50%; (4) the Public Staff's reduction of Board of Director fees by 50%; (5) annualization and consumption adjustments; (6) post-test year plant additions; (7) the Public Staff's removal of 30% of bonuses paid to Aqua NC supervisory employees; (8) adjustment for Aqua NC's Neuse Colony Wastewater Treatment Plant expansion and capacity payment to Johnston County; (9) adjustment to costs related to Automatic Meter Reading (AMR) meters and the two meter installation projects; (10) adjustment to excess capacity;

(11) adjustment to sludge removal; (12) adjustment to testing; (13) adjustment for water losses from purchased water systems; (14) water quality issues, including reporting and customer complaints; and (15) Consumption Adjustment Mechanism.

The evidentiary hearing reconvened on September 18, 2018, at 10:30 a.m. Aqua NC presented the direct testimony of its witness Crockett and the rebuttal testimony of its witnesses Thompson, Gearhart, Pearce, Becker, and Berger. The Public Staff presented the direct and supplemental testimony of its witnesses Boswell, Darden, Cooper, Henry, and Junis.

On September 18, 2018, Aqua NC filed its response to the Public Staff's motion of September 13, 2018, waiving its claim of confidentiality regarding the audio recording and withdrawing its objection[3] to the recording being admitted into evidence.

On September 19, 2018, Aqua NC made a filing pursuant to requests made on the record during the evidentiary hearing by Presiding Commissioner Brown-Bland and Commissioner Mitchell for late-filed exhibits regarding the Company's communication with DEQ concerning water quality issues.

On October 3, 2018, Aqua NC filed a late-filed exhibit regarding interconnection construction for wastewater capacity purchased from Johnston County in response to a request made on the record during the evidentiary hearing by Commissioner Clodfelter.

On October 4, 2018, Aqua NC filed a late-filed exhibit concerning 2002 bulk wastewater agreement between Johnston County, Flowers Plantation and Heater Utilities, Inc., in response to requests made on the record during the evidentiary hearing by Chairman Finley and Commissioner Clodfelter.

On October 10, 2018, the Public Staff filed certain late-filed exhibits in response to requests made on the record during the evidentiary hearing by Presiding Commissioner Brown-Bland, Chairman Finley, and Commissioner Mitchell.

On October 11, 2018, the Public Staff filed a late-filed exhibit regarding the Flowers Plantation contributions in aid of construction issues in response to requests made on the record during the evidentiary hearing by Commissioner Clodfelter and Chairman Finley. On October 15, 2018, the Public Staff filed a correction to this late-filed exhibit.

On October 12, 2018, Aqua NC filed its third quarter 2018 notice of deficiency reports to DEQ.

On October 22, 2018, Aqua NC filed a motion for extension of time until October 30, 2018, for the parties to file proposed orders in this docket. On October 23, 2018, the Commission issued an Order granting this motion

[3] An objection was raised by Aqua NC in its response to the Public Staff Legal Data Request #1 in follow-up to Engineering Data Request #58.

On October 30, 2018, Aqua NC and the Public Staff filed their respective proposed orders, and the AGO and Intervenor Eric Galamb filed their post-hearing briefs.

On November 6, 2018, the Public Staff filed a late-filed exhibit, as requested during the evidentiary hearing, relating to Aqua America, Inc.'s Executive Compensation and North Carolina Supervisors' Bonuses.

On November 19, 2018, Aqua NC filed the Affidavit of Dean R. Gearhart regarding the Company's requested level of rate case expense.

On November 20, 2018, the Public Staff filed Appendices to its proposed order.

The Public Staff filed its Response to the Company's Affidavit of Dean R. Gearhart on November 26, 2018.

All late-filed exhibits were filed by the parties as requested by the Commission during the evidentiary hearing. No objections were raised to the admission into evidence of any such late-filed exhibits, and, therefore, the Commission hereby accepts such exhibits into the record.

Based on the Company's Application and corresponding NCUC Form W-1, the testimony and exhibits received into evidence at the hearings held in this proceeding, the Stipulation, the late-filed exhibits submitted at the request of the Commission during the evidentiary hearing, and the record as a whole, the Commission makes the following:

FINDINGS OF FACT

General Matters

1. Aqua NC is a corporation duly organized under the laws of North Carolina and is authorized to do business in the State. It is a franchised public utility providing water and/or sewer utility service to customers in North Carolina. Aqua NC is a wholly-owned subsidiary of Aqua America, Inc. (Aqua America), located in Bryn Mawr, Pennsylvania.

2. Aqua NC is subject to the jurisdiction of the Commission pursuant to Chapter 62 of the North Carolina General Statutes for adjudication of Aqua NC's Application for a rate increase and for a determination of the justness and reasonableness of Aqua NC's proposed rates for its water and sewer utility operations in North Carolina.

3. The test period appropriate for use in this proceeding is the 12-month period ending September 30, 2017, updated for known and measurable changes through June 30, 2018, and including up to the close of the evidentiary hearing on September 25, 2018.

4. Aqua NC's last general rate case was decided by Commission Order (Sub 363 Order) entered on May 2, 2014, in Docket No. W-218, Sub 363. Aqua NC's present rates for water and sewer service in all of the Company's service areas have

been in effect since January 1, 2017, pursuant to Commission Order issued on December 20, 2016, in Docket Nos. M-100, Sub 138; M-100, Sub 142; and W-218, Sub 363.[4]

The Stipulation

5. On September 17, 2018, the Stipulating Parties entered into and filed the Stipulation resolving some of the disputed issues between the Stipulating Parties in this proceeding. The issues that were not resolved by the Stipulation are sometimes referred to collectively herein as the Unsettled Issues.

6. The revenue requirement effect of the Stipulation is shown in Settlement Exhibit 1 and Henry Additional Direct Partial Settlement Agreement Exhibit 1, which provide sufficient support for the annual revenue required for the issues resolved by the Stipulation.

7. The Stipulation is the product of the give-and-take in settlement between the Stipulating Parties, is material evidence in this proceeding, and is entitled to be given appropriate weight in this case, along with other evidence from Aqua NC, the Public Staff, and other intervening parties, along with consumer statements of position and the testimony of the public witnesses concerning the Company's Application.

8. The Stipulation settles only some of the disputed issues between the Stipulating Parties. The Unsettled Issues include the return on equity; removal of 50% of four operators' salaries and related benefits; reduction of executive compensation and benefits by 50%; reduction of Board of Director fees by 50%; annualization and consumption adjustments; post-test year plant additions; removal of 30% of bonuses paid to Aqua NC's North Carolina supervisory employees; adjustment for Aqua NC's Neuse Colony Wastewater Treatment Plant sewer expansion and its purchased capacity payment to Johnston County; adjustment to costs related to AMR meters and the two meter installation projects; adjustment to excess capacity; adjustment to sludge removal; adjustment to testing; adjustments for water losses from purchased water systems; water quality issues, including reporting and customer complaints; and the Consumption Adjustment Mechanism proposed by Aqua NC. The Unsettled Issues are resolved by the Commission and addressed in this Order.

Acceptance of Stipulation

9. The Stipulation will provide Aqua NC and its ratepayers just and reasonable rates when combined with the rate effects of the Commission's decisions regarding the Unsettled Issues in this proceeding.

10. The provisions of the Stipulation are just and reasonable to all parties to this proceeding and serve the public interest. Therefore, the Stipulation should be approved in its entirety.

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[4] Pass-through rate increases for various purchased water systems have been approved pursuant to N.C.G.S. § 62-133.11, subsequent to the Commission's December 20, 2016 Order.

Customer Concerns – Service and Water Quality-Related Issues

11. As of the date of the evidentiary hearing, Aqua NC served approximately 78,739 water customers and 17,940 wastewater customers. Aqua NC owns and operates 750 systems consisting of over 1,400 wells and 59 wastewater treatment plants in 51 counties in North Carolina.

12. A total of 28 customers testified at the four separate public hearings held in Mocksville, Gastonia, Raleigh, and Wilmington for the purpose of receiving customer testimony.[5] In general, public testimony received at those hearings covered water quality concerns, customer service concerns, and opposition to rate increases.

13. Customer witnesses testifying regarding water quality complained specifically about poor water quality, badly discolored water, sediment buildup related to iron and manganese concentrations in the water, damage to appliances and discoloration of laundry and household fixtures caused by poor water quality, and unsatisfactory customer service related to Aqua NC's responsiveness and dissemination of inaccurate and insufficient information regarding such matters as water flushing and service outages. Many customers complaining of water quality issues testified that they do not drink the water supplied by Aqua NC systems to their taps and, instead, have resorted to purchasing bottled water for drinking and cooking. Several customers testified that they have incurred expense to have household filters installed (by non-Aqua NC affiliated vendors) in an effort to improve the quality of water supplied to their homes by Aqua NC. Several of the customers showed the Commission pictures they had taken to demonstrate both discolored water and the effects of the sediment-laden water on their appliances and fixtures. Eleven of 19 customers who testified at the Raleigh hearing receive their water supply from the Bayleaf Master System.

14. Other specific concerns to which customers testified, which are not necessarily water quality related, include the magnitude of the rate increase requested by Aqua NC, the flat-rate sewer methodology rate design, and insufficient notice regarding the public hearing in Wilmington.

15. As of August 21, 2018, the Public Staff had received approximately 57 written customer statements of position, 43 of which complained about water quality issues. In addition, the Commission received approximately 21 written customer statements via electronic mail, primarily expressing opposition to Aqua NC's proposed rate increase and complaining of dissatisfaction with water quality and Aqua NC's customer service. While the number of written statements received in this docket is less than the number of written statements received in the Company's last general rate case filed in 2013, in both dockets, customers continue to communicate complaints that primarily concern poor water quality and Aqua NC's related customer service.

[5] The Honorable Joe John, member of the North Carolina House of Representatives, although not an Aqua NC customer, appeared at the Raleigh hearing to speak in support of his constituents' concerns. Approximately 55 individuals signed up to testify at the Raleigh hearing, but more than 20 of those yielded their allotted time to testify to three other individual witnesses.

16. The water quality and customer service issues described by the public witnesses, Intervenor Galamb, and customers providing customer statements of position in the present docket are in many instances a repeat of the same types of issues (i.e., discolored water, sediment in the water, damage to appliances and other household property, staining of laundry items and fixtures caused by poor water quality, and shortcomings of the Company's customer service in addressing customer calls and complaints about service and billing) brought to the Commission's attention by customers who provided statements and by witnesses who testified at the public hearings held in the Sub 363 and Sub 319 general rate case dockets.

17. Pursuant to the Commission's directive set forth in its Order Establishing General Rate Case issued in this docket, following each of the four public hearings, the Company filed verified reports with the Commission addressing the concerns raised by customer witnesses at the hearings. The reports described each of the witnesses' specific service-related and water quality concerns and comments, the Company's response, and how each concern and comment was addressed, if applicable. The reports generally explained that naturally-occurring iron and manganese is in the groundwater supply that is the source of water in many of the Aqua NC systems; that the level of iron and manganese in the Company systems meets applicable regulatory standards and poses no health risk to users; that the presence of iron and manganese in the water can cause water discoloration, problems with household appliances, and staining of fixtures and laundry; that the Company has employed various strategies to address the elevated levels of iron and manganese in its water systems (e.g., flushing, chemical sequestration, and installation of various filters); and that the Company works with the Public Staff and the North Carolina Department of Environmental Quality (DEQ) to devise optimal plans to better address the problem of iron and manganese in the Company's water systems.

Quality, Remediation Efforts, and Communications

18. DEQ secondary water quality standards address the acceptable levels of certain constituents, including iron and manganese concentrations, in drinking water. Secondary water quality standards serve as guidelines to operators of water systems on keeping these elements, which are not considered to pose health risks, at levels that consumers will not find objectionable for drinking or consuming due to taste, color, and odor effects. Recently, the United States Environmental Protection Agency (EPA) issued a lifetime health advisory for manganese of 0.3 mg/L and has suggested that exposure to higher levels may impact the health of children.

19. While the DEQ secondary water quality standards serve as guidelines to assist water systems in managing water qualities such as taste, color, and odor, they do not purport to address the suitability or acceptability of water for uses other than drinking, cooking, and human ingestion. The Commission's concern pursuant to N.C.G.S. § 62-43(a) for the quality of water supplied to customers goes beyond state and federal regulatory standards related to human ingestion. Separate and apart from health concerns, the degree or magnitude of water taste, color, and odor problems resulting from elevated levels of iron and manganese, which for purposes of health-related issues are sometimes designated and considered "aesthetic" concerns, can significantly limit or adversely impact customers' ability and willingness to use the water service they pay Aqua NC to provide. Persistent water quality issues related to elevated concentrations of

iron and manganese and customer service issues, including slow response to customers' concerns and the dissemination of inaccurate or incomplete information about flushing and service outages, may render the quality of service for some customers inadequate for non-consumptive purposes, such as cleaning, laundry, waste removal, and use in appliances.

20. Since February 2016 Aqua NC has received 68 Notices of Deficiency (NODs) from the Public Water Supply Section of DEQ. These NODs involved more than 50 water systems and approximately 70 different wells with elevated concentrations of iron and manganese, with most reporting manganese above 0.3 mg/L.

21. The overall quality of water service provided by Aqua NC is adequate on a companywide and systemwide basis for purposes of human consumption and ingestion. The Company meets DEQ's and EPA's health-based primary quality standards. While 26 of Aqua NC's water systems have been noted for deficiencies related to the DEQ secondary water quality standards, the Company is actively working with DEQ and the Public Staff to bring them into compliance. In addition, elements addressed by secondary water quality standards are not considered to pose health risks; EPA's recent health advisory for manganese in excess of 0.3 mg/L did not change this status. The quality of service for non-consumptive uses in some of Aqua NC's individual systems is inadequate due to (1) continued elevated levels of iron and manganese in the water source that make the water provided by Aqua NC to certain of its customers not suitable for generally accepted, non-consumptive household use, and (2) the continued need for improvement in communications with customers on these issues. The overall companywide and systemwide quality of wastewater service provided by Aqua NC is adequate and the Company generally has operated its wastewater plants in a prudent manner.

22. Operational changes and improvements may improve the quality of water in systems affected with elevated levels of iron and manganese. Iron and manganese in groundwater can be remediated through flushing, either at the system level or at customers' residences, through chemical sequestration, and/or through filtration, installed either centrally or at customers' residences.

23. Significantly enabled by the use of the WSIC mechanism, Aqua NC has expended resources and made a commitment towards addressing a number of water quality and other issues that result from the presence of iron and manganese in the source water in its service territory. Aqua NC has made investments in water quality projects to address the presence of iron and manganese totaling approximately $13,000,000 since the Commission issued its order ruling on Aqua NC's last request for general rate increase in Docket No. W-218, Sub 363.

24. After working collaboratively with the Public Staff and DEQ, Aqua NC developed a Water Quality Plan, which it began to implement in 2017. The Company's Water Quality Plan, additionally supported by resources from Aqua America, is an overall plan for addressing iron and manganese water quality issues in its service territory in North Carolina.

25. Flushing is one tool used to maintain and improve water quality in systems affected by iron and manganese. On occasion, as additional means of improving water

quality, Aqua NC advises customers to flush their individual premises. When such flushing occurs, Aqua NC's customers are currently billed for the water usage during that flushing event.

26. Aqua NC has deployed in certain of its systems the chemical sequestration product SeaQuest® which is designed to address high concentrations of iron and manganese by dissolving mineral deposits in water pipes. The manufacturer of SeaQuest® recommends flushing systems in which SeaQuest® has been administered at intervals of 30, 60, 90, and 120 days. The Commission noted in its Sub 363 Order ruling on Aqua NC's request for rate increase that the Company had committed to perform the "required" flushing. Since that Order was issued on May 2, 2014, Aqua NC has failed to comply consistently with the manufacturer's recommended flushing schedule when it has administered SeaQuest®, thereby adversely impacting the water quality experienced by customers and likely resulting in increased levels of iron and manganese in the systems where SeaQuest® was deployed without proper flushing.

27. Aqua NC has installed approximately 80 new filters, including 31 greensand filters, as well as filter upgrades and replacements, as part of its efforts to remediate systems experiencing higher concentrations of iron and manganese. Of the Company's remediation options, installation of greensand filters is the most expensive to implement but it is in the Company's opinion the most effective in extracting iron and manganese from the water.

28. To improve communications with its customers, especially as it relates to better communications about water quality issues, Aqua NC has developed a Communications Plan and, in February 2018, implemented what it calls a "Close the Loop" program to assure that an Aqua NC employee contacts every customer who calls with a complaint as a means of follow-up after the customer's call or complaint has been addressed.

Regulatory Oversight and Compliance

29. Pursuant to Ordering Paragraph No. 11 of the Sub 363 Order, Aqua NC and the Public Staff were directed to work together to develop and implement a plan to address the levels of iron and manganese present in water supplied to customers from Aqua NC wells, and to file a report on these secondary water quality issues in June and December of each year the Water System Improvement Charge was in effect (the Semi-Annual Reports Concerning Secondary Water Quality Concerns).[6] These reports were to include the customers affected and the estimated cost of resolving the iron and manganese issues through the WSIC where such issues affected the lesser of 10% of customers in a subdivision service area or 25 billing customers.

30. The method used by Aqua NC to track customer complaints has resulted in some customer complaints regarding iron and manganese concentrations not being

[6] Aqua NC requested that the Commission change the reporting schedule to the months of February and August which the Commission allowed by order issued in Docket Nos. W-218, Subs 363 and 363A dated October 31, 2014.

quantified for the purpose of fully complying with Ordering Paragraph No. 11 of the Sub 363 Order.

31. Aqua NC and the Public Staff agree that the Company should continue to file the Semi-Annual Reports Concerning Secondary Water Quality Concerns.

32. Aqua NC should continue to file its annual Three-Year WSIC and SSIC Plan, as well as its Quarterly Earnings, WSIC/SSIC Revenues, and Construction Status reports. Additional current filings that should continue include Aqua NC's Annual Heater Acquisition Incentive Account Report, the DEQ Quarterly Notice of Deficiency filings, the Secondary Water Quality Filtration Request Executive Summary, the Semi-Annual Reports Concerning Secondary Water Quality Concerns, and the Bi-Monthly Reports on Water Quality Issues pertaining to the issues brought forward by customers in both the Sub 363 docket and the instant Sub 497 docket.

33. In its May 2, 2014 Order ruling on the Company's request for rate increase in the Sub 363 Order, the Commission stated and directed as follows:

> Aqua and the Public Staff should work together to recommend to the Commission appropriate solutions to eradicate to the extent practicable these secondary water quality issues through the use of projects that are eligible for recovery through the WSIC, if appropriate. Further, in order for the Public Staff to interact effectively with DE[Q] concerning any continuing water quality issues at Aqua systems and to be in a more informed position to work with Aqua to formulate a recommendation to the Commission regarding the need and appropriateness of more extensive improvements to address secondary water quality issues, the Commission finds and concludes that Aqua should convey *conversations with, reports to, and the recommendations of DE[Q]to the Public Staff* regarding the water quality concerns being evaluated and addressed in Aqua's systems *in a timely manner as requested by the Public Staff.*. Such communication [to the Public Staff] should be in a written format and *should be provided, at a minimum, on a bi-monthly basis*. Aqua should provide the Public Staff copies of: (a) Aqua's reports and letters to DE[Q] concerning water quality concerns in its systems; (b) responses from DE[Q] concerning reports, letters, or other verbal or written communication received from Aqua; and (c) DE[Q]'s specific recommendations to Aqua, by system, concerning each of the water quality concerns being evaluated by DE[Q]. [Emphasis added.]

34. Aqua NC and the Public Staff should continue to work together regarding the development of appropriate recommendations and solutions to improve water quality at Aqua NC's affected systems. Aqua NC should continue to report on its conversations with DEQ as the Commission previously directed in the Sub 363 Order. "Report" in this context means notification of the fact of meetings or conversations and the salient topics

and points discussed in such meetings or conversations. In addition to written communications described in the Sub 363 Order as noted above, Aqua NC should take steps to ensure that the Public Staff is copied on all written communications with DEQ that relate to compliance with or deficiencies in compliance with the secondary water quality standards enforced by DEQ. Aqua NC and the Public Staff should work together to resolve any dispute that may arise between them regarding the sharing of communications with DEQ about water quality at Aqua NC's affected systems, and should not wait until the next general rate case to notify the Commission of unresolved complaints related to DEQ communications to be shared with the Public Staff pursuant to Commission order.

Rate Base

35. The appropriate level of rate base used and useful in providing service is $190,472,859 for Aqua NC's combined operations, itemized as follows:

Item	Amount
Plant in Service	$492,295,394
Accumulated depreciation	(155,246,692)
Contributions in aid of construction (CIAC)	(196,384,493)
Accumulated amortization of CIAC	70,758,708
Acquisition adjustments	2,055,735
Accumulated amortization of acquisition adjustments	1,040,444
Advances for construction	(4,467,841)
Net plant in service	210,051,255
Customer deposits	(379,445)
Unclaimed refunds	(193,255)
Accumulated deferred income taxes	(24,849,085)
Materials and supplies inventory	2,405,967
Excess capacity adjustment	(1,322,276)
Working capital allowance	4,759,698
Original cost rate base	$190,472,859

36. It is appropriate to make the following adjustments (including applicable accumulated depreciation) of $6,655,081 to Plant in Service for Aqua NC's combined operations:

Item	Amount
Adjustment for post-test year additions	$8,769,089
Adjustment for costs related to future customers	5,992
Adjustment to remove Johnston County capacity payment	(2,120,000)
Adjustment to meters and meter installations	0
Total adjustment to Plant in Service	$6,655,081

37. By the 2014 Rate Case Order, the Commission allowed Aqua NC to include the costs related to the Company's Automated Meter Reading (AMR) aged meter replacement program in rates paid by Aqua NC's customers in the Brookwood Water

Operations Rate Division. However, as part of settlement in that case, Aqua NC and the Public Staff entered into a Stipulation dated January 17, 2014, which provided, at Paragraph 15, that:

> **Automated Meter Reading – Radio Frequency.** Aqua and the Public Staff disagree about the reasonableness, prudency, and cost-effectiveness of installation of Automated Meter Reading – Radio Frequency (AMR-RF) water meters. The Stipulating Parties agree that although the Public Staff did not recommend an adjustment to Aqua's current investment for the installation of AMR-RF meters in this proceeding, the Public Staff has the right as a matter of law to challenge the reasonableness, prudency, and cost-effectiveness of Aqua's investment in AMR-RF meters in future cases.

The Commission approved and incorporated Stipulation Paragraph 15 as Finding of Fact No. 54 of the 2014 Rate Case Order.

38. It is inappropriate to reduce the original cost meter and meter installation rate base for the meter replacement projects of the Aqua NC Water Operations and Brookwood Water Operations rate divisions, as recommended by the Public Staff.

39. It is appropriate to include Aqua NC's investment in AMR technology in rates in this proceeding. Aqua NC's decisions to implement AMR technology in conjunction with the Company's aged meter replacement program, and to utilize contractor-provided labor for such projects were reasonable and prudent. The functionalities of AMR technology installed by Aqua NC are currently being utilized to the benefit of the ratepayers and will incrementally increase benefits to customers in the long-term as the AMR technology is fully deployed.

40. It is appropriate and prudent for Aqua NC to continue implementing its aged meter replacement program, utilizing contractor-provided labor as managed by the Company, whereby standard water meters that have reached the end of their useful lives will be replaced by AMR technology, as appropriate.

41. Aqua NC provides both water and wastewater treatment services to the Flowers Plantation development, which consists of a large number of acres generally divided between the eastern half (Buffalo Creek) and the western half (Neuse Colony), located along the Neuse River and Highway 42 in Johnston County, North Carolina. Neuse Colony originally was provided wastewater utility service by a 50,000-gallon per day (gpd) wastewater treatment plant (Neuse Colony WWTP) owned and operated by River Dell Utilities, Inc.[7] In 2003, Heater Utilities, Inc. (Heater) completed construction of a 250,000-gpd expansion of the Neuse Colony WWTP, and in 2016,

[7] River Dell Utilities, Inc. was subsequently transferred to Heater Utilities, Inc. (Heater). Heater was acquired by Aqua through a transfer of stock on June 1, 2004. The Commission takes judicial notice of its Order of May 26, 2004, in Docket No. W-274, Sub 465, whereby the Commission approved the transfer to Aqua of all Heater common stock. Aqua, by acquiring all of Heater's common stock, assumed all of Heater's contractual rights and obligations.

Aqua NC expanded the capacity by an additional 100,000 gpd. It is reasonable and appropriate to include in rate base the full amount of $908,497, representing actual costs incurred by Aqua NC to build the 100,000-gpd Neuse Colony WWTP expansion in 2016.

42. The current total capacity at the Neuse Colony WWTP is 350,000 gpd, reflecting both the 2003 and 2016 system expansion upgrades. When originally permitted, the Neuse Colony WWTP was rated by the North Carolina Department of Environmental Quality (DEQ)[8] at 360-gpd per residential customer. Aqua NC subsequently applied to DEQ for, and was granted, flow reductions that reduced the rating from 360 gpd to 240-gpd per residential customer following the 2003 system expansion, and then again from 240 gpd to the current rating of 180-gpd per residential customer following the 2016 system expansion. Based on the amount of actual capacity remaining at the Neuse Colony WWTP after applying the flow reduction rates authorized by DEQ, Aqua NC is utilizing approximately 316,000 gpd of its total 350,000 gpd of capacity. The Company collected contributions in aid of construction (CIAC) in the amount of $2,294,168, exceeding the related original plant cost of $2,166,023. Because there remains additional capacity to be utilized, the Company may continue to make such capacity available to developers, and, consequently, to collect additional CIAC from developers.

43. Aqua NC failed to collect CIAC to which it was contractually entitled for the 50% balance of its costs to construct the Buffalo Creek Pump Station and Force Main. Of the $315,687 in uncollected CIAC, Aqua NC failed to collect $218,999 subsequent to the updated cutoff of October 31, 2013, in Aqua NC's last rate case.[9] Therefore, it is appropriate to impute $218,999 in uncollected CIAC for the Buffalo Creek Pump Station and Force Main to offset Aqua NC's existing rate base.

44. In June 2018, Aqua NC reserved 250,000 gpd of wastewater treatment capacity from Johnston County, North Carolina (the County), by payment of $1,335,000, or $5.34 per gpd of capacity, for the purpose of allowing development of lots in Flowers Plantation. Aqua NC paid the County $785,000 as payment of a transmission/distribution fee. Although the Company was prudent in its decision to reserve from the County 250,000 gpd of wastewater treatment capacity in June 2018, the capacity reserved could not have been available to Aqua NC as of the end of the test year because the interconnection between the County's system and Aqua NC's has not yet been completed. Likewise, the interconnection will not be completed and placed in service within a reasonable time following the end of the test year. Therefore, it is reasonable and appropriate that the $1,335,000 of reserved capacity be removed from Plant in Service, and, thus, excluded from rate base, and that the $785,000 paid as a transmission and distribution expense be recognized as an operating revenue deduction to be amortized over six years with no unamortized balance in rate base.

45. It is appropriate to make excess capacity adjustments to Aqua NC's Sewer Operations' utility Plant in Service applicable to Aqua NC's wastewater treatment plants (WWTPs) located at Carolina Meadows, The Legacy at Jordan Lake, and Westfall (a/k/a Booth Mountain). The appropriate percentages for these WWTP excess capacity

[8] Formerly known as the North Carolina Department of Environment and Natural Resources (DENR). DENR's name changed to DEQ effective September 18, 2015.

[9] Docket No. W-218, Sub 363.

adjustments are 30.63% for the Carolina Meadows WWTP; 38.67% for The Legacy at Jordan Lake WWTP; and 35.56% for the Westfall WWTP.

46. It is appropriate to apply the excess capacity adjustment of 30.63% for Carolina Meadows WWTP to 50% of the Company's post-test year, major modification and rehabilitation upgrade project at that facility, the cost of which was approximately $1.7 million. It is appropriate to include the remaining 50% of the major modification and rehabilitation upgrade projects at the Carolina Meadows WWTP in rate base as a post-test year addition.

47. It is appropriate to include, as a part of the excess capacity adjustments in this case, the capital costs for improvements in the total amount of approximately $175,000 incurred at the Company's WWTPs prior to or during the test year.

48. It is appropriate to reduce Aqua NC Sewer Operations' rate base by $1,322,276, to remove WWTP excess capacity.

49. It is unreasonable to allow Aqua NC to utilize deferred accounting with respect to WWTP amounts determined to be excess capacity, and consequently removed from rate base, for the WWTPs serving Carolina Meadows, The Legacy at Jordan Lake, and Westfall. Aqua NC's requested accounting treatment to allow it to defer the recovery of depreciation and to capitalize carrying costs until the capacity is actually utilized is denied.

50. An adjustment to update accumulated deferred income taxes (ADIT) to include the deferred tax related to the unamortized balance of rate case expense should be made in this proceeding.

51. ADIT should be adjusted to include the deferred taxes related to post-test year plant additions.

52. It is appropriate to adjust ADIT to reflect the deferred taxes related to the unamortized repair tax credit balance.

Revenues

53. By its Application, for the test period ending September 30, 2017, Aqua NC requested a total annual revenue increase of $4,935,516, an 8.97% increase over the total revenue level generated by the rates and miscellaneous charges currently in effect for the Company, consisting of the following amounts for water and sewer operations:[10]

Item	Amount
Aqua NC Water Operations	$2,773,109
Aqua NC Sewer Operations	$628,764
Aqua NC Sewer Operations	$ 90,748
Fairways Sewer Operations	$ 671,750
Brookwood Water Operations	$ 771,145

[10] By its Application, Aqua NC requested an increase in total annual service revenues of $4,968,935, a 9.19% increase over the total annual service revenues generated by the rates currently in effect for the Company.

54. It is appropriate to make adjustments of $11,520 for Aqua NC Water Operations and $60,720 for Aqua NC Sewer Operations to reclassify availability revenues from service revenue to miscellaneous revenue, as stipulated.

55. It is appropriate to adjust late payment fees and uncollectibles based on the percentages provided by the Company in the Application.

56. For the updated test period ending June 30, 2018, the appropriate level of combined operating revenues under present rates for use in this proceeding is $56,553,038, consisting of service revenues of $55,496,957, late payment fees of $114,830, and miscellaneous revenues of $1,355,499, reduced by uncollectibles and abatements of $414,248. Aqua NC's combined operations present service revenues amount of $55,496,957 is composed of the following water and sewer service revenues:

Item	Amount
Aqua NC Water Operations	$34,566,184
Aqua NC Sewer Operations	$13,459,559
Fairways Water Operations	$ 1,084,684
Fairways Sewer Operations	$ 1,360,925
Brookwood Water Operations	$ 5,025,605

57. For the updated test period ending June 30, 2018, the appropriate level of combined operating revenues under Aqua NC's proposed rates for use in this proceeding is $61,184,627, consisting of service revenues of $60,154,323, late payment fees of $124,429, and miscellaneous revenues of $1,355,499, reduced by uncollectibles and abatements of $449,624.

58. Aqua NC and the Public Staff have agreed to the customer counts, consumption quantities, and the pro forma revenues under present rates and Aqua NC's proposed rates for the updated test period ending June 30, 2018.

Operating and Maintenance (O&M) and General and Administrative (G&A) Expenses

59. It is appropriate to update salaries and wages through June 30, 2018, as stipulated.

60. Aqua NC has historically experienced some turnover in employees, and therefore, will always have some level of open positions on an ongoing basis. It is appropriate to remove five open positions from the update amount of salaries and wages, as stipulated.

61. Aqua NC has contracted with United States Infrastructure Corporation (USIC) to perform One Call/NC 811 work which is essential to the safety of interested parties and to the longevity and condition of Aqua NC's infrastructure. Such work was previously partially completed by Company personnel.

62. The Public Staff's proposed adjustment to exclude 50% of the updated labor costs (salaries and benefits totaling $73,799) of four Aqua NC field operational employees from the cost of service in this case is inappropriate.

63. Overtime pay should be adjusted to reflect each individual employee's updated payroll as of June 30, 2018, as stipulated.

64. The Public Staff's proposed accounting adjustment to allocate 30% of North Carolina supervisory employee bonuses in the amount of $29,648 to shareholders and thereby exclude those expenses from the cost of service in this case is inappropriate.

65. It is not appropriate to adopt the Public Staff's recommended adjustment to allocate to shareholders 50% of the compensation, including pension and incentive plans, of the top five Aqua America executives totaling $213,756 in compensation and $80,845 in pensions and incentive plans.

66. It is appropriate to allocate to shareholders 25% of the compensation, including pension and incentive plans, of the top five Aqua America executives totaling $106,878 in compensation and $40,423 in pensions and incentive plans, thereby removing 25% of these expenses from Aqua NC's cost of service.

67. It is appropriate to update pensions and benefits through June 30, 2018, as stipulated.

68. Employee pensions and benefits related to five open positions should be deducted from operating expenses, as stipulated.

69. It is appropriate to remove the Company's estimated pro forma adjustment to pensions and benefits and use the actual amounts as of June 30, 2018, as stipulated.

70. Aqua NC's update to pensions and benefits included the cost related to Health Advocate twice in operating expenses. The duplicate Health Advocate expenses should be deducted from updated pensions and benefits, as stipulated.

71. It is appropriate to increase sludge hauling expense by $23,049.

72. It is appropriate to include in O&M expenses annual testing expense of $926,947, consisting of $882,746 for compliance testing and $44,201 for operational testing, prior to considering the update for Notice of Deficiency (NOD) site testing expense.

73. It is appropriate to reduce post-test year testing expense by $92,112, resulting in an increase to test year testing expense for NOD site testing of $19,426 which results from the amortization of such total testing expenses of $58,278 over three years.

74. The appropriate level of annual testing expense for use in this proceeding is $946,373, including NOD site testing expense.

75. On August 21, 2018, the Public Staff filed schedules which included an adjustment to decrease the Company's filed purchased water expense of $1,947,892 by $73,670. During discovery, the Company reduced its filed purchased water expense to $1,941,621.

76. Nine of Aqua NC's third-party purchased water accounts exceeded 15% water loss, with such losses ranging from 19% to 74% for the test year. The Public Staff recommended a reduction in purchased water expense for the Aqua NC systems that had greater than 15% water loss during the test year.

77. For purposes of this proceeding, it is appropriate to include an amount of recoverable water loss of 15% for a purchased water system.

78. The appropriate level of annual purchased water expense is $1,874,173.

79. It is appropriate for Aqua NC to recover total rate case expenses of $818,397, related to the current proceeding to be amortized over a four-year period, except the Company's 2017 depreciation study which should be amortized over five years, for an annual level of rate case expense of $201,666.

80. The Aqua Communications Initiative is not a ratemaking expense. This Communications Initiative is a reasonable operating expense and includes startup costs for a completed customer survey and a completed water quality website. As part of the costs are nonrecurring, it is appropriate to amortize one-half of the $83,940 costs (or $41,970) over three years, resulting in an annual expense of $13,990, as stipulated.

81. It is not appropriate to adopt the Public Staff's recommended adjustment to allocate to shareholders 50% of the compensation and expenses of the Aqua America Board of Directors totaling $58,419 in compensation and $8,691 in expenses.

82. It is appropriate to remove 25% of the Aqua America Board of Directors fees totaling $29,210 in compensation and $4,345 in expenses in this proceeding.

83. The Public Staff's proposed consumption adjustment factors should not be applied to either Aqua NC's Sewer Operations rate division or the Company's Fairways Sewer Operations rate division. The consumption adjustment factors proposed by the Public Staff should only be applied to Aqua NC's three water rate divisions (Aqua NC Water Operations, Brookwood Water Operations, and Fairways Water Operations).

84. It is appropriate to include sludge hauling expense in the calculation of the Company's annualization adjustment in this proceeding.

85. It is appropriate to exclude materials and supplies expense from the calculation of the Company's annualization adjustment in this proceeding.

86. The appropriate level of operating, maintenance, and general expenses is $31,267,804 for the combined operations.

Depreciation and Amortization Expense

87. It is appropriate to make an adjustment to increase depreciation expense by $8,518 to reflect that 50% of the post-test year updates to the Carolina Meadows WWTP are included as a post-test year addition not subject to the excess capacity disallowance. A total increase to depreciation expense of $28,890 and amortization expense of $23,667 for the Carolina Meadows, The Legacy at Jordan Lake, and Westfall WWTPs is appropriate in this proceeding.

88. It is inappropriate to remove $139,727 of depreciation expense related to meters and meter installations in this proceeding as recommended by the Public Staff.

89. It is inappropriate to remove $42,676 of amortization expense in this proceeding related to the $1.497 million in CIAC collected from developers pursuant to contracts for the purchase of additional wastewater treatment capacity for the Neuse Colony WWTP.

90. An adjustment of $6,241 to amortization expense related to the imputation of CIAC in the amount of $218,999, for the Buffalo Creek force main and pump station costs that Aqua NC did not collect from developers should be made in this proceeding.

91. The appropriate level of depreciation and amortization expense for combined operations to be used in this proceeding is $10,076,409.

Other Taxes and Section 338(h) Adjustment

92. Payroll taxes should be calculated on the adjusted level of salaries and wages and the current payroll tax rates.

93. It is appropriate to remove 25% of payroll taxes to match the adjustment the Commission has made to salaries and wages related to executive compensation.

94. The appropriate level of payroll taxes for use in this proceeding is $789,484 for combined operations.

95. The appropriate level of other taxes and Section 338(h) adjustment for use in this proceeding is $1,713,809 for combined operations, consisting of $635,463 for property taxes, $789,484 for payroll taxes, $308,886 for other taxes, and a reduction of $20,024 for the Section 338(h) adjustment.

Regulatory Fee and Income Taxes

96. It is appropriate to use the current statutory regulatory fee rate of 0.14% to calculate Aqua NC's revenue requirement. The appropriate level of regulatory fee expense for use in this proceeding is $79,174.

97. The appropriate level of state income taxes for use in this proceeding is $272,043, which is based on the current state corporate income tax rate of 3%.

98. It is reasonable and appropriate to calculate federal income taxes using the current federal corporate income tax rate of 21%.

99. The appropriate level of federal income taxes for use in this proceeding is $1,847,171.

The Federal Tax Cuts and Jobs Act

100. Aqua NC and the Public Staff reached agreement regarding the appropriate ratemaking treatment in this proceeding to reflect the provisions of the Federal Tax Cuts and Jobs Act (the Tax Act) as outlined in Section III, Paragraphs II, JJ, and KK of the Stipulation filed on September 17, 2018, by Aqua NC and the Public Staff. The agreements regarding the applicable provisions of the Tax Act reached jointly by the Company and the Public Staff are appropriate.

101. The Company's revenue requirement shall reflect the reduction in the federal corporate income tax rate from 35% to 21%, on the Company's ongoing federal income tax expense.

102. The Company's protected federal excess deferred income taxes (EDIT) should be flowed back to customers by amortizing the protected EDIT over a period of time equal to the expected lifespan of the plant, property, and equipment with which they are associated, in accordance with the normalization rules of the United States Internal Revenue Service (IRS).

103. The Company's unprotected federal EDIT should be returned to ratepayers through a levelized rider over a period of three years.

104. The Company's proposal to refund to its ratepayers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest, through a surcharge credit for a one-year period beginning when the new base rates become effective in the current docket is reasonable and appropriate. The Company's state EDIT recorded pursuant to the Commission's Order Addressing the Impacts of HB 998 on North Carolina Public Utilities issued May 13, 2014, in Docket No. M-100, Sub 138 should be returned to ratepayers through a levelized rider that will expire at the end of a three-year period.

Rate of Return on Equity, Capital Structure, and Cost of Debt

105. The cost of capital and revenue increase approved in this Order is intended to provide Aqua NC, through sound management, the opportunity to earn an overall rate of return of 7.17%. This overall rate of return is derived from applying an embedded cost of debt of 4.63%, and a rate of return on equity of 9.70%, to a capital structure consisting of 50% long-term debt and 50% equity.

106. A 9.70% rate of return on equity for Aqua NC is just and reasonable in this general rate case.

107. A 50% equity and 50% long-term debt ratio is a reasonable capital structure for Aqua NC in this case.

108. A 4.63% cost of debt for Aqua NC is reasonable for the purpose of this case.

109. The rate increase approved in this case, which includes the approved rate of return on equity and capital structure, will be difficult for some of Aqua NC's customers to pay, particularly Aqua NC's low-income customers.

110. Continuous safe, adequate, and reliable water and wastewater utility service by Aqua NC is essential to Aqua NC's customers.

111. The rate of return on equity and capital structure approved by the Commission appropriately balances the benefits received by Aqua NC's customers from Aqua NC's provision of safe, adequate, and reliable water and wastewater utility service with the difficulties that some of Aqua NC's customers will experience in paying the Company's increased rates.

112. The 9.70% rate of return on equity and the 50% equity capital structure approved by the Commission in this case will result in a cost of capital that is as low as reasonably possible. They appropriately balance Aqua NC's need to obtain equity and debt financing with the ratepayers' need to pay the lowest possible rates.

113. The authorized levels of overall rate of return and rate of return on equity set forth above are supported by competent, material, and substantial record evidence, are consistent with the requirements of N.C.G.S. § 62-133, and are fair to Aqua NC's customers generally and in light of the impact of changing economic conditions.

Revenue Requirement

114. It is reasonable and appropriate to determine the revenue requirement for Aqua NC using the rate base method as allowed by N.C.G.S. § 62-133.

115. Aqua NC's total annual operating revenues should be changed by amounts which, after pro forma adjustments, will produce the following increases (decreases) in total operating revenues:

Item	Amount
Aqua NC Water	$776,379
Aqua NC Sewer	868,496
Fairways Water	(7,441)
Fairways Sewer	720,953
Brookwood Water	537,633
Total Aqua NC	$2,896,020

These increases (decreases) will allow Aqua NC the opportunity to earn a 7.17% overall rate of return, which the Commission has found to be reasonable upon consideration of the findings in this Order.

Rate Design

116. It is appropriate to design rates in the ratio and structure as reflected in Junis Late-Filed Exhibit 11.

117. The rates and charges included in Appendices A-1, A-2, A-3, and A-4, attached hereto, are just and reasonable and should be approved.

Consumption Adjustment Mechanism

118. In its Application, Aqua NC requests Commission approval of a rate adjustment mechanism to account for variability in average monthly consumption per customer, which directly affects revenues.

119. Aqua NC failed to demonstrate that its proposed consumption adjustment mechanism is reasonable or justified.

Water and Sewer System Improvement Charges

120. Consistent with Commission Rules R7-39(k) and R10-36(k), Aqua NC WSIC and SSIC surcharges will reset to zero as of the effective date of the approved rates in this proceeding.

121. By law, the cumulative maximum charges that the Company can recover through system improvement charges between rate cases cannot exceed 5% of the total service revenues approved by the Commission in this rate case.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 1-4

The evidence supporting these findings of fact and conclusions is contained in the Company's Application and NCUC Form W-1, the testimony and exhibits of the witnesses, and the entire record in this proceeding. These findings and conclusions are informational, procedural, and jurisdictional in nature and are not contested by any party.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 5-10

The evidence supporting these findings of fact is contained in the Stipulation and in the testimony of Aqua NC and Public Staff witnesses. On September 17, 2018, Aqua NC and the Public Staff entered into and filed the Stipulation, which resolved some of the issues in this proceeding between these two parties and provided for a revenue requirement increase of approximately $1,268,414 for combined operations based on the settled issues. The Stipulation is based upon the same test period as Aqua NC's Application, adjusted for certain changes in plant, revenues, and costs that were not known at the time the case was filed but occurred or became known through June 30, 2018.

The key aspects of the Stipulation are provided as follows:

Capital Structure

The Stipulating Parties agree that the capital structure appropriate for use in this proceeding is a capital structure consisting of 50.00% common equity and 50.00% long-term debt at a cost of 4.63%.

Salaries and Wages

The Company accepts the Public Staff's proposed adjustment to update salaries and wages through June 30, 2018. The Stipulating Parties agree to a revenue requirement impact adjustment in the amount of ($174,680) for combined operations to remove five open positions as set forth in the supplemental testimony of Public Staff witness Henry. The Company also accepts the Public Staff's proposed adjustment to overtime pay as set forth in the supplemental testimony of Public Staff witness Henry.

Pensions and Benefits

The Company accepts the Public Staff's proposed adjustment to update pensions and benefits through June 30, 2018. The Stipulating Parties agree to a revenue requirement impact adjustment of ($150,196) for combined operations to remove benefits related to the five open positions. The Company also accepts the Public Staff's proposed adjustment to remove duplicative Health Advocate costs.

Plant in Service

The Public Staff agrees to withdraw its proposed adjustment related to Neuse Colony rate base as reflected on Line 7 of Settlement Exhibit 1. The Company accepts the Public Staff's proposed adjustment to plant related to future customers as set forth in the supplemental testimony of Public Staff witness Cooper. The Company also accepts the Public Staff's proposed adjustment to re-allocate vehicles as set forth in the supplemental testimony of Public Staff witness Cooper.

Salaries and Wages

The Company accepts the Public Staff's proposed adjustment that reflected the adjusted level of salary wages and current payroll taxes.

Insurance Expenses

The Company accepts the Public Staff's proposed adjustment to update insurance expenses as set forth in the supplemental testimony of Public Staff witness Cooper.

Miscellaneous Expense

The Stipulating Parties agree to a revenue requirement impact adjustment of $14,009 for combined operations to allow partial recovery of the Company's costs associated with its communication initiative.

Updated Service Revenues

The Company accepts the Public Staff's proposed adjustment to updated service revenues from customer growth as set forth in the supplemental testimony of Public Staff witness Junis.

Reclassification of Revenues

The Company accepts the Public Staff's proposed adjustment to reclassify availability fees from service revenues to miscellaneous revenues.

Advances for Construction

The Company accepts the Public Staff's proposed adjustment to advances for construction.

Contract Services – Legal

The Company accepts the Public Staff's proposed adjustments to remove pre-test year legal invoices and to remove legal fees related to fines and penalties. The Company

also agrees to the Public Staff's proposed adjustment removing legal fees related to legislation.

Accumulated Deferred Income Taxes (ADIT) and Excess Deferred Income Taxes (EDIT)

The Company agrees to the Public Staff's proposed adjustments to ADIT regarding unamortized rate case expense, unamortized repair tax credit, post-test year plant additions, and EDIT.

The Stipulating Parties agree to revise ADIT for any updates made to regulatory commission expenses. The Company agrees to accept the Public Staff's proposals for addressing the Tax Act. The unprotected Federal EDIT created by enactment of the Tax Act will be returned to customers through a levelized rider that will expire at the end of a three-year period. The protected EDIT will be flowed back following the tax normalization rules utilizing the average rate assumption method (ARAM) required by IRC Section 203(e). The Stipulating Parties agree that the State EDIT that Aqua NC recorded pursuant to the Docket No. M-100, Sub 138 Order will be returned to customers through a levelized rider that will expire at the end of a three-year period.

The Stipulating Parties agree to the Company's proposal to refund to the ratepayers the overcollection of federal taxes related to the decrease in federal tax rates for the period beginning January 1, 2018, and corresponding interest, as a surcharge credit for a one-year period beginning when the new base rates become effective in the current docket.

Acquisition Incentive Adjustments (AIA)

Aqua NC accepts the Public Staff's proposed adjustment to AIA as set forth in the supplemental testimony of Public Staff witness Cooper.

Purchase Acquisition Adjustment (PAA)

The Company accepts the Public Staff's proposed adjustment to Mid-South growth PAA as set forth in the supplemental testimony of Public Staff witness Cooper.

Working Capital Allowance

The Stipulating Parties agree to a revenue requirement impact adjustment of ($15,972) for combined operations for working capital.

Service Revenues

Aqua NC accepts the Public Staff's proposed adjustment to late payment fees as set forth in the supplemental testimony of Public Staff witness Cooper.

Uncollectibles and Abatements

Aqua NC accepts the Public Staff's proposed adjustment to uncollectibles and abatements as set forth in the supplemental testimony of Public Staff witness Cooper.

Transportation Expense

The Company accepts the Public Staff's proposed adjustment to transportation fuel expense as set forth in the supplemental testimony of Public Staff witness Cooper.

Purchased Power Expense

Aqua NC agrees to the Public Staff's proposed adjustment to purchased power expense as set forth in the testimony of Public Staff witness Darden.

Chemical Expense

The Company agrees to the Public Staff's proposed adjustment to chemical expense as set forth in the testimony of Public Staff witness Darden.

Contract Services – Other

Aqua NC agrees to the Public Staff's proposed adjustment to remove pre-test year invoices from contract services. Aqua NC also agrees to the Public Staff's proposed adjustment to contract services related to NC 811 locates.

Regulatory Commission Expense

The Stipulating Parties agree to a methodology for calculating regulatory commission expense, also known as rate case expense, and agree to update the number in Settlement Exhibit 1, Line 33 for actual and estimated costs once supporting documentation is provided by the Company. However, Aqua NC seeks a three-year amortization period; the Public Staff supports a five-year period.

Payroll Taxes

The Stipulating Parties agree to a revenue requirement impact adjustment of $8,271 for payroll taxes as set forth in the supplemental testimony of Public Staff witness Henry.[11]

[11] The Commission observes that the revenue requirement impact of $8,271 for payroll taxes adjustment agreed to by the stipulating parties includes a reduction in the amount of $2,841 related to the Public Staff's adjustment to allocate 50% of executive compensation to shareholders, which was disputed by Aqua NC. As discussed elsewhere in this Order, the Commission has adjusted payroll taxes to reflect its adjustment to remove 25% of executive compensation.

No party filed a formal statement or testimony indicating opposition to the Stipulation; however, the AGO did pursue cross-examination of Aqua NC and Public Staff witnesses at the hearing of this matter on contested, nonstipulated issues related to matters such as rate of return and quality of service issues. Pro se Intervenor Galamb participated only to present testimony. The Stipulation is binding as between Aqua NC and the Public Staff, and conditionally resolved certain specific matters in this case as between those two parties. Through the end of the evidentiary process, the AGO and Intervenor Galamb neither approved nor expressly disapproved of the partial settlement regarding the specific settled issues reflected in the terms of the Stipulation, except that Intervenor Galamb generally opposed any rate increase. There are no other parties to this proceeding.

As the Stipulation has not been adopted by all of the parties to this docket, its acceptance by the Commission is governed by the standards set out by North Carolina law. A stipulation entered into by less than all parties in a contested case proceeding under Chapter 62 "should be accorded full consideration and weighted by the Commission with all other evidence presented by any of the parties in the proceeding." State ex rel. Utilities Commission v. Carolina Utility Customers Association, Inc., 348 N.C. 452, 466, 500 S.E. 2d 690, 700 (1998). Further, "[t]he Commission may even adopt the recommendations or provisions of the nonunanimous stipulation as long as the Commission sets forth its reasoning and makes 'its own independent conclusion' supported by substantial evidence on the record that the proposal is just and reasonable to all parties in light of all the evidence presented." Id.

The Commission concludes, based upon all the evidence presented, that the Stipulation was entered into by the Stipulating Parties after full discovery and extensive negotiations and represents a reasonable and appropriate proposed negotiated resolution of certain specific matters in dispute in this proceeding and that neither the AGO nor Intervenor Galamb expressly objected to the settlement but Intervenor Galamb did not change his general position opposing any rate increase.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 11-34

The evidence supporting these findings of fact is contained in the testimony and exhibits of Aqua NC witnesses Becker and Crockett, Public Staff witness Junis, Intervenor Galamb, the public witnesses, the verified reports filed by Aqua NC in response to the concerns testified to by the public witnesses, the determinations in the Sub 363 Order concerning quality of service, and the record in this proceeding.

Customer Concerns – Service and Water Quality-Related Issues

Public hearings were held in Mocksville, Gastonia, Raleigh, and Wilmington for the purpose of receiving the testimony of non-expert, public witnesses. No public witnesses appeared at the Mocksville public hearing. Customer witnesses testifying at the hearing in Wilmington primarily expressed their opposition to the Company's requested rate increase. Two public witnesses testified at the Gastonia hearing, one of whom testified

regarding her inability to use discolored water at her residence. Of the 20 witnesses who testified at the Raleigh hearing, 19 testified that the poor quality of the water supplied by Aqua NC caused serious problems, including discoloration of laundry and fixtures, damage to appliances, inability and/or difficulty to use for drinking, cooking, bathing, and cleaning and did not justify the price they were paying for water service, much less an increase in Aqua NC's rates. The customers' testimony demonstrated how the poor water quality they experience at their homes causes them stress, disrupts their daily lives, and causes them to incur significant expense to repair and replace damaged and stained clothing, appliances, and plumbing fixtures and to purchase bottled water for drinking and cooking. The concerns voiced by these witnesses, as confirmed by the Company's filed Response to Customer Concerns, relate to the high concentrations of iron and manganese in their water. The water quality concerns (such as inability to drink and damage to appliances and plumbing fixtures) of the customer witnesses appearing before the Commission in this docket were essentially identical to the types of complaints of customer witnesses who testified at the public hearings held in the Subs 319 and 363 dockets in 2011 and 2013 respectively.

In addition to the effects of high concentrations of iron and manganese on their personal property, some witnesses appearing to testify in this docket expressed concerns about the potential effects of these elements on their health and the health of their families. Several witnesses testified that they had installed water filtration systems in their homes at significant cost as a result of the poor water quality supplied to their homes by the Company. Tr. Vol. 12, pp. 104-109.

Many of the witnesses, who testified about issues related to poor water quality, also testified about issues with Aqua NC's customer service. They testified about the lack of responsiveness to customer communications, inaccurate notifications to customers regarding flushing activities and other service interruptions, and concerns that customers' complaints were not being accurately recorded by the Company. Id.

Becky Daniel, a resident of Coachman's Trail subdivision served by Aqua NC's Bayleaf Master System, testified at the Raleigh public hearing. Approximately eight other customers who attended the hearing yielded their allotted time to her. Witness Daniel's testimony was typical of the testimony given by other witnesses at the Raleigh public hearing. Her testimony touched on both water quality and customer service issues she has experienced as a customer of Aqua NC. With respect to water quality, witness Daniel testified that she has experienced numerous instances of discolored water throughout the 12 years she has lived in her home, but that the instances have occurred more frequently since 2017. Tr. Vol. 3, p. 29. Witness Daniel testified that, during the second half of 2017, she flushed water for approximately 200 minutes from her home's outdoor spigots to address discolored water. She complained that she did not receive a bill credit from the Company after the flushing event. Id. at 29-30.

Witness Daniel testified further about issues with Aqua NC's customer service, including her concern that automatic messages informing callers that the Company was already aware of service issues in their areas were sometimes misleading and

discouraged customers from completing their calls, and her concern that Aqua NC is not accurately recording the number of customer calls. Witness Daniel also testified about inaccurate communications from Aqua NC concerning service interruptions. Specifically, she testified that she had once received a telephone message from the Company notifying her about a service outage which she later learned did not apply to her neighborhood and that she had also received a telephone message notifying her that the Company would be flushing but the call came the day after the flushing had already commenced. Id. at 30-32.

Several of the concerns raised by witness Daniel in her testimony were similar to those raised by Intervenor Galamb, who stated that Aqua NC needs to improve on its communications with its customers. He offered his opinion that despite having two call centers, Aqua NC had done a poor job communicating with its customers. Based on his first-hand experiences with Aqua NC's customer service personnel, he asserted that no rate increase should be passed on to the customers. Further, in his opinion, the Company's poor customer service does not support a rate increase for the Company.

The Company addressed, in writing, all of the concerns raised by the witnesses at the four hearings. In its Responses to Customer Concerns filed following the public hearings, Aqua NC generally reported that it spoke to some customers immediately at the conclusion of the public hearings and/or later, in the days following the hearings, met with, called or otherwise attempted to contact the witnesses who testified at the hearings to discuss their concerns, address them and provide helpful explanations and answers regarding issues they raised. Regarding water quality, Aqua NC used the opportunity to relay that since beginning to serve North Carolina customers in 2000, it has spent a lot of time, effort, and resources trying to improve secondary water quality issues involving the presence of iron and manganese in the water supply used to serve its customers. Aqua NC explained that over the years and through the current time it has implemented iron and manganese removal techniques, such as flushing, oxidation, sedimentation and filtration, including the installation of expensive greensand filters. In the last five years, Aqua NC stated that it has installed 80 filters in the Central and Piedmont areas of North Carolina at a cost in excess of $10 million. In addition, the Company further explained that, working collaboratively with the Public Staff and DEQ, it has implemented its Water Quality Plan, pursuant to which it will continue installing new filtration treatment systems at well sites with the highest concentrations of iron and manganese at a rate of 10-15 per year and mitigating the effects of iron and manganese by increased system flushing and tank-cleaning.

The Company also addressed customer concerns about customer service. In working with witnesses such as customer witness Daniels, Aqua NC was able to understand and explain the cause of specific occurrences of periods of brown, discolored water experienced by customers, system alerts of adverse water issues that were issued to customers not affected by the alerts, and the Company's general response time upon learning of the issues that were the subject of the customer witnesses' complaints. In some cases, the discolored water was the expected but short-lived result of processes related to Aqua NC's efforts to remove or lessen the impacts of iron and manganese, and

in other cases worker mishaps or errors in the normal course of work exacerbated water quality conditions, but, according to the Company, such situations were promptly corrected resulting in the return to clear water status.

The Company explained that some of the customer concerns were due to communication issues between the Company and the customers. There were some Aqua NC errors in communication but there were also failures related to customer misunderstanding of proper communications from the Company. By speaking directly with testifying customers, Aqua NC learned more about improving the communications process and made, and continues to make, adjustments and corrections to improve the overall customer service experience. For example, to improve its call center communications, the Company disabled the interactive voice response (IVR) feature utilized by its call center. Previously, IVR was used to provide an automated response about the status of service issues based on a caller's zip code. Aqua NC described the unintended problems caused by the IVR function stating, "When a zip code was entered, the automated response could indicate that a general service issue existed for an entered zip code; however, zip codes have large populations and have multiple subdivisions within them. This may result in customers being misinformed or confused about specific issues in their area." The IVR function was eliminated from Aqua NC's call system effective July 11, 2018. Tr. Vol. 12, p. 117.

The Company discussed other efforts to improve on customer communications. Examples given by the Company were a program (Close the Loop) started in the second quarter of 2018 to make sure customers are contacted after their calls and complaints have been addressed; creation of a website to educate customers about iron and manganese issues and Company efforts to improve related water quality; and a planned customer focus group to allow some customers to provide input and give direct feedback on Company efforts that deliver intended results and those that may not work as well. See Tr. Vol. 5, pp. 151-55.

Quality, Remediation Efforts, and Communications

Company witness Crockett addressed water system compliance for Aqua NC with a focus on DEQ's secondary water quality standards. He explained the difference between primary and secondary water quality standards and established that Aqua NC complied with all primary water quality standards, with the exception of an issue in the first quarter of 2018 concerning the Town of Pittsboro's delivery of water to Aqua NC that exceeded the limits for the disinfection by-products Maximum Contaminant Level for Total Trihalomethanes. As to that issue, he explained that Aqua NC and the Town were working to resolve the underlying problems.

Witness Crockett acknowledged the Company's difficulties with elevated levels of iron and manganese, which adversely affect the Company's compliance with DEQ secondary water quality standards. He described the 2016 change in DEQ enforcement policy, which produced a profusion of NODs triggered by exceeding secondary limitations for iron and manganese. Since February 2016 Aqua NC has received 68 Notices of

Deficiency (NODs) from the Public Water Supply Section of DEQ. The NODs involved more than 50 Aqua NC water systems and approximately 70 different wells with elevated concentrations of iron and manganese, with most reporting manganese above 0.3 mg/L.

Witness Crockett testified that iron and manganese occur naturally in groundwater in certain locations in North Carolina. He explained that, when groundwater containing iron and manganese is pumped to the surface, once the iron and manganese come into contact with oxygen, they present as solid dark-colored particles in the water, which can discolor the water and can stain clothing and household appliances and plumbing fixtures. Tr. Vol. 7, pp. 46-47. He noted that, while iron and manganese pose what he termed primarily "aesthetic" concerns, the EPA has established a lifetime health advisory for manganese and suggests that levels above 0.3 mg/L may have the potential to impact the health of children. Id. at 47.

Witness Crockett testified that high concentrations of iron and manganese can be remediated through filtration, installed either centrally or on individual customers' premises; flushing, either by the Company at a system level or by individual homeowners to clear the system of sediment; sequestration using chemicals to suspend iron and manganese thereby keeping water clear at the tap; or a combination of any or all of the above. He discussed the merits and shortcomings of the different options, including the relative costs.

Witness Crockett discussed the Company's Water Quality Plan, which works to develop a common framework, with the support of the Public Staff and DEQ, to address secondary water quality issues, with the goal of expediting infrastructure improvements through increased capital spending to install greensand filters to address water quality issues for the customers. Id. at 52-53. He explained that non-capital operational improvements like increased tank cleaning and pipe flushing to address and lessen iron and manganese levels are also emphasized under the Plan. Id. Witness Crockett further explained that, under its Water Quality Plan, Aqua NC sites for remediation have been divided into four groups according to the levels of iron and manganese, with Group 1 sites being prioritized for the earliest treatment or remediation for public health protection, followed by Group 2 and so on. Id. at 53-54. Factors used to determine the groupings and order of prioritization shown on witness Crockett's summary of the Plan (Crockett Exhibit A) were (1) notice of deficiencies; (2) scientific, engineering, and health data; and (3) customer complaints.

Committed to providing water that is both safe for human consumption (a reference to DEQ's primary drinking water standards) and aesthetically pleasing (a reference to DEQ's secondary water quality standards), the Company's Water Quality Plan calls for increased capital investment for installation of greensand filters going forward according to the prioritization schedule at a rate of 10-15 per year. This strategy to install filters is estimated to perhaps require an investment $28,000,000 over the next seven years. Company witness Crockett acknowledged that Aqua NC appropriately considers least cost remediation measures, taking into account the efficiency of such measures, prior to the installation of greensand filters. Tr. Vol. 9, p. 117.

Aqua NC President and witness Becker also underscored the Company's work and commitment to improving water quality despite the fact that iron and manganese are prevalent elements in North Carolina aquifers in the Company's service territory. In addition to expressing commitment to the Water Quality Plan, he testified in further detail about the Company's efforts to deal with the iron and manganese issue since its last rate case decided in 2014. He described efforts to meet and work with DEQ and the Public Staff to develop ideas and plans for improving water quality for customers negatively affected by this issue. See, e.g., Tr. Vol. 5, pp. 38, 64; Tr. Vol. 7, p. 50. His testimony revealed that the Company has also been willing to consider alternatives to Aqua NC's wells for source water. He relayed an occasion, when at the urging of the Public Staff, the Company evaluated purchasing water from the Town of Holly Springs to serve one of its Brayton Park systems.

Witness Becker gave an account of remediation efforts over the last several years, including better flushing and tank washing protocols, sequestration, and filtration. He touted the over $90 million of investment the Company made in its systems since its last rate case and the over $10 million invested in the installation of 80 greensand filters. Despite the Company's efforts, witness Becker acknowledged the iron/manganese issue is difficult and negatively impacts the lives of many of Aqua NC's customers. He acknowledged that the Company made a misstep in incurring expense to sequester with SeaQuest® but not flushing on the manufacturer's recommended schedule of 30, 60, 90 and 120 days. He agreed that once the SeaQuest® began acting on the iron and manganese, customers would have experienced higher concentrations of the metals in their water if the systems were not properly flushed. Multiple systems were not flushed for extended periods of time, but the Branston system was not flushed for three years. See, e.g., Tr. Vol. 14, pp. 81, 83-86. Witness Becker was aware that DEQ had issued multiple notices of deficiency at sites where SeaQuest® had been introduced but flushing had not been properly performed.

With regard to flushing as a means of improving water quality, witness Becker testified about the Company's recommendation that customers flush the pipes at their premises on occasion. Currently, the customers are billed for the water used in this flushing process. When questioned by the Commission about bill credits to customers for such flushing, Aqua NC witness Becker stated that the Company is not opposed to exploring options to provide customers bill credits in exchange for their flushing at Aqua NC's request. Tr. Vol. 5, pp. 189-190.

Witness Junis, in discussing the due diligence the Public Staff employs when evaluating treatment options, testified regarding operational changes that can be made to improve water quality including the optimization of well pumping capacity and water pressure. Tr. Vol. 11, pp. 71-75.

With regard to its wastewater treatment systems, Aqua NC was cited and assessed civil penalties for 10 Notices of Violation (NOVs) issued by DEQ's Division of Water Resources (DWR) for non-compliance that occurred during the test year at three

of its 59 wastewater treatment plants. Ex. Vol. 5, pp. 14-95; Tr. Vol. 5, pp. 62-93. The three plants were acquired but not installed by the Company. Id. at 126, 180. The violations at two of the plants were related to weather conditions and hurricanes that affected the areas where the plants are located. While the violations varied, they generally stemmed from the unauthorized release and discharge of sludge. According to witness Becker, the non-compliances were addressed and corrected. The Company's shareholders incurred the expense related to the fines and penalties assessed for the violations, as well as attorney fee expense related to these violations before DWR. Id. at 93-94. Witness Becker testified that the plants receiving the NOVs are now in compliance. Id. at 112.

Witness Crockett and witness Becker also testified about Aqua NC's new Customer Communication Plan, which utilizes a range of approaches, including a website, to educate and communicate with customers, especially on water quality issues. Witness Becker addressed the heightened attention to customer communication across the Company. He explained the Company's statewide initiative, launched in May 2018, designed to follow up with customers who call about certain service issues, requiring the dispatch of a field technician. Named the "Close the Loop" program, it requires an initial follow-up call attempt by the field technician, after having left a door tag advising of completion of service, plus a secondary follow-up call made by designated Aqua NC office personnel a week after the service call. The second call by an office employee is focused on the customer's experience, whether the customer's issue was addressed and resolved, and answering any additional questions the customer may have. The purpose of the "Close the Loop" program is to improve customer awareness of necessary work performed on the water system or at the customer's premises, as well as to provide an additional or supplemental line of communication to answer questions and address issues.

Regulatory Oversight and Compliance

Ordering Paragraph No. 11 of the Sub 363 Order requires the Public Staff and Aqua NC to file semi-annual written reports to address secondary water quality concerns affecting the lesser of 10% or 25 customers in an individual subdivision.

Public Staff witness Junis testified that he reviewed Aqua NC's customer complaint records related to water quality issues from January 2016 through June 2018. He noted that Aqua NC tracked complaints received during normal business hours separately from those received after business hours, and that the Company records reflected different information in different formats. Tr. Vol. 12, p. 115.

Witness Junis testified that the Company issues a Lab D work order (LABD), a category of work or service order, in response to discolored water complaints received via phone calls made during business hours and online inquiries that necessitate a work order. He further testified that the Company uses LABDs to track, quantify, and report on customer water quality complaints for the purpose of complying with Ordering Paragraph No. 11 of the Sub 363 Order. Id. at 115-116. When witness Junis discovered a

discrepancy between the numbers of complaints reported in Aqua NC's Eighth Semi-Annual Report Concerning Secondary Water Quality Concerns filed in Docket No. W-218, Sub 363A, and the actual number of complaints of which he was aware, he realized the Company appeared to be under-reporting complaints in the semi-annual compliance report because calls and complaints received outside of normal business hours were not being issued LABDs and, therefore, were not accounted for in the report. He testified that he then had concerns that customer complaints had been under-quantified in previous reports and that additional individual subdivision service areas may have met the 10% / 25 customer threshold established by the Commission and should have been reported on pursuant to the Sub 363 Order. Id. Witness Junis engaged in further investigation and was able to confirm that the joint semi-annual reports had in fact under-reported the number of water quality complaints received by the Company. He recommended that the Company be specifically directed to fully incorporate after-hours complaints (which the Company is now doing in conjunction with the Public Staff), and that the Seventh and Eighth Semi-Annual Reports be supplemented with additional information about after-hours complaints.

Aqua NC witness Becker testified on cross-examination that the Company outsources after business hours customer complaint call response for reasons related to cost. He further testified that the customer service agents who respond to calls received after business hours only handle emergency-related calls, and do not have the ability to track calls by issuing LABDs that customer service agents who respond to business hours calls do. Witness Becker stated that Aqua NC could potentially give after-business-hours customer service agents access to the same call tracking system, but doing so would involve additional expense. He acknowledged that he understood it was the Commission's intent that the reporting requirements set out in Ordering Paragraph No. 11 apply to all customer complaint calls, not just those received during business hours. He disclosed that Aqua NC is testing a procedure to give after-business-hours customer service agents the ability to issue LABDs. Tr. Vol.14, pp.101-103.

Ordering Paragraph No. 12 of the Sub 363 Order requires Aqua NC to provide the Public Staff with communications by and between Aqua NC and DEQ regarding water and wastewater quality concerns. Public Staff witness Junis testified in the instant proceeding that the Public Staff has actively worked with DEQ and Aqua NC to address secondary water quality issues and methods to identify and prioritize water systems in most need of a filtration system. Witness Junis further testified that the Public Staff, as its contribution to the meetings and discussions, seeks to balance cost effective solutions, including operational improvements and filtration, with safe, reliable, and clean water utility service. Tr. Vol. 12, p. 24. While he did not testify regarding Aqua NC's compliance with the Commission's directive from the Sub 363 Order, the Public Staff recommended that the Commission order Aqua NC, in the instant proceeding, to convey to the Public Staff conversations with, reports to, and the recommendations of DEQ regarding the water and wastewater quality concerns being evaluated and addressed in Aqua NC's systems in a timely manner. He recommended that such communication be in a written format and provided, at a minimum, on a bi-monthly basis and that Aqua NC be required to provide the Public Staff with copies of: (a) Aqua NC's reports and letters to DEQ

concerning water quality concerns in its systems; (b) responses from DEQ concerning reports, letters, or other verbal or written communication received from Aqua NC; and (c) DEQ's specific recommendations to Aqua NC, by system, concerning each of the water quality concerns being evaluated by DEQ. Id. at 26.

In response to the recommendation of the Public Staff, Aqua NC took the position, through the testimony of witness Becker, that the provision is unduly burdensome, unnecessary, and is less productive than other modes of communication and reporting. Tr. Vol. 14, p.16. Witness Becker testified that Aqua NC is always willing to meet with the Public Staff and/or DEQ upon request or upon specified intervals to discuss issues and to provide relevant information but that because Aqua NC is constantly in conversation with its regulators, requiring this level of formality and reporting would likely hinder the open lines of communications that Aqua NC has worked to have with its environmental regulators. Id. Additionally, witness Becker testified that placing responsibility on Aqua NC to reduce to writing notes on all "conversations" with DEQ personnel is onerous, susceptible to abuse and misinterpretation, unproductive, and does not contribute to the parties' collective ability to understand and act on solutions. Witness Becker expressed concern regarding the possibility of misunderstanding, which he testified could be avoided if the entities seeking to communicate simply meet jointly with each other at specified intervals or on topics specified, exchange information, and jointly report. Id. at 16-17. Finally, witness Becker testified that the Public Staff can verify DEQ's position, leaving no opportunity for miscommunication and no concern about reliance on anyone else's interpretation, through direct communication between the agencies. Id. at 17.

Discussion and Conclusions

The evidence before the Commission establishes that the overall quality of water service provided by Aqua NC, viewed on a companywide and systemwide basis, is adequate. The Company is in compliance with federal and state primary health-based water quality standards, except, at the time of the hearing, trihalomethanes were present in water the Company purchased from the Town of Pittsboro. The Company and the Town of Pittsboro are working to resolve that issue. While 26 of Aqua NC's water systems have been noted for deficiencies related to secondary water quality standards, the Company is actively working with DEQ and the Public Staff to bring them into compliance and, elements addressed by secondary water quality standards are not considered to pose health risks; EPA's recent health advisory for manganese in excess of 0.3 mg/L did not change this status. However, the record also convincingly demonstrates that many of Aqua NC's customers for some time have been and still are paying for and receiving water from Aqua NC that they are unwilling to drink or to use for other purposes because it is not just unclear or cloudy but is brown and, on occasion, opaque. These customers incur the expense of purchasing bottled water in addition to paying Aqua NC for water utility service.

Moreover, water is required for uses other than ingestion. It is used for general cleaning, laundry, and in appliances and fixtures, among other uses. The iron and manganese-laden water supplied by Aqua NC to a not insubstantial number of its

customers cannot be used for these general household purposes. Customers who try to use the water for such non-consumptive purposes find that they have to frequently buy new clothes and replace or repair appliances such as dishwashers and coffeemakers more frequently than they should because these items are stained, damaged, and ruined by the discolored, sediment-heavy water. In addition to the extra expense of repairing and replacing clothes and household fixtures frequently, many of these customers, in an effort to render their water clear and useable, pay to have in-home filtration systems installed. Filters used as part of their systems have to be replaced more frequently than otherwise because they clog quickly due to the heavy amount of sediment in the water from the Company systems.

While the water in question meets state and federal health-based regulatory standards, it does not always sufficiently meet reasonable expectations for non-consumptive domestic uses. As a result, due to the iron and manganese in the Aqua NC supplied water, affected ratepayers effectively incur notable expenses beyond the charges on their monthly bills, as well as stress and anxiety. This Commission's jurisdiction and authority encompasses more than compliance with health-based regulatory standards. The Commission is concerned that water supplied by its regulated utilities is useable for its intended purposes and does not cause, as a result of poor quality, unnecessary economic harm and damage to ratepayers and their personal property. N.C.G.S. §62-43(a) makes it clear that the Commission has responsibility for the overall suitable quality of water and that this responsibility is not restricted or limited by the regulatory determinations of EPA or DEQ concerning human health and environmental protection.

Just as it did in its May 2, 2014 Order ruling in the Docket No W-218 Sub 363, the Commission concludes that the service-related concerns expressed by customers, especially including water quality concerns related to elevated concentrations of iron and manganese, necessitate further action by the Company. The Commission recognizes that since it issued its ruling in 2014, the Company has expended a great deal of time, effort, and investment addressing these "secondary" water quality issues; the Commission does not take the Company's effort lightly. The number of customers testifying and filing written statements about water quality concerns, compared to the number heard from during the pendency of the Sub 363 docket, has declined, but the repeat nature of the complaints about intolerable water conditions, experienced over many years, leads the Commission to conclude, that, despite its extensive efforts, Aqua NC has not yet satisfactorily resolved the water quality issues in some of its individual systems. In systems with elevated iron and manganese levels, quality of service is not adequate. Moreover, it appears that some of the same concerns that were the subject of the Commission's several directives in its Sub 363 Order remain unresolved. Accordingly, it is the Commission's determination that Aqua NC must make further and continued efforts to address customer service and water quality-related issues concerning elevated levels of iron and manganese in water supplied from Aqua NC water systems.

At a minimum, the Commission expects the Company to evaluate and implement operational changes and improvements, including those testified to by the Company,

such as tank cleaning and those described by the Public Staff; for example, the optimization of well pumping capacities before investing in treatment options.

Among other efforts required of the Company to address water quality issues is an appropriately aggressive flushing program for each affected system and adherence to the flushing schedule recommended by manufacturers of sequestering products used by the Company to treat iron and manganese. The Commission concludes in accordance with the Company's admission that Aqua NC failed to follow the flushing schedule recommended following the introduction of SeaQuest® into the water system. This failure had the effect of increasing the iron and manganese in the water going to the Company's customers; exacerbating the problems some customers experienced due to poor water quality. The Company is on notice that there cannot be a repeat of this mistake and that the Commission may consider the imposition of appropriate penalties should the value of using a sequestering agent be negated in the future by the Company's failure to follow an appropriate flushing protocol.

On the subject of flushing, as noted above, when Aqua NC recommends to its customers that they flush the pipes at their premises, the customers who undertake this flushing are charged for the water used in the process. When questioned by the Commission about bill credits to customers for flushing, Aqua NC witness Becker stated that the Company is not opposed to exploring options to provide customers bill credits in exchange for their flushing at Aqua NC's request. Tr. Vol. 5, pp. 189-190. The Commission is of the opinion that the Company should work with the Public Staff to develop a policy and procedure for providing customers a bill credit when Aqua NC recommends individual premises flushing to address water quality issues.

The Commission further concludes that Aqua NC's Water Quality Plan, intended to address water quality issues through increased capital investment and improvements to operations including installation of filters and treatment such as sequestering, as well as improved tank cleaning methods and procedures and increased flushing, appears to be a reasonable start and thoughtful effort to improve the unresolved water quality issues that have continued over the last several years. While the Water Quality Plan as presented in this docket appears to be workable, the Commission expects that as the Company and the Public Staff, in conjunction with input from DEQ, will monitor the implementation and effect of actions taken in accordance with the Plan and that the Plan may need to be adjusted over time. The Commission appreciates and encourages the Company's and the Public Staff's attention and simultaneous commitment to addressing the serious water quality issues in the Company's affected water systems and to maintaining affordable service in all of its service areas in North Carolina. While quality and affordability interests must be balanced, the Commission is mindful that ratepayers must receive useable water in exchange for the rates they pay.

With regard to wastewater service, the Commission finds and concludes based on the record before it that the service is adequate and the Company operates its wastewater plants in a prudent manner. While the Company received NOVs for events and conditions at three of its 59 wastewater plants, Aqua NC corrected the situations and has not sought

recovery from ratepayers for fines, penalties, and attorneys' fees related to these NOVs. The Company acted appropriately to return the plants to full compliance and at the time of the hearing the plants were in fact in compliance. Given the nature of wastewater plants owned by investor-owned utilities in North Carolina, the Commission does not find that the mere occurrence of isolated instances of non-compliance necessarily means that overall companywide wastewater service is inadequate.

Aqua NC's efforts to improve its customer service through its Customer Communications Plan demonstrate the Company's commitment to improving its customer relations by putting enhanced protocols in place to assure responsiveness to customer inquiries, concerns, and service calls. The Plan, which is tied to the Water Quality Plan, should help the Company inform and educate customers about quality improvement plans, including such implementation aspects as cost impacts of improvement measures, the work involved, and the timing of such work. Again, the Commission expects that any communications plan will be adjusted over time to meet current concerns and to incorporate lessons learned throughout the process of building a relationship of trust with customers.

Finally, the Commission concludes that in light of the persistent water quality issues related to iron and manganese, it remains appropriate that Aqua NC continue to follow the reporting requirements established in Ordering Paragraph 11 of the Commission's May 2, 2014 Order ruling on the Company's request for rate increase in the Sub 363 docket, among others to be noted in the Ordering Paragraphs of this Order. Ordering Paragraph No. 11 of the Sub 363 Order required the Public Staff and Aqua NC to file semi-annual written reports to address secondary water quality concerns affecting the lesser of 10% or 25 customers in an individual subdivision. In complying with this reporting requirement, it was necessary that the Company keep an accurate count of the numbers of water quality complaints it received from all its customers. As the Public Staff came to learn, and as later confirmed by Aqua NC, the Company failed to fully apply the reporting requirements of Ordering Paragraph 11 to all of the customer complaints it received because it did not capture for compliance purposes the complaint calls received outside the normal business hours. The Company shall correct this counting error and fully comply with the reporting requirements of Ordering Paragraph 11 of the Sub 363 Order and shall comply with all other reporting requirements identified in this Order.

In addition, so that the Public Staff may be effective in working with Aqua NC to develop solutions and make recommendations to the Commission for resolving the water quality concerns discussed throughout this Order, the Commission finds, as it did in the Sub 363 Order, that it is appropriate for Aqua NC to make reasonable efforts to keep the Public Staff informed of its communications with DEQ related to these water quality concerns. The Commission is mindful of the concerns expressed by Aqua NC witness Becker regarding formality and administrative burden and directs that the sharing of information required by this Order not be in a formal "report" format but rather in a less formal written exchange whereby the Public Staff is simply provided with copies of written communications or alerted to the fact that a meeting or conversation took place and the salient points discussed at the meeting or conversation. Additionally, the Commission

agrees with witness Becker that direct communication is the most effective way to mitigate the possibility of miscommunication and encourages the Company and the Public Staff to meet with DEQ jointly and regularly for this reason.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 35-52

The evidence supporting these findings of fact is contained in the Application and Aqua NC's NCUC Form W-1 filing, the testimony and exhibits of Company witnesses Becker, Thompson, and Kopas and Public Staff witnesses Cooper, Henry, Boswell, and Junis, the Sub 363 Stipulation, and the record in this proceeding.

The following table summarizes the differences between the Company's level of rate base from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Plant in Service	$485,345,163	$488,061,240	$2,716,077
Accumulated depreciation	(154,951,542)	(155,018,156)	(66,614)
Contributions in aid of const.	(189,897,507)	(194,983,782)	(5,086,275)
Accum. amortization of CIAC	70,605,175	70,516,485	(88,690)
Acquisition adjustments	1,925,745	2,055,735	129,990
Accum. amort. of acquis. adj.	1,044,591	1,040,444	(4,147)
Advances for construction	(4,305,936)	(4,467,841)	(161,905)
Net Plant in Service	209,765,689	207,204,125	(2,561,564)
Customer deposits	(379,445)	(379,445)	0
Unclaimed refunds	(193,255)	(193,255)	0
Accum. deferred income taxes	(35,329,190)	(24,791,481)	10,537,709
Materials and supplies inventory	2,405,967	2,405,967	0
Excess capacity adjustment	(1,233,706)	(1,589,551)	(355,845)
Working capital allowance	4,626,122	4,434,355	(191,767)
Original cost rate base	$179,662,182	$187,090,715	$7,428,533

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Revised Supplemental Cooper Exhibit I, the Company does not dispute the following Public Staff adjustments to rate base:

Item	Amount
Update advances for construction	($161,905)
Remove costs related to future customers	5,992
Adjustment for Mountain Ridge AIA	75,090
Update Mid South growth PAA to 6/30/18	54,900
Accumulated amortization of acquisition adjustments	(4,147)
Adjustment to working capital	(191,767)
Adjustment for accumulated deferred income taxes	10,537,709
Total	$10,315,872

Therefore, the Commission finds and concludes that the adjustments listed above, which are not contested, are appropriate adjustments to be made to rate base in this proceeding.

Based on the testimony of Company witnesses Becker and Thompson, the Company disagrees with the following Public Staff adjustments to rate base:

Item	Amount
Adjustment for excess capacity	($355,845)
Adjustment for post-test year plant additions	2,648,394
Adjustment for meters and meter installations	(4,005,618)
Adjustment for wastewater capacity-Johnston County	(849,586)
Adjustment for imputed CIAC-Buffalo Creek	(324,684)[12]
Total	($2,887,339)

Excess Capacity Adjustment

Public Staff witness Junis testified that the Company's general rate case filing in this docket included excess capacity adjustments for the Carolina Meadows, The Legacy at Jordan Lake, and Westfall (aka Booth Mountain (BM)) wastewater treatment facilities. He stated that the excess capacity percentages recommended by Aqua NC are identical to the calculations done in Aqua NC's last general rate case, Docket No. W-218, Sub 363. In his prefiled testimony, witness Junis referred to Aqua NC's Application Exhibit C-1-ANC-10 for the Company's proposed calculations for excess capacity in this proceeding which reflected the following percentages: 23.83% for Carolina Meadows; 94.33% for The Legacy at Jordan Lake; and 92.44% for Westfall.

Based on the calculation methodology established by the Commission and used in Aqua NC's prior two general rate cases, witness Junis calculated the Company's wastewater excess capacity as follows:

Plant Name (a)	Installed Capacity (gpd) (b)	EOP REUs (c)	Flow (EOP x 400 gpd) (d)	Excess Capacity (1 – d/b) (e)
Carolina Meadows	350,000	607	242,800	30.63%
The Legacy at Jordan Lake	120,000	184	73,600	38.67%
Westfall (BM)	90,000	145	58,000	35.56%

[12] Due to a formula error on Public Staff Cooper Supplemental Exhibit I, Schedule 2-3 Revised, the actual amount in dispute of ($315,687) for the imputation of CIAC, less accumulated amortization of CIAC of $8,997 or $306,690 was inadvertently presented in the Public Staff's exhibit as ($324,684) [$315,687 plus $8,997].

Further, witness Junis stated that Public Staff witness Cooper implemented the updated excess capacity percentages and plant, net of accumulated depreciation and contributions in aid of construction (CIAC), to calculate the excess capacity adjustment proposed by the Public Staff.

Witness Junis also testified, in pertinent part, that on July 27, 2018, he and witness Darden inspected the WWTP at Carolina Meadows. Regarding their inspection of the Carolina Meadows WWTP, witness Junis noted that the Company completed a major modification and rehabilitation project in May 2018. Existing tankage was converted into a 90,000-gallon equalization (EQ) tank and a separate 60,000-gallon digester. In addition, a mechanical fine screen was installed to improve sanitation and to help prevent rags and other debris from damaging equipment and decreasing the efficacy of the treatment process. The building was remodeled to address mold and facilitate operational testing and chemical storage. Witness Junis further stated that Aqua NC has converted to reclaimed water for process water needs to reduce purchased water expense.

Public Staff witness Cooper testified that there was an error made by the Company in its calculation of excess capacity in this proceeding. She explained that the Company used the wrong depreciation rate in determining the net Plant in Service and depreciation expense subject to an excess capacity adjustment for the Carolina Meadows WWTP. Witness Junis corrected this mistake by reducing the depreciation rate from 5% to 4%.

Next, witness Cooper stated that she applied Public Staff witness Junis' excess capacity percentages of 30.63%, 38.67%, and 35.56% to remove from rate base the percentage of plant and accumulated depreciation related to excess capacity for the WWTPs at Carolina Meadows, The Legacy at Jordan Lake, and Westfall, respectively.

On September 5, 2018, witness Cooper filed supplemental direct testimony wherein she stated that excess capacity had been adjusted to reflect activity through June 30, 2018. As a result, the Public Staff's excess capacity adjustment increased by $518,095.

On cross-examination, witness Junis testified that Aqua NC stated in a data request response that the Carolina Meadows WWTP capacity was 350,000 gallons per day (gpd) and that it was still permitted at 350,000 gpd. Tr. Vol. 10, p. 9. He observed that Aqua NC did not provide him with any information indicating that the recent capital spending, through June 30, 2018, reduced the plant's capacity. Tr. Vol. 9, p. 101.

Further, witness Junis testified that the Public Staff has not made excess capacity adjustments against all Aqua NC plants that are overbuilt. He explained that these three WWTPs with excess capacity adjustments are unusual in that Aqua NC "took on risk from the developer." Tr. Vol. 10, p. 8.

In his rebuttal testimony, Aqua NC witness Becker testified that the Company did not disagree with Public Staff witness Junis' excess capacity calculation (as it had been used in prior cases). However, witness Becker testified that Aqua NC recommended and

requested that plant amounts determined to be excess, and removed from rate base, should be allowed to receive deferred accounting treatment. He asserted that this would allow the Company to defer the recovery of depreciation and continue to capitalize carrying costs until the capacity is actually utilized. According to witness Becker, Aqua NC's proposal would provide a better matching of the new customer revenues that are utilizing the capacity with the actual costs to economically build the capacity. He further stated that Aqua NC would review on an annual basis the amount of new capacity being utilized and the deferral treatment would stop being recorded on the Company's books for any portion once it is actually being utilized.

Witness Becker testified that deferred accounting treatment does not harm current customers. He stated that portions of assets determined to be excess would continue to be removed from rate base and related expenses associated with such portions of the assets would be excluded from the Company's current revenue requirement. He contended that allowing deferral accounting treatment will do no harm to current customers and may, in fact, provide a benefit. He opined that the current treatment of excess capacity promotes short-term decision-making on projects that may otherwise realize savings opportunities from utilizing economies of scale, a result which can ultimately result in increased costs to current customers. In contrast, utilization of deferred accounting treatment for "excess" assets would likely benefit current customers through a reduced revenue requirement via realized savings that result from a company's ability to take advantage of economies of scale when building plant.

Witness Becker continued by stating that a simple example of why utilizing deferred accounting treatment for excess capacity should be beneficial to current customers would be a utility's decision to build a 100,000-gallon plant capacity that could serve current customers and expected growth for the next three years, versus building a 200,000-gallon expansion that could be utilized for current customers and expected growth over the next six years. The 200,000-gallon expansion project is likely to be much more cost effective, even when considering the time value of money, than completing two separate 100,000-gallon capacity expansion projects to a WWTP. According to the Company, this is true even though you end up with the same capacity in the end. The second 100,000 gallons of the single 200,000-gallon project, however, is also likely to be considered excess and the utility will be prevented from recovering any depreciation expense or carrying costs until it is determined to no longer be excess when using the current excess capacity treatment. Witness Becker explained that in this example, a utility is disincentivized from taking advantage of any economies of scale and prompted to make a short-term decision to build the smaller capacity plant. Management is likely to take advantage of all economies of scale that ultimately benefit customers, but the disincentive that exists from excess capacity treatment adds an unnecessary financial penalty to the utility for doing so.

Witness Becker testified that Aqua NC requested deferred accounting treatment with respect to the excess capacity recommended for adjustment by Public Staff witness Junis that results in a $32,940 reduction of the revenue requirement in this rate case. Witness Becker maintained that the financial impact to rates that would result from

deferred accounting treatment in this rate case is zero, as only the prospective related depreciation expense and any carrying costs will be deferred until the excess capacity is actually being used.

In his September 7, 2018 supplemental rebuttal testimony, witness Becker testified that he had reviewed the excess capacity adjustment that Public Staff witness Cooper made in her September 5, 2018 supplemental testimony. Witness Becker noted that, based on witness Cooper's supplemental testimony, the Public Staff's initial excess capacity adjustment had been further adjusted to reflect activity through June 30, 2018. As a result, the Public Staff's excess capacity adjustment increased by $518,095.

Further, witness Becker observed that witness Cooper did not describe the nature of and reason for her additional proposed supplemental ratemaking adjustment, but that she simply stated that a supplemental adjustment had been made and she then set forth the dollar amount of that adjustment.

Witness Becker testified that he was subsequently able to determine the nature and reason for the Public Staff's additional supplemental adjustment, which he described as follows:

> Subsequent to the test year in this case, which ended on September 30, 2017, Aqua completed an upgrade project at its Carolina Meadows WWTP. The total cost of this project was approximately $1.7 million. This project was necessary to prevent further degradation and failure of the current equalization basin. The existing equalization basin was rehabilitated, which included metal restoration, sandblasting and painting. Additional work included replacement of the degraded handrails, installation of new blowers, piping and diffusers. The digester was rehabilitated, and the existing malfunctioning mechanical fine screen was replaced with a new Huber fine screen. This work was not performed to provide additional capacity at the plant, but rather to maintain the aging and deteriorating asset already in place.

Tr. Vol. 14, pp. 63-64.

According to witness Becker, these upgrades or improvements substantially benefitted current customers and were not required for the purpose of serving future customers. The Company pointed out that the Public Staff included the entire cost of this project in the Company's rate base in the exhibits to its direct testimony; i.e., in effect agreeing that the project is used and useful and appropriate for inclusion in Aqua NC's cost of service. Furthermore, the Company noted that Public Staff witness Cooper did not make an excess capacity adjustment for this project in her direct testimony but has now done so in her supplemental testimony.

Witness Becker testified that he disagreed with the adjustment. He again stated, in his rebuttal testimony, that he did not disagree with Public Staff witness Junis' excess capacity calculation (as it has been used in prior cases) but did request that plant amounts determined to be excess, and removed from rate base, should be allowed to receive deferred accounting treatment. This continues to be the Company's position. However, in his supplemental rebuttal testimony, witness Becker stated that he was then requesting that the Commission disallow the Public Staff's excess capacity adjustment for the Company's 2018 investment at the Carolina Meadows WWTP. Witness Becker testified that this adjustment is inappropriate and unreasonable. He stated that the revenue impact of this adjustment is a reduction of $59,717.

In the case of Carolina Meadows and any of the other 58 WWTPs that Aqua NC owns and maintains, witness Becker testified that WWTP rehabilitation is often needed to maintain and preserve the plant's overall condition. At Carolina Meadows, he stated that the Company spent approximately $1.7 million in making necessary rehabilitations and upgrades. He contended that these types of needed plant upgrades should not be subject to an excess capacity adjustment that effectively disallows 30.63%, as proposed by the Public Staff, of this upgrade immediately after this investment was made by the Company. Witness Becker argued that such adjustments for these types of capital expenditures are unreasonable and unfair to Aqua NC and, ultimately, to the Company's current customers who are served by and benefitted by WWTP rehabilitations and upgrades.

Witness Becker continued by stating that the Public Staff also included as part of its initial excess capacity adjustment a similar adjustment for capital costs incurred for improvements at the Company's WWTPs prior to or during the test year for this case. In that regard, the Company included approximately $175,000 for WWTP improvements which fall into that category and which were incorporated by the Public Staff as part of the excess capacity adjustment made in its direct testimony. Through oversight, Aqua NC failed to challenge that portion of the Public Staff's initial excess capacity adjustment. For that reason, witness Becker stated that Aqua NC would accept the Public Staff's initial adjustment for purposes of this case due to the Company's failure to challenge it in its rebuttal testimony, but that the Company reserves the right to contest such adjustment in its next rate case. According to witness Becker, the Company views this accommodation as a reasonable compromise at this point in the rate case. The Company does, however, request that the Public Staff's supplemental excess capacity adjustment related to the post-test year, WWTP rehabilitations and upgrades at the Carolina Meadows WWTP be rejected and disallowed.

On cross-examination by Public Staff attorney Grantmyre, witness Becker conceded that he was unaware of the Commission having ever approved deferral accounting for Aqua NC related to plant. Tr. Vol. 15, p. 67. Further, in response to cross-examination questions regarding the Company's Canonsgate WWTP, witness Becker testified that the developer paid for the initial construction of the Canonsgate 250,000-gpd WWTP in 2005, and that this plant was fully contributed to Aqua NC. He also testified that the Public Staff explained to him that as Aqua NC did not pay for the

initial construction of the WWTP that was the reason why the Public Staff did not recommend a Canonsgate overbuilt-plant adjustment resulting from the 95.7% excess capacity calculated by the Public Staff based on information provided by Aqua NC as of June 30, 2018. Tr. Vol. 15, pp. 69-70. Witness Becker acknowledged that Public Staff Becker Cross-Examination Exhibit 17 contained a list of post-test year capital expenditures in the amount of $1.249 million by Aqua NC for the Canonsgate wastewater system.

In response to questions concerning Public Staff Becker Rebuttal Cross-Examination Exhibit 19, witness Becker acknowledged that it was the June 2, 2005 Asset Purchase Agreement between Carolina Meadows, Inc. and Aqua NC, which was executed by Aqua NC's then President, Neil Phillips, that obligated Aqua NC rather than the developer to build the expansion of the Carolina Meadows WWTP from 180,000 gpd to 350,000 gpd.

During cross-examination by the Public Staff, witness Becker reiterated his position that plant upgrade costs, which are not part of the initial capacity buildout of a plant, are different from the initial costs because they are required to benefit customers. Further, witness Becker testified that he was seeking full ratemaking recovery for the Carolina Meadows post-test year, upgrade project amount of approximately $1.7 million because application of the Public Staff's proposed excess capacity adjustment to that upgrade project would cause the Company to lose or write-off 30% of the upgrade costs. In conclusion, witness Becker stated that Aqua NC is seeking "some kind of acceptable treatment where we're not losing a third of everything we spend." Tr. Vol. 15, p.81.

Based upon the foregoing, the Commission reaches three primary conclusions regarding the WWTP excess capacity issues under consideration in this case. First, the Commission concludes that the updated WWTP excess capacity adjustment percentages of 30.63% for Carolina Meadows, 38.67% for The Legacy at Jordan Lake, and 35.56% for Westfall, as proposed by the Public Staff and agreed to by Aqua NC, should be approved. Second, the Commission concludes that it is reasonable and appropriate to apply the excess capacity adjustment percentage of 30.63% at Carolina Meadows WWTP to 50% of the Company's post-test year, upgrade project at that facility, the cost of which was approximately $1.7 million. Further, with respect to the approximately $175,000 in capital costs for improvements at the Company's WWTPs prior to or during the test year that were pointed out in witness Becker's supplemental rebuttal testimony, but deliberately not challenged by Aqua NC in this rate case proceeding due to the lateness of such discovery, the Commission concludes that, at this time, it is reasonable and appropriate to include such capital costs as part of the excess capacity adjustments in this case. Third, the Commission concludes that Aqua NC's request for authority to utilize deferred accounting with respect to WWTP amounts determined to be excess capacity, and consequently removed from rate base, at the Company's Carolina Meadows, The Legacy at Jordan Lake, and Westfall WWTPs should be denied.

With respect to the appropriate excess capacity percentages to use in this proceeding for Carolina Meadows, The Legacy at Jordan Lake, and Westfall, as testified

by witness Junis and as presented in Aqua NC's Application Exhibit C-1-ANC-10 in this proceeding, Aqua NC used the identical excess capacity percentages approved by the Commission in Aqua NC's last general rate case, Docket No. W-218, Sub 363. Witness Cooper testified that she implemented the updated excess capacity percentages provided by witness Junis to calculate the excess capacity adjustment. The Commission notes that witness Junis based his updated calculation of the percentages on the methodology established by the Commission in Docket No. W-218, Sub 319, which uses end-of-period REUs and the standard of 400 gpd per connection for evaluating the used and useful portion of WWTPs as determined in Docket No. W-354, Sub 128. See Commission Order issued June 10, 1994. The Commission observes that this methodology was also used in Aqua NC's last general rate case proceeding (Docket No. W-218, Sub 363), a stipulated case. Moreover, Aqua NC has agreed with the Public Staff's updated calculation of the percentages. No party contested the methodology or the agreed-upon updated percentages. Further, neither Aqua NC, nor any other party, denied that the reason the excess capacity adjustments are appropriate in this proceeding is because Aqua NC took on avoidable risk from the developers with respect to these three WWTPs. Consequently, the Commission finds and concludes that it is appropriate to continue to make excess capacity adjustments to sewer utility Plant in Service applicable to Aqua NC's Carolina Meadows, The Legacy at Jordan Lake, and Westfall WWTPs and that the updated percentages calculated by witness Junis and agreed to by Aqua NC are the appropriate percentages for use in this proceeding.

In reaching this decision, the Commission acknowledges that Aqua NC and the Public Staff have employed a methodology for calculating the excess capacity percentages in this proceeding which was decided by the Commission in the Sub 319 proceeding when this issue was last presented to the Commission for decision. However, In the Sub 319 proceeding, the only methodology proposed for calculating the excess capacity percentages was the one advocated by Public Staff witness David Furr. Aqua NC presented no evidence in the Sub 319 proceeding as to what, in its view, a reasonable method for making an excess capacity adjustment should be. In its final Order in the Sub 319 proceeding, in its discretion, the Commission used a different calculation for calculating excess capacity percentages than that presented by the Public Staff.

The Commission reminds the parties that in the past the Commission has employed a variety of formulas or methods for making excess capacity adjustments. The Commission notes that the Company did not present any evidence in this proceeding regarding how to appropriately update its excess capacity percentages or whether future growth projections in the applicable service areas as determined by any available definitive growth documentation, such as housing permits issued, should be factored into such calculations. The Commission advises the parties that should this issue arise in a future rate case proceeding, the Commission requests that more evidence be presented by the parties regarding other formulas or methods for making excess capacity adjustments such that the Commission could determine by the weight of the evidence presented whether future growth projections or any other additional factors should be included in the approved methodology.

In regard to the Company's post-test year, upgrade project at the Carolina Meadows WWTP, the cost of which was approximately $1.7 million, the Commission has given weight to both the testimony offered by the Public Staff on this issue as well as the rebuttal testimony offered by witness Becker. This is the third consecutive Aqua NC general rate case where there has been an excess capacity adjustment for the Carolina Meadows and The Legacy of Jordan Lake WWTPs, and the second for Westfall WWTP. Public Staff witness Junis' uncontroverted testimony was that these three plants were unusual in that Aqua NC took the avoidable risk from the developers. The Commission finds credible witness Junis' testimony that the Public Staff has not made excess capacity adjustments against all Aqua NC plants that are overbuilt. An example is the Canonsgate WWTP where Aqua NC made capital improvements subsequent to September 30, 2017, totaling $1.249 million and the plant was 95.7% overbuilt as shown on Public Staff Becker Rebuttal Cross-Examination Exhibits 17 and 18. The developer paid for the original Canonsgate construction of the 250,000 gpd WWTP in 2005 and the plant was contributed to Aqua NC. Witness Becker testified that the Public Staff explained to him that since Aqua NC did not pay for the initial construction of the WWTP, the Public Staff did not recommend a Canonsgate overbuilt plant adjustment. In that regard, the Public Staff included in Plant in Service in this proceeding the $1.249 million related to capital improvements to the Canonsgate WWTP since an excess capacity adjustment was not appropriate for this plant.

Further, there was no evidence offered that the Carolina Meadows NCDEQ-DWR permitted capacity had been reduced below 350,000 gpd subsequent to these capital expenditures. The Commission agrees with the Public Staff that the improvements to the Carolina Meadows WWTP do not change the fact that the plant's capacity is still 350,000 gpd and is overbuilt. Aqua NC's then-President, Neil Phillips, assumed avoidable developer's risks when he executed the contract with Carolina Meadows, Inc. in June 2002.

However, the Commission observes that both witness Junis and witness Becker described in their testimony the specific improvements that were made to the Carolina Meadows WWTP and the Commission is of the opinion that certain of the improvements made would most likely not be related to the size of the WWTP and therefore should not be subject to an excess capacity adjustment. For example, the building that was remodeled to address mold and facilitate operational testing and chemical storage was most likely not related to the size of the WWTP.

Witness Becker testified that the upgrade project at the Carolina Meadows WWTP was not performed to provide additional capacity to the WWTP, but simply to maintain the aging and deteriorating asset already in place. Witness Junis also described the Carolina Meadows upgrade project as being "a major modification and rehabilitation project". The Commission gives great weight to the testimony of witness Becker that WWTP rehabilitation is often needed to maintain and preserve the WWTP's overall conditions. The parties did not identify which specific plant upgrades included in the approximately $1.7 million total would relate to the size of the existing WWTP. Consequently, the Commission, in its discretion, for purposes of this proceeding has concluded that 50% of

the upgrade amount should be included as a post-test year addition and 50% should be subject to the excess capacity adjustment. Should this matter be an issue in a future rate case, Aqua NC and the Public Staff should present evidence to the Commission describing the specific improvements, including the applicable costs, and how each improvement should be considered for ratemaking purposes.

For these reasons, the Commission concludes that, for purposes of this proceeding, it is reasonable and appropriate to apply the excess capacity percentage of 30.63% to 50% of the $1.7 million that Aqua NC spent on the Carolina Meadows WWTP subsequent to September 30, 2017, resulting in a total Commission-approved excess capacity plant reduction adjustment for the three WWTPs of $1,322,276.

With respect to Aqua NC's request for deferred accounting treatment, the Commission has the authority to allow deferral requests with respect to extraordinary events when considered appropriate based upon the unique facts and circumstances presented for such a request. In general, in order for the Commission to grant a request for deferral accounting treatment, the utility must show that the cost items at issue are extraordinary and unusual in nature and whether absent deferral the cost items would have a material impact on the Company's financial condition.

Based upon the evidence presented, and in consideration of the Commission's decision to include 50% of the approximately $1.7 million spent at the Carolina Meadows WWTP by Aqua NC on plant improvements as a post-test year plant addition in this proceeding, the Commission is unpersuaded that the excess capacity amounts disallowed from rate base in this proceeding are either extraordinary in type or magnitude of expenditure presented. Rather, the Commission is of the opinion that the excluded WWTP amounts are the result of a management decision by Aqua NC to assume developer risks. As a result, the determination of the financial impact on Aqua NC's earned return on common equity was not necessary for the Commission's conclusion regarding the Company's request for deferral accounting treatment.

Consequently, the Commission finds and concludes that the Company's request to utilize deferral accounting with respect to the WWTP amounts determined to be excess capacity, and consequently removed from rate base in this proceeding is unreasonable and should be denied.

Adjustment for Meters and Meter Installations

Summary of Public Staff Testimony[13]

Public Staff witness Junis testified that the stipulation between the Company and the Public Staff in Docket No. W-218, Sub 363 (Sub 363 Stipulation) stated that "the Public Staff has the right as a matter of law to challenge the reasonableness, prudency,

[13] Witness Junis filed supplemental testimony on September 5, 2018, which replaced in its entirety his direct testimony filed on August 21, 2018 regarding this issue.

and cost effectiveness of Aqua NC's investment in AMR-RF meters in future cases." Paragraph No. 15 of the Sub 363 Stipulation.

Witness Junis stated that the Public Staff investigated Aqua NC's implementation of water metering technologies, and he then identified and defined the following acronyms associated with water metering technologies.

> RF: radio frequency, alternative mediums for data transmittance include cellular and wired.
>
> AMR: automated meter reading, typically used to describe drive-by RF meters. The communication is primarily one-way, that is the "meter" sends data to the receiver.
>
> ERT: encoder receiver transmitter or communication module, functions as the radio and antenna for the meter to send data.
>
> AMI: advanced metering infrastructure, typically used to describe fixed point networks with strategically distributed collectors or receivers that are capable of two-way communication with the meter.
>
> Standard meter: the meter reader has to manually read the meter reading and log it on a handheld computer device.
>
> Aqua NC Water: Aqua North Carolina uniform water rate division.

According to witness Junis, Aqua NC has invested $4.039 million[14] in the replacement of 17,441 standard meters with AMR meters and installation of 19,768 ERTs as part of its Meter Replacement Program. The Meter Replacement Program was initiated by Aqua America and implementation began in 2017. From 2013 through 2016, Aqua NC averaged 569 Aqua NC Water meter replacements per year. In 2017, the Company replaced 15,760 Aqua NC Water meters or an increase of over 2,600%.

Witness Junis stated that the Public Staff requested a complete and detailed cost-benefit analysis in Public Staff EDR 12. In part, the Company's response states, "Aqua NC considers this part of our company-wide (Aqua America) operationally driven Meter Replacement Program." (Response to EDR 12 Q1) In other words, Aqua America is directing Aqua NC to implement RF metering technology. Witness Junis continued by stating that in response to a March 2017 Public Staff data request, Aqua NC states:

> The company-wide program for all other states utilizes the use of a mobile AMI (AMR) (RF) technology. As Aqua NC is the only state in the Aqua America (Aqua) footprint not

[14] In Public Staff Junis Supplemental Exhibit 5, Revised Junis Exhibit 10, filed on September 5, 2018, shows an amount of $3.782 million for AMR meters and meter installation costs for the Aqua NC Water Operations rate division.

pervasively using AMR technology, an incremental cost benefit analysis was prepared supporting our conversion from manual read meters to RF in coordination with the meter change out program.

See Junis Exhibit 4, Response to Mobile AMR Data Request No. 2 Q1a.

Witness Junis testified that in certain northern states in which Aqua America provides water utility service, some water meters are located inside the customers' homes and there is substantial, both in quantity and duration, snow covering the outdoor meter boxes. AMR meters can be helpful and cost-beneficial in those circumstances; however, these conditions are not typical in North Carolina. North Carolina is different from many of the other states in which Aqua America provides water utility service in that a majority, closer to the entirety, of the residential water meters are located outside in meter boxes, near the street or front property line, and visible with the exception of a limited number of snow-covered days. In comparison, electric utility meters are normally located on the side of a customer's house, sometimes inside fences, and a distance away from the street.

Witness Junis further stated that in response to EDR 22 Q1, the Company provided a cost-benefit analysis calculating a monthly benefit to customers of $0.11 and with what the Public Staff believes to be significant failings: the assumption that the per meter installation cost is the same for a standard meter and an AMR meter; the incremental nature does not capture the true cost of multiple AMR meters over the 30.30-year depreciation life determined in the 2017 Depreciation Study prepared by Gannett Fleming Valuation and Rate Consultants, LLC, and filed in this docket on June 8, 2018, with the testimony of Company witness John J. Spanos; and no costs, only benefits, are included for developing and deploying programs and services to utilize the additional data available from the read and flag logging capabilities. See Junis Exhibit 5, Aqua NC AMR Cost-Benefit.

According to witness Junis, the AMR meters installed by Aqua NC have the following noteworthy functionalities:

- When the meter is read, the receiver collects the meter reading at that moment, a history of 40 daily readings (recorded at 12:01 am ET), and any indicators.
- The indicators or flags include tamper, high consumption, and zero consumption.

These functionalities are mitigated by the following facts:

- Onsite readers can observe whether a home appears to be occupied, for sale, or vacant, evidence of meter tampering such as tool marks, signs of extensive lawn and shrub irrigation, and signs of a leak. The meter reader can enter these comments into the handheld meter reading computer and be automatically required to verify and re-enter zero or high readings.

- After implementation of AMR/AMI, the meter is not visually inspected each month and over time the meter box can become covered with dirt and/or vegetation making it difficult and time consuming to locate when a manual verification reading or maintenance is necessitated.
- The 40 day read history is **NOT** accessible by customers.
- The customers have **NOT** been notified that Aqua NC planned to and is collecting the 40 day read history.
- The Aqua NC billing system generates an estimated bill for accounts with a high consumption or missed read without providing the customer the indicator or flag. Again, the Company is **NOT** sharing the available information to the customer.

Public Staff witness Junis testified that the Public Staff communicated concerns about Aqua NC's cost-benefit analysis dating back to early 2017. As part of the Public Staff's Mobile AMR Data Request No. 2, the Public Staff created and sent to Aqua NC a modified version of Aqua NC's analysis that resulted in an unfavorable additional cost per customer per month of $0.30, not including any potential costs related to the retirement of Aqua NC's existing standard meters. Aqua NC responded by stating in part that the "updated installation price from our national vendor is currently <$45 per meter" and "the install cost has no net impact on the incremental cost to our customers as there may only be a nominal installation difference when an RF versus a standard meter is installed." (Junis Exhibit 5) First, the Company had already performed a meter replacement program in the Brookwood Water service area in 2012 and 2013 and was invoiced by an outside contractor specific individual installation costs for the meter, meter interface unit (MIU) radio (comparable to the ERT), and mounting rod by Mueller Service Co. See Junis Exhibit 6, Sub 363 ADR 55 Q11.[15] Second, the average Itron installation cost of $69.84 per AMR meter far exceeds $45 and Aqua NC's previous installation costs of standard meters by an independent contractor. The cost-benefit analyses prepared by Aqua NC materially overstate the labor costs to replace standard meters. Itron, Inc. (Itron), the previously referenced national vendor, manufactures and sells communications equipment and services including the AMR ERTs being purchased by Aqua NC.

According to witness Junis, by making a singular conservative adjustment to the Company's cost-benefit analysis, the result is an additional cost of $0.01 per month per customer without any realized benefits to the customers. See Junis Supplemental Exhibit 1, Aqua NC Labor Adjusted Cost-Benefit. The adjustment is to simply decrease the installation labor cost of a standard meter from $71.86 to the still excessive $61.39 that the Company calculated to be its average installation cost utilizing Aqua NC personnel. See Junis Supplemental Exhibit 2, EDR 56 Q2. The exhibit includes Aqua NC's calculation and the Public Staff's calculations (highlighted in grey). However, Aqua NC's calculation vastly over quantifies Aqua NC's labor cost to in-kind replace standard

[15] The invoices provided are an excerpt and representative of the all of the invoices provided in response to Sub 363 ADR 55 Q11.

meters. The Company's installation cost of $61.39 assumes an average duration of 1.5 hours per meter replacement and the internal labor cost to be $21.21 per hour. However, when conducting a meter replacement project, which would likely be entire subdivisions, the laborer would be traveling from house to house with several minutes, at most, in between. Aqua NC averaged the hourly labor costs for the following field personnel:

Facility Operator Trainee	Utility Technician Laborer
Facility Operator I	Utility Technician
Facility Operator II	Utility Technician I
Facility Operator III	Utility Technician II
Meter Reader	Utility Technician III
Sr. Meter Reader	

Witness Junis stated that the descriptions from job postings on Aqua America's website indicate each underlined above position's responsibilities include either installation of meters or replacement of inoperable meters. The job descriptions for the Facility Operator group do not include installing or replacing customer water meters. Compiling the Utility Technician Laborer, Utility Technician, Utility Technician I, Meter Reader, and Sr. Meter Reader, the average hourly labor rate is $15.23 compared to the average of $21.21 for all field employees. By utilizing the average internal labor rate of $15.23 per hour and 1.86 standard meter replacements per hour, including the 93% loading for allocated costs the same as Aqua NC, the average labor installation cost per standard meter replaced is calculated to be $15.87. See Junis Supplemental Exhibit 2. This can be compared to the per meter replacement rates quoted of $71.86 by Itron and $61.39 calculated by Aqua NC.

Witness Junis stated that the Public Staff calculated an average duration of 0.54 hours or 32 minutes per meter replacement, conservatively based upon discussions with three persons with nearly 100 years of combined experience in the water utility industry, including extensive experience replacing standard water meters in Wake and Johnston Counties. In general terms, each stated that, being generous, it should only take approximately 15 minutes, and as quick as five minutes, to replace a standard water meter, including flushing the service line and recording the meter serial number, address, and in and out meter readings. Additional time would be necessary if the meter box, yoke, or other appurtenances required replacement, which the experienced professionals estimated would require about one hour on average.

According to witness Junis, adjusting Aqua NC's cost-benefit analysis for the Company's actual average costs for the meter, installation, and ERT and the Public Staff's standard meter installation cost of $15.87, the analysis results in a $0.65 cost per month per customer for Aqua NC's AMR deployment. See Junis Supplemental Exhibit 3, Updated AMR Cost-Benefit Analysis.

Witness Junis further stated that the meters being replaced as part of the program, which are predominantly standard positive displacement meters without batteries, have had an average useful life of 17.63 years per the Company's response to EDR 40 Q2. This 17.63 year average service life is a 7.37 year or 29% reduction from the former average service life. In response to EDR 12 Q1, Aqua NC states:

> The overall meter retirements have generally been consistent with past practices as the average service life has changed from 25 years to 24 years. Newer technology could shorten the average service life of the meters, however, due to group depreciation; the remaining life method; and the variability of assets within the entire account, the asset value will be recovered over the remaining life of all assets.

See Junis Exhibit 3.

According to witness Junis, the industry recognizes a 10- to 20-year useful life before degradation of functionally and accuracy necessitate replacement. As part of the Environmental Finance Center's final report on Studies (EFC Report),[16] the Public Staff posed a number of questions including:

> 12. What is the average change-out period for residential water meters (i.e. 10 years, 15 years, 1 million gallons, etc.) for the more professionally-operated North Carolina government water utilities, such as Raleigh, Durham, OWASA, CMUD, Fayetteville PWC, Greensboro, and Winston-Salem?

See EFC Report, p. 12.

The EFC Report stated "[m]ost of the utilities use around 15 years, although two use more than 15 years and one uses less than 15." Id. Additional factors such as flow rate, velocity, water quality, and total volume/mileage can all contribute to the degradation of meter accuracy.

Witness Junis testified that the Public Staff calculated the average standard meter replacement to cost $54.30. Aqua NC has a Commission-approved meter installation fee of $70 as part of its schedule of rates. The meter cost of $38.43 is the invoiced amount from 2015 when Aqua NC was still frequently utilizing standard meters for replacements. The cost does not reflect any potential and likely discount through national or statewide buying power (the Company bought approximately 20,000 meters since its last general

[16] The Report to the Public Staff of the North Carolina Utilities Commission and Aqua North Carolina, Inc. on the Studies of Volumetric Wastewater Rate Structures and a Consumption Adjustment Mechanism for Water Rates of Aqua North Carolina, Inc. prepared by the Environmental Finance Center at the UNC School of Government was filed in Docket No. W-218, Sub 363A on March 31, 2016. https://starw1.ncuc.net/NCUC/ViewFile.aspx?Id=a7fd9d58-46ed-425f-9298-c4419f319a1f.

rate case). The average labor cost was calculated by the Public Staff to be $15.87, as described in earlier portions of witness Junis' testimony. The total average cost of standard meter replacement would have been $54.30 in comparison to the average cost of a meter replacement completed as part of the Aqua NC Water Meter Replacement Program that was $206.43, including AMR meter, ERT, meter installation, and allocated costs. The average cost of a meter replacement completed in the Brookwood Water service area was $209.66, including AMR meter, ERT, meter installation, allocated costs, and additional appurtenances as necessary.

Witness Junis stated that the Company proposes to include in its new rates the recovery of AMR meter costs. This is in addition to the AMR meter costs being recovered through Brookwood Water rates approved in the Sub 363 Order. Aqua NC has not implemented benefits to the customers while materially increasing the cost to customers. The installation of AMR meters was imprudent, unreasonable, and not justified by a realistic and comprehensive cost-benefit analysis. The customers should not pay for the increased costs as a result of unreasonable and imprudent decisions by Aqua NC management. Witness Junis recommended reductions to rate base for Aqua NC Water and Brookwood Water in the amounts of $2,834,632 and $1,399,522, respectively. The calculations are presented in greater detail in Junis Supplemental Exhibit 5. On redirect, witness Junis stated that, as an alternative position, the Public Staff's recommended reductions to rate base could be deferred with no return until the potential benefits are accessible to customers and a thorough and reasonable cost-benefit analysis justifies the recovery of the cost in rates charged to customers.

Additionally, witness Junis recommended the disallowance of any future increase to the depreciation rate of Water Account 334.00 Meters and Meter Installations due to the early retirements that resulted from Aqua NC's Meter Replacement Program. This is a potential additional cost not considered by the cost-benefit analyses and a result of the group accounting and depreciation methodologies. According to witness Junis, this is dissimilar to the cases made by Duke Energy Progress and Duke Energy Carolinas, which claimed the retired AMR assets resulting from the implementation of AMI were an extraordinary expenditure and should be amortized over a period of time shorter than the remaining life.

Summary of Company Testimony[17]

Aqua NC witness Thompson testified that he is employed by Aqua Services as Director of Procurement. In that capacity, witness Thompson stated that he is responsible for the procurement of materials and services for Aqua America; that he manages and negotiates meter and meter related material for Aqua NC; and that he works closely with the Manager of Metrology to set meter standards and on meter related issues. Witness Thompson stated that the purpose of his rebuttal testimony was to rebut the testimony of Public Staff witness Junis as it pertains to AMR capable meters.

[17] The Company's rebuttal testimony was filed on September 4, 2018, one day prior to the Public Staff's filing supplemental testimony for witness Junis which included various updated calculations and amounts regarding this issue.

Witness Thompson testified that he had reviewed the testimony of witness Junis and that he did not agree with the Public Staff recommendations. Witness Thompson stated that witness Junis makes the following finding: "Aqua has not implemented benefits to the customer while materially increasing the cost to customers." Witness Thompson further stated that witness Junis concluded that: "The installation of AMR meters was imprudent, unreasonable, and not justified by a realistic and comprehensive cost-benefit analysis." Witness Thompson contested and disagreed with witness Junis' conclusions. According to witness Thompson, it is inappropriate and shortsighted for the Public Staff to conclude that the deployment of a technology is imprudent before that technology is fully deployed and its benefits can be realized.

Witness Thompson testified that the cost-benefit analyses provided by the Company in response to EDR 22 Q1 demonstrate that the decision to install AMR meters was prudent and reasonable. Witness Thompson further stated that he disagreed with the recommended adjustments or comparative calculations provided by the Public Staff. Witness Junis overlooked the immediate and tangible benefits of the AMR technology that were provided and summarized in the Company's responses to multiple EDRs. AMR technology has provided Aqua NC with a reduction in estimated bills, availability of data to support customer consumption and billing inquiries, meter reading efficiency, and eliminated manual meter reading errors.

Witness Thompson testified that AMR technology has been shown to reduce the number of estimated bills for the Company. The Business Case analysis, provided to the Public Staff in discovery, shows that in 2015 Aqua NC manual read meters had an estimated bill rate of 2.63%, or 22,071 bills per year, which exceeded three times that of Aqua America's average of 0.75%. Aqua NC meters for the same period were 14% radio read, while the other Aqua America states averaged 99% radio read meters. This benefit was further defined by providing data that Aqua NC has had an 18% reduction in estimated bills in Brookwood Water. Similarly, there was a 42% reduction in estimated bills per year for Aqua NC's Water Rate Division in the areas in which it has installed the AMR technology.

Witness Thompson testified that he disagreed with witness Junis' assertion that the noteworthy functionality of the 40 daily readings provided by AMR meters is mitigated by the fact that the 40-day read history is not accessible to customers and that customers have not been notified that Aqua NC planned to and is collecting this history. According to witness Thompson, witness Junis discounts any operational or customer benefits that are realized by the availability of this data internally; however, this view is contrary to facts understood by utility operators and managers. The 40 daily read history is available with the 100W Endpoint Receiver Transmitter (ERT) through the data logging. The 100W ERT stores 40 days of consumption information, which can be collected by the AMR system and leveraged for timely resolution to customer billing inquiries, bill disputes, and potential leak detection. The 40 daily reads stored and collected by the AMR system are used by Aqua NC in investigating customer inquiries and resolving customer metering issues. These benefits were discussed in Aqua NC's response to DR 22 Q3. Witness Thompson stated that the most recent example of this was in August 2018, when Aqua NC noted a

sharp drop in well capacity in one of the Company's critical systems. Aqua NC searched the system for leaks, utilizing the AMR that had been installed in this system. In a timely manner, a meter reader captured cycle reads for all the AMR capable meters in the area to determine if there were any customers with high consumption or possible leaks. Within a few hours, Aqua NC had the information, which included a list of customers that identified abnormal consumption in several customer accounts. Aqua NC contacted the customers and notified them of a potential leak. Aqua NC verified significant leaks on two of the identified accounts and turned their water off until repairs could be made. The customers were appreciative of the efforts. This is typical of the successful utilization of the AMR system.

Company witness Thompson testified that new technology takes time to deploy and full utilization and visibility to the customer often does not occur until the Company is able to reach some level of critical mass. The worst decision is to stop deployment. The best decision is to continue deployment and increase functionality as the buildout progresses. The current level of utilization of the data collected by the AMR system is producing tangible operational and customer benefits. The first step in the process is to implement in an organized and efficient manner AMR while aged meters are being replaced. Aqua NC will continue to refine the business processes surrounding the utilization of data.

According to witness Thompson, many of the "more professionally run" utilities, as defined by witness Junis, have communicated to their customers that the benefits of the AMR or AMI technology that they have chosen to use will be realized over time and incrementally, not immediately.

Witness Thompson disagreed with witness Junis' statement that the noteworthy functionality of the AMR meters to provide indicators and tamper detection is mitigated because customers are not aware of the indicators or flag. According to witness Thompson, witness Junis inappropriately discounts the value of operational or customer benefits, simply because the data is available internally at this point, and not directly transmitted to the customer. The indicators and tamper detection collected by the AMR meters is being used by the Company in conjunction with the data logging of the 40 daily reads to prioritize service orders and to investigate potential leaks, broken or frozen meters, and theft of service. In addition, witness Thompson stated that the tamper indicators are available immediately to the meter reader and by the next day to customer service representatives and other staff through the automated report. These benefits have been discussed in detail with the Public Staff.

Company witness Thompson also testified that AMR technology provides for more efficient meter reading. The Company's Business Case analysis provided to the Public Staff in EDR Q1 shows that the projected read rate from AMR meter reads versus manual reads was projected to increase over 600%, from 37.5 reads an hour to 264 reads an hour. This information was used by Aqua NC to judge the reasonableness of the decision to implement an AMR system.

Witness Thompson also testified that he did not agree with the Public Staff's contention that the functionalities of the AMR system are mitigated because onsite meter readers can observe whether a home appears to be occupied, whether it is for sale or vacant, evidence of meter tampering, and signs of leaks. This type of observation and recording of such observation would significantly impact the meter reader's read rate, dropping to less than 37.5 reads an hour. This would require more meter reading hours and would detract from the meter reader's ability to perform work on other service orders, like meter maintenance and customer inquiry.

Witness Thompson further testified that there are additional benefits of AMR technology that witness Junis failed to acknowledge in his testimony. Employee safety and business efficiency are additional strategic and intangible benefits of the AMR program. Reducing the hours required for meter reading decreases the opportunities for accidents both onsite and in transit, such as insect/snake/dog bites, slips, trips, and falls. The AMR program also limits Aqua NC's reasons for having to enter a customer's property, due to the ability to read the meter from a distance. Aqua America is standardizing companywide to an AMR system, which provides economies of scale that are beneficial to North Carolina customers. By implementing a companywide program, the cost of the AMR program is reduced per customer as fixed and semi-variable costs, such as software, process development and troubleshooting, are spread across a broader customer base. Further, an evolving AMR program will continue to provide more timely and accurate data, increased data integrity, and advanced analytics for improved operations and service.

Witness Thompson stated that there are also future benefits to be realized incrementally as Aqua America and Aqua NC become a 100% AMR system. The industry recognizes a 10- to 20-year useful life before degradation of functionality and accuracy necessitates replacement. Aqua NC has optimized the value of aged replacement within the recognized useful life to upgrade to AMR metering technology. Although the full benefits of this program will not be realized immediately, it is prudent to install the new technology as the Company's manual meters reach the end of their useful lives in preparation for a full utilization of the AMR technology. Otherwise, a newly installed manual meter would become obsolete before its useful life has been reached resulting in an unnecessary cost to customers.

In addition, Company witness Thompson testified that the Company is converting to AMR technology in a manner that will facilitate upgrades to Advanced Metrology Infrastructure (AMI) technology as that technology becomes more cost effective. Aqua NC has ensured that the meters and meter reading and data logging technology, ERTs that are being installed as part of this program can also be utilized if later evaluations should justify an upgrade to AMI technology. Aqua NC does not believe the additional cost of AMI (repeaters, cell towers, and security) are cost-justified, presently. Furthermore, the meters being currently installed are both AMR and AMI capable, as are the 100W ERTs that are currently being used to implement the AMR program. The 100W ERTs offer an advanced two-way meter data collection using handheld (AMR), mobile (AMR), fixed network (AMI), and combination hybrid solutions. The meter and the 100W

ERTs include AMI functionality with no change required on the premise. All programming can be completed remotely should it be justified where a dense customer base supports the added fixed network cost.

According to witness Thompson, the functionality of the AMR program will increase over time and will include significant coordination with customer operations and other Company-wide initiatives, such as customer account portal and other tools to improve the overall customer experience. Internal work flows are being tested and upgraded to increase the Company's ability to utilize all the daily data collected in a timely manner with systemic business processes.

In response to witness Junis reference to "more professionally run utilities," witness Thompson stated that Raleigh, Durham, Charlotte Water, and Greensboro are all using AMR Technology. The Fayetteville Public Works Commission (PWC), OWASA, and Winston-Salem are investing in AMI Technology. Witness Thompson stated that he was also aware that Durham, OWASA, and Fayetteville PWC all used outside contractors to install the new technology.

Witness Thompson testified that he did not agree with witness Junis' adjustments to the Company's cost benefit analysis as shown in Exhibits 7 and 8 of the Public Staff's testimony. The AMR Cost-Benefit Analysis, completed by Aqua NC and provided to the Public Staff in response to EDR 22 Q1, demonstrated the cost benefit of installing AMR meters in comparison to installing manual meters. Witness Junis adjustment, shown in Junis Exhibit 7, replaces the contractor costs for installation of manual meters with an Aqua NC-calculated cost estimate of internal labor cost for a large-scale meter replacement project. Witness Junis' adjustment, shown in Junis Exhibit 8, replaces the contractor costs for installation of manual meters with a Public Staff-calculated cost estimate of internal labor costs for a large-scale meter replacement project. The adjustment also adjusts the cost of the manual meter. Witness Thompson testified that he disagreed strongly with the overall intent and integrity of the Public Staff's adjustments. The Company's Cost-Benefit Analysis was not intended to demonstrate the prudent and reasonable choice to have contractors install the AMR meters; rather, it was showing the benefit of AMR meters over manual meters. Aqua NC does not even have the internal resources to complete a large-scale meter replacement project. Finally, witness Thompson stated that he also disagreed with the magnitude of the Public Staff's adjustments.

Witness Thompson testified that he disagreed with witness Junis' estimate of $38.43 for a manual meter as referenced in the Public Staff's testimony. For information, witness Thompson stated that he attached to his testimony, as Thompson Exhibit 1, a sales quote from Mueller Systems dated March 27, 2017. The per unit pricing for a 5/8"x3/4" Manual Water Meter is $44.64 (plus tax). This pricing does include any discounts that would be available using Company buying power. The quote shows a minimum order of 12,000 units. Despite the low demand for manual meters company-wide, Aqua NC and Aqua America have a strong relationship with Mueller for discount direct manufacturer pricing. Alternatively, Aqua NC is paying $53.85 (plus tax)

for an RF capable Badger Pit Meter of the same size. Witness Thompson stated that he attached the Badger Price List as Thompson Exhibit 2. Material costs of the meter boxes (pits), pit lids, resetters, and other miscellaneous material that may be required to exchange a meter were not discussed by witness Thompson, because they are required regardless of the choice to upgrade to AMR technology.

Witness Thompson further stated that he disputed parts of the Public Staff's Calculation of Average Duration Meter Exchange and Public Staff Adjusted Calculation of Average Labor Costs per Aqua NC Meter Exchange, shown on Junis Exhibit 8. Witness Junis states that the average time required to change a meter is 0.54 hour. Additionally, he states that additional plumbing work that may be required with a meter exchange, replace or repair meter box, lid, or replace resetter could take up to one hour of an experienced professional's time. Regarding these issues, witness Thompson testified that he might agree with the Public Staff's analysis, provided that the personnel assigned to such work would always be dedicated and specialized to do meter exchange work eight hours a day. In EDR 51, Aqua NC determined an average time to change a meter is one and one-half hours. This estimate was based on current Aqua NC skill level and was consistent with the labor rate used in the calculation. This analysis also assumed that meter exchanges would be completed as time allowed throughout the day and while answering other priority service calls and incurring more travel time.

Witness Thompson stated that he disagreed that the labor associated with such efficiency could be paid at a rate on average of $15.23 per hour. The labor cost used in this calculation ignores the fact that a more qualified and higher paid professional could be required to perform additional work. This partially results because installation of approximately 25% of meters will require additional work associated with the meter pit, etc.

Further, witness Thompson testified that the Public Staff's notion that the adjusted calculation of average labor costs per Aqua NC meter exchange is comprehensive of all costs that would be incurred if the Company were to perform AMR meter installation in-house is simply not accurate. Witness Junis calculates an average cost of $14.80 per install. Junis Exhibit 8. This is based on an average labor rate of $15.23 per hour. Witness Thompson stated that he did not think the average labor rate of $15.23 per hour used in witness Junis' testimony is appropriate because it is not representative of the labor rate of a specialized and experienced professional that would be required to achieve the time efficiencies stated in the testimony duration calculation. In Thompson Exhibit 3, witness Thompson stated that he had reflected the salary ranges for Meter Service Technicians I, II and III. The Meter Service Technician I position has a median rate of $23.50/hour and a job description that states "...refers more complex issues to higher level staff". The Meter Service Technician III, with an average rate of $35.80/hour, best represents the skill level of the technicians used in the 2017 AMR Meter Exchange Project and has a job description that states, "...handles complex issues and problems, and refers only the most complex issues to higher-level staff. Possess comprehensive knowledge of subject matter."

According to witness Thompson, Aqua NC replaced an average of 562 meters per year prior to the 2017 AMR Meter Exchange Project. For Aqua NC to have completed 15,000 exchanges in 2017 (May–December), additional short-term staff would have been required. There would be added cost to hire, train, and terminate, temporary staff. Additional vehicles, equipment, and staff to provide project management and oversight would also be required. These costs were not included by the Public Staff in its labor cost per hour.

Witness Thompson stated that he also disagreed with witness Junis' contention that Aqua NC's decision to hire a contractor for AMR meter exchange and ERT installation was unreasonable and imprudent. To the contrary, the Company's decision in that regard was reasonable and prudent. It is very customary within the utility industry to hire contract labor for specific projects. It is efficient, reduces liability, and avoids the need for later layoffs and perhaps workman's compensation payments. Contractor labor costs for the 2017 AMR Meter Replacement Project were $44.51 per install, excluding tax. The description of work with Itron, using Field Deployment Manager (FDM) software required a specific installation workflow to be followed to minimize service order errors, ensure accurate reading upon installation, and minimize rework. The contractor's staff specializes in meter exchange programs and achieved the efficiencies stated in previous testimony. Aqua NC utilized a competitive bid process to award this contract, ensuring that the contractor costs were reasonable and at fair, market value for the work to be performed. Aqua NC's purchasing policy requires three bids with qualified supplier vetting. Bid awards are granted on price, experience and qualifications. The average cost of $69.84 per install referenced on page 32 of the Junis testimony and provided by Aqua NC in EDR 29, included AMR meter installations of sizes ranging from 5/8" to 4", additional plumbing work associated with the Meter Pit (Box), Pit Lid, Setter Replacement, and other tasks as outlined on project invoices are shown on the Project Summary submitted as Thompson Exhibit 4.

Discussion and Conclusions

In Aqua NC's last rate case (Docket No. W-218, Sub 363), based on a stipulation entered into by Aqua NC and the Public Staff, the Company's investment in AMR meters at that time were included in Plant in Service for the Brookwood Water rate division. In Sub 363, the stipulating parties agreed that the Public Staff has the right to challenge the reasonableness, prudency, and cost effectiveness of the Company's investment in AMR meters in future cases.

In 2017 and 2018, Aqua NC installed 17,441 AMR water meters at a total cost of $3,781,679 in Aqua NC Water Operations service areas pursuant to the Company's Meter Replacement Program. In 2012 and 2013 Aqua NC installed 8,950 AMR water meters at a total cost of $1,885,507 in Brookwood Water Operations service areas. Aqua NC is requesting that its total investment in AMR meters to date of $5,667,186 be included in utility Plant in Service in this proceeding.

In the present proceeding, the Public Staff has proposed to reduce the original costs of the AMR meters and meter installations in rate base for the Aqua NC Water Operations and Brookwood Water Operations meter replacement projects by the amounts of $2,834,632 and $1,399,522, respectively, for a total reduction to combined Plant in Service of $4,234,154. The Public Staff's adjustment also resulted in a proposed total decrease of $139,727 to depreciation expense and accumulated depreciation. As a result, the Public Staff's total revenue requirement recommended in this proceeding was reduced by $473,571.

Public Staff witness Junis testified that the AMR meters installed by Aqua NC have the following noteworthy functionalities: The receiver collects the meter reading at that moment, a history of 40 daily readings (recorded at 12:01 a.m. ET), and any indicators once the meter is read. These collected indicators or flags include tamper, high consumption, and zero consumption. However, he contended that the biggest flaw of the current status of the Company's implementation of AMR meters, dating back to 2012 in North Carolina, is the lack of data shared with customers. Witness Junis asserted that the additional functionalities of the AMR meters are mitigated by the decreased physical presence of the onsite inspection of a meter reader.

Further, witness Junis asserted that the installation of AMR meters was not justified by a realistic and comprehensive cost benefit analysis. Witness Junis testified that the Public Staff communicated concerns about Aqua NC's cost-benefit analysis dating back to early 2017. After its investigation and analysis of the Company's AMR meter replacement program, the Public Staff concluded that Aqua NC's investment in AMR technology and the utilization of a contractor for installation was unreasonable due to the combination of the price paid per AMR meter and meter installation, lack of expense savings to offset the capital cost, and lack of quantifiable benefits passed along to customers. Aqua NC disagreed with the Public Staff's analysis and conclusion.

The Commission notes that both the Public Staff and Aqua NC expended considerable time and effort in presenting their respective positions to the Commission concerning this issue. Based upon our careful review of the testimony, the Commission reaches the following conclusions on the key components of this issue:

1. Aqua NC's decision to install AMR meters versus standard meters –

The Public Staff contended that Aqua NC's meter replacement program was initiated by its parent company, Aqua America, and the decision was not supported by an appropriate cost-benefit analysis.

Aqua NC stated that, although the meter replacement program was initiated by its parent company as part of a company-wide initiative, the installation of AMR meters was performed in conjunction with its normal meter replacement program and fully supported by a cost-benefit analysis.

The Commission concludes that it was not unreasonable for Aqua NC to select the newer AMR technology rather than the standard meter for its normal meter replacement program. Standard water meters utilize older technology whereby the meter reader has to manually read the counter located on the meter and log the reading on a handheld computer device. A new standard meter has very limited, if any, ability for adjustment for future technological advances.

The Commission determines that it would have been inappropriate for Aqua NC to invest in older technology in 2012 and 2013, and then again in 2017-2018 when the real world situation is that we live in a time when technology improvements are increasing rapidly. The Commission finds that the older standard meter technology, which has an average useful life of approximately 17 years, would not provide the required benefits to the Company or the expected benefits from its customers for a period extending 17 years into the future. The Commission recognizes that with the fast changing pace of technology, even the AMR technology has already been updated to AMI technology. In that regard, witness Thompson testified that the AMR technology installed by Aqua NC is AMI ready but AMI technology is not a prudent decision for Aqua NC at this time. The Commission concludes that Aqua NC's decision to install AMR meters versus standard meters was reasonable and prudent.

In making its decision, the Commission has given substantial weight to the testimony of witness Thompson that the other Aqua America states are utilizing this technology for their regulated water utilities and that other North Carolina municipalities, including Raleigh, Durham, Charlotte Water, and Greensboro are all using AMR technology and Fayetteville PWC, OWASA, and Winston-Salem are investing in AMI technology.

2. Cost of AMR technology versus cost of standard meter—

The Public Staff expressed concerns about the cost of the AMR technology versus the cost of a standard meter. Witness Junis clearly and succinctly set forth the cost of the AMR technology versus the standard meter costs in his Revised Junis Exhibit 10. Further, witness Junis explained that the calculated average cost of $54.30 for in-kind standard meter replacement, including manual read meter, installation, and allocated costs, is comparable to the Meter Replacement Program projects completed for Aqua NC Water and Brookwood Water at average costs of $206.43 and $209.66, respectively, including AMR meter, ERT, installation, and allocated costs. Tr. Vol. 12, pp. 180-181.

The Commission recognizes that regarding Aqua NC's total investment-to-date in its AMR meter replacement program is $5.667 million. Of this total, approximately 61%, or $3.452 million, relates to the cost of the AMR meters ($1.635 million) and the ERTs ($1.817 million). In his adjustment, witness Junis excludes the cost of the ERTs ($1.817 million) and replaces the cost of the AMR meters ($1.635 million) with his calculated cost of $1.014 million for standard, manually-read meters.[18] As a result, the

[18] The $1.014 million is comprised of $38.43 times 17,441 meters installed at Aqua NC Water plus $38.43 times 8,950 meters installed at Brookwood Water.

Public Staff's adjustment for the difference in technology, prior to considering installation costs, is $2.438 million.

The Commission understands that the Public Staff has concerns with the difference in costs between the AMR meters installed by Aqua NC ($3.452 million) and witness Junis' calculated costs if standard meters had been installed instead ($1.014 million); and recognizes that difference is not an insignificant amount. However, the Commission finds and concludes that the Public Staff did not sufficiently consider that the new standard meter is, for the most part, outdated technology from the moment it is installed. As a result, the Commission would not expect a new standard meter to be used by Aqua NC the entire length of its estimated useful life. Rather, the Commission considers it most likely that Aqua NC would find it necessary to replace its re-investment in standard meters prior to the end of their useful life which would result in additional costs to the customers in the future when the new technology is installed. When that situation occurs, the Commission recognizes that it would be evaluating the impact on customers related to both the cost of the Company's proposed new meter technology and the write-off by Aqua NC of its remaining investment in standard meters. Consequently, the Commission is of the opinion that although the cost of the AMR technology is significantly greater than the cost of a standard meter, the Commission must also consider, in making its decision, the potential long-term impacts on customers resulting from the selection of each technology. Based upon the evidence presented in this proceeding, the Commission finds and concludes that it is a better long-term decision for both the Company and its customers to update to the newer AMR technology in conjunction with Aqua NC's normal meter replacement program. As previously mentioned, the Commission also concludes that Aqua NC's decision to invest in AMR technology is consistent with the decisions of the principal municipalities in North Carolina.

3. The decision to use an outside contractor for the meter replacement program versus using internal labor —

The Public Staff questioned Aqua NC's decision to hire a contractor for AMR meter exchange and ERT installation and maintained that Aqua NC should have performed its AMR installation program using internal labor. Aqua NC witness Thompson asserted that the Company does not have the internal staffing for such a large meter replacement program. He contended that the Company's decision to retain an outside contractor using a bid process was reasonable and prudent. Aqua NC stated that it obtained three bids from outside contractors before selecting the vendor, consistent with its purchasing policy. He stated that the bid awards are based on price, experience, and qualifications.

The Commission observes that there was extensive testimony presented by the Public Staff concerning the appropriate hourly cost of Aqua NC's internal labor and the average time it takes to change out a meter. The Commission acknowledges that the Public Staff evaluated these two critical factors in order to determine and quantify its proposed adjustment in this proceeding. The Commission acknowledges that such analysis by the Public Staff was articulate and relevant.

Aqua NC witness Thompson disagreed with the Public Staff's recommendation to use internal labor versus an outside contractor. Witness Thompson testified that Aqua NC does not have the flexibility in its staffing or staff with the right skills to be cost effective for large scale meter exchange replacement projects. He stated that additional short-term staff would have been required in order for Aqua NC to have completed approximately 15,000 meter exchanges in 2017. The Commission gives substantial weight to the testimony of Aqua NC witness Thompson concerning the additional costs that would have been incurred by the Company if this project had not been outsourced and that these costs were not included in the labor cost per hour calculated by witness Junis. In particular, these added costs include the cost to hire, train, and terminate, temporary outside/external staff. Additional vehicles, equipment, and staff to provide project management and oversight would also be required. The Commission also gives substantial weight to witness Thompson's testimony that the outside contractor specializes in meter exchange programs; uses specialized software that requires a specific installation workflow to be followed to minimize service work errors; ensure accurate readings upon installation; and minimize rework. Further, witness Thompson testified that the outside contractor, not Aqua NC, would be responsible for the correction of any problems occurring as a result of an issue with the installation of the meter. The Commission views the outside contractor's ongoing support and liability for problems that arise due to the installation as beneficial to Aqua NC and its customers; such benefits should be considered in the evaluation of the cost difference between internal labor costs and an external contractor. The Commission also gives some weight to the testimony of witness Thompson that he was aware that Durham, OWASA, and Fayetteville PWC all used outside contractors to install the new technology.

The Commission finds the Public Staff's argument that Aqua NC should have performed its AMR installation program using in-house labor to be unpersuasive for the many credible reasons testified to by Company witness Thompson. The testimony offered by witness Thompson on this point was supported by substantial evidence.

For these reasons, the Commission finds and concludes that the Company's decision to retain an outside contractor for its meter replacement program was reasonable and prudent.

4. Lack of data being shared with customers —

Witness Junis expressed concern that customers are not aware of the data the Company has available concerning their daily usage. He also maintained that the lack of data being shared with customers is the biggest flaw of the current status of the Company's implementation of AMR meters. The Commission acknowledges that Company witness Becker testified that there are ways that this information can be provided to customers in the near future, such as including information on monthly customer bills and also on the Company's new water quality website explaining that such data is available, how it is being used by the Company, and how the customer can obtain access to it. The Commission agrees with witness Junis that customers should be notified by Aqua NC that the Company is collecting the 40-day read history and that this data

should be shared with AMR-metered customers. Consequently, the Commission finds and concludes that Aqua NC should take appropriate measures to share the 40-day read history with AMR-metered customers and should notify the Commission when such information is being shared and also state how it is being provided to customers.

5. Expense savings to offset the capital cost and benefits passed along to customers —

The Commission is persuaded by the testimony of witness Thompson that the AMR technology has provided the Company with a reduction in estimated bills, availability of data to support customer consumption and billing inquiries, meter reading efficiency, and a reduction in manual meter reading errors. Further, the Commission finds the testimony of witness Thompson credible that the indicators and tamper detection collected by the AMR meters is being used by the Company in conjunction with the data logging of the 40 daily reads to prioritize service orders and to investigate potential leaks, broken or frozen meters, and theft of service.

Moreover, Company witness Berger, in her testimony regarding nonrevenue water loss, stated that the AWWA Manual 36 lists AMR/AMI technology as a primary method for addressing apparent losses for small water utilities because it limits "systematic data handling errors in customer billing systems, customer metering inaccuracies, and unauthorized consumption...." The Commission finds and concludes that this is another benefit of AMR technology for both the Company and its customers, especially given the fact that the Commission discusses elsewhere in this Order its decision that the Company should maintain a certain standard regarding its unaccounted for water.

The Commission gives substantial weight to the testimony of witness Thompson that the new technology takes time to deploy and full utilization and visibility to the customer often does not occur until the Company is able to reach some level of critical mass and that the functionality of the technology will increase as the buildout progresses. Further, the Commission agrees with witness Thompson that the current level of utilization of the data collected by the AMR system is producing tangible operational and customer benefits.

Based upon the testimony of witness Junis, the Commission recognizes that Aqua NC materially increased the rate of its meter replacement program in 2017. Witness Junis testified that Aqua NC averaged 569 meter replacements for Aqua NC Water Operations from 2013 to 2016 and that in 2017, the Company replaced 15,760 Aqua NC Water Operations meters for an increase in the number of replacements over 2,600%. Such significant step-up in the meter replacement program may be due to the reason testified to by Aqua NC witness Thompson that once the program is fully deployed, the benefits to the customers will increase or possibly due to his statement that Aqua NC is the only Aqua America state not pervasively using AMR technology. Nonetheless, the step-up in the pace of meter replacements in 2017 has significantly increased the Company's requested revenue requirement in the present rate case proceeding.

The Commission acknowledges that a slower rate of meter replacement would have smoothed out the effects to customers over a longer period of time. However, the Commission gives significant weight to the testimony of Aqua witnesses Thompson and Becker that the maximum benefits to customers will be achieved once the full deployment of the AMR technology is completed for both Aqua NC and its parent company, Aqua America. Although the full benefits of this program will not be realized immediately, the Commission finds and concludes that it was prudent for Aqua NC to install the AMR technology as the Company's manual meters reach the end of their useful lives in preparation for a full utilization of the AMR technology. Based upon the evidence presented in this proceeding, the Commission concludes that Aqua NC's decision to install AMR technology rather than standard, manually-read meters was the better long-term decision for both the Company and its customers.

With respect to the benefits to be achieved by Aqua America on a consolidated basis once full deployment of AMR technology is completed in all its operating states, the Commission finds and concludes that Aqua NC should inform the Commission within six months of the issuance date of this Order, regarding the specific nature of these expected benefits for the Aqua America subsidiaries as well as the planned timing of such benefits.

Furthermore, because the Commission has concluded that Aqua NC's decision to install AMR technology was reasonable and prudent, the Public Staff's recommendation that any future increase to the depreciation rate of Water Account 334.00 Meters and Meter Installations due to the early retirements that resulted from Aqua NC's meter replacement program should be disallowed is denied.

Issues Relating to Flowers Plantation Development, Johnston County, NC

The evidence supporting these findings of fact is contained in the Company's verified Application, the testimony and exhibits of Company witness Becker, Public Staff witnesses Junis and Cooper, the Stipulation, the late-filed exhibits filed at the request of various Commissioners on the record at the evidentiary hearing, and the entire record in this proceeding.

Aqua NC's 100,000-gpd Neuse Colony WWTP Expansion of 2016

The evidence supporting this finding of fact is contained in the Company's verified Application, the testimony and exhibits of Company witness Becker and Public Staff witness Junis, the Stipulation, and the entire record in this proceeding. This finding of fact is largely informational and pertains to (1) the uncontroverted description of the Flowers Plantation development in Johnston County, North Carolina; (2) the capacity used or reserved to provide water and wastewater service to the Flowers Plantation Development; (3) the current capacity and flow reduction changes to the Neuse Colony WWTP; and (4) the stipulated adjustment to include in rate base the full amount of $908,497 for actual costs incurred by Aqua NC to build the 100,000-gpd Neuse Colony WWTP expansion in 2016.

CIAC Collected Toward Total Capacity of Neuse Colony WWTP

This finding of fact revolves around a series of contracts entered into between 1999 and 2002 between River Dell Utilities, Inc., Rebecca Flowers Finch (d/b/a River Dell Company), and Heater Utilities, Inc. (Heater). Ex. Vol. 12, pp.139-140. Pursuant to the January 14, 1999 Purchase Agreement, Heater was responsible for the "construction of all necessary expansion to the WWTP up to the [DEQ] permitted discharge of 750,000 gpd." Ex. Vol. 12, p. 112. Additionally, the Purchase Agreement states, in pertinent part:

> There shall not be a purchase price for Existing Wastewater Facilities as Heater shall be responsible to construct all WWTP expansions and the existing 50,000 gpd WWTP shall be transferred to River Dell, at River Dell's sole option, without any purchase payment to Heater, once Heater has constructed the first expansion to the WWTP which will probably be 250,000 gpd.

Id. at 106.

The Purchase Agreement further states:

> Secondary Developer shall pay to Heater a cash contribution in aid of construction the same dollar amount per gallon that Heater paid for the cost of design, engineering and construction of the last WWTP expansion including regulatory mandated upgrades to the wastewater treatment process.

Id. at 127-28.

Company witness Becker testified that the current available capacity of the Neuse Colony WWTP is 350,000 gpd, which includes the recent 100,000-gpd capacity upgrade completed in 2016. The WWTP was originally permitted at 360-gpd per residential customer. Over time, the Company applied to DEQ for design flow reductions at the Neuse Colony WWTP, which when granted, reduced the adjusted daily sewage flow design rate from 360-gpd to 240-gpd per residential customer, and then again from 240-gpd to the current rating of 180-gpd per residential customer.

Public Staff witness Junis testified that the western half of the Flowers Plantation development (Neuse Colony) was to be served by the Company's Neuse Colony WWTP, while the eastern half of the Flowers Plantation development (Buffalo Creek) was to be served by purchased wastewater treatment capacity from the County's WWTP. He elaborated that, functionally, wastewater from both Neuse Colony and Buffalo Creek would flow to Aqua NC's Neuse Colony WWTP, where it then could be diverted to Johnston County based on operational needs. Tr. Vol. 12, pp.138-39. The point of delivery to the County's collection system, as originally contracted in the Amended

Purchase Agreement, was to be located across Highway 42 from Aqua NC's Neuse Colony WWTP.

Witness Junis testified that the Company has sold (reserved), on the Neuse Colony side of the Flowers Plantation development, 561,001 gpd of wastewater capacity to developers through connection fees and capacity fees, including amounts sold (reserved) by Heater prior to its acquisition by Aqua NC. He argued that the Company oversold capacity in the Neuse Colony WWTP by at least 200,000 gpd beyond the daily sewage flow design rate originally permitted by DEQ. Witness Junis further contended that Aqua NC is obligated to provide treatment of wastewater that its current infrastructure may not be able to properly store and treat. He stated that if the obligated flow is realized in a short period of time, there would be an increased risk of wastewater overflows and/or incomplete treatment and contaminant exceedances. Finally, witness Junis testified that the Company collected 6% more CIAC for the Neuse Colony WWTP than the original cost of the utility Plant in Service, while purportedly overselling the plant capacity, which he contended would result in a CIAC shortage when the Company is necessitated by actual flows and the 80-90% rule promulgated by DEQ19 to expand further the Neuse Colony WWTP or to purchase additional capacity from the County.

In his rebuttal testimony, Company witness Becker testified that witness Junis mistakenly based his opinion on the amount of sold (reserved) capacity on the Company's books rather than on the current flow design rate, which in witness Becker's opinion, is the proper basis upon which business decisions to build or buy (reserve) capacity are, or should be, made. Witness Becker stated that witness Junis utilized the 360-gpd and 240-gpd ratings that were initially used to sell (reserve) capacity at the Neuse Colony WWTP but failed to consider the additional flow reductions upon which the Company's decisions to build or buy are based. Witness Becker testified that Aqua NC's position is that the flow reductions granted by DEQ have, in effect, doubled the capacity available to sell (reserve) in the Neuse Colony WWTP. Tr. Vol. 14, p. 23. Based on the current flow rating of 180 gpd, witness Becker stated that the Company is only utilizing approximately 316,000 of the total 350,000 gpd of capacity, and that it collected CIAC in the amount of $2,294,168, exceeding the original plant cost of $2,166,023.

In summary, witness Becker asserted that the Company has increased CIAC cost recovery and reduced costs by obtaining the flow reductions from DEQ which allow more lots to be served by the existing capacity and will produce more revenues and more CIAC, to the benefit of both the Company and its ratepayers. Tr. Vol. 14, p. 36.

Discussion and Conclusions

As a preliminary matter, the Commission notes that when the owner and/or operator of a Commission-regulated wastewater utility receives payments from a real property developer in exchange for the obligation to provide wastewater collection and treatment capacity to the developers' lots, those payments, however denominated in the

[19] See generally, 15A NCAC 02H .0223 (detailing what actions must be taken when treatment plants reach average flows of 80% and/or 90% of their permitted capacity).

contract between the utility and the developer, are contractual rights most appropriately designated as reservation fees. Contrary to testimony from both parties in this case, payment of a reservation fee does not convey to the developer any ownership or property interests in the utility's WWTP facilities. Rather, the utility retains the relevant ownership or property rights in its WWTP facilities. Once the lots are connected thereafter to the utility's plant, the developer retains no rights whatsoever. While the lot owner maintains the right to receive monthly utility wastewater service from the monopoly utility indefinitely into the future, the utility owns the WWTP facilities throughout this process. Prior to the buildout of these lots, payment of reservation fees obligates the utility to reserve a given portion of capacity to the exclusion of other users, but does not bestow on the developers any ownership interests in the capacity of the WWTP.

Absent extraordinary circumstances, the reservation fees are tied to the specific real property – typically individual lots – under development by the developer. To the extent the lots covered by the contract between the developer and the utility do not require use of the capacity originally contemplated due to, for example, reduced flows from those lots into the WWTP, any capacity contemplated by the agreement, which is no longer necessary to serve those lots, is not fungible – it is not transferable by the developer to other property nor eligible for resale by the developer to another developer of a different tract of land. To the contrary, if the utility has available capacity remaining after serving lots that it is contractually obligated to serve, it may (and should) make this additional capacity available to other users in exchange for additional reservation fees. Where such additional capacity remains, the utility need not invest in additional WWTP facilities, but rather should make use of such unused capacity by serving more consumers without additional cost.

Given that the reservation fees represent cost-free capital, as long as the reservation is for capacity in the utility's WWTP, or capacity that is otherwise obtained by the utility, the fees received by the utility constitute Contributions in Aid of Construction (CIAC). The CIAC reduces the rate base of the utility, and, thus, the fixed costs that otherwise would be recovered over time in the monthly wastewater charge to ratepayers.

As a rate base/rate of return utility, Aqua NC should have in its rate base a reasonable level of investment per connection and should otherwise seek to maximize its CIAC. However, the Company has a uniform wastewater rate structure. All of its investment in WWTPs, wherever located, is consolidated into the Plant in Service account. Designations for individual plants or other facilities owned by the utility are lost for ratemaking purposes. Likewise, all reservation fees to reserve capacity, wherever they originate, are consolidated in Aqua NC's regulatory books of account as CIAC and reduce Aqua NC's consolidated rate base accordingly. For ratemaking purposes, there is no need to match CIAC received by a particular developer to the WWTP in which Aqua NC builds or otherwise obtains from a third party capacity for the developer. Because Aqua NC's wastewater customers in Flowers Plantation development pay a uniform wastewater rate, funds that Aqua NC receives from developers with respect to property located anywhere in Flowers Plantation development, including in Neuse Colony and Buffalo Creek, benefit all Aqua NC wastewater customers. Therefore, assertions that

Aqua NC overcollected CIAC from developers for its Neuse Colony WWTP are misguided.

The Public Staff divides its analysis of the Johnston County issues into a Neuse Colony discussion and a Buffalo Creek discussion and relies significantly on contracts executed in 1999 and 2002 that form the basis of this dichotomy. These contracts were executed many years ago on the assumption that Neuse Colony would be served by the Neuse Colony WWTP as expanded, and Buffalo Creek would be served, for a limited period of time, on an interim basis by the Neuse Colony WWTP, and then in the future ultimately served by capacity in the County's WWTP. As of the end of the test year in this case, all of the wastewater from the Flowers Plantation development is served by the Company's Neuse Colony WWTP, and, even if later served in part by the County at some point in 2019, the Aqua NC collection system will first transport all such wastewater to its Neuse Colony WWTP. At that point, all the Flowers Plantation wastewater loses its identity based on the origination point, and each gallon is treated the same. As of the end of the test year, therefore, the initial assumption that the wastewater from the Buffalo Creek side would be treated in the County's WWTP changed and evolved as the Flowers Plantation development has been built out. Therefore, the need to distinguish between wastewater collected within Neuse Colony or Buffalo Creek for purposes of establishing uniform utility rates does not exist at this time.

While an issue exists as to the Commission's approval of the 1999 and 2002 contracts, whatever approval the Commission granted, such approval did not extend expressly to the discrete paragraphs, subdivisions, and topics addressed within the contracts. Aqua NC has agreements with Flowers Plantation and other developers reserving capacity and requiring the payment of reservation fees, but for the most part, these agreements and the amount of reservation fees paid or uses to be made of such fees, have not been approved by the Commission. Reservation fees are deemed to be utility charges assessed in exchange for the right to receive future utility services, and, therefore, should be set forth in tariffs approved by the Commission.[20] Nevertheless, for ratemaking purposes there exists no need to match reservation fees to particular costs Aqua NC incurs to serve its customers. Aqua NC can use capacity in either its own WWTP facilities or capacity reserved from Johnston County to serve any customer anywhere in Flowers Plantation. Consequently, arguments that Aqua NC has oversold capacity in its WWTP are erroneous (setting aside the issue of contract reservations vs. reservations based on reductions in flow). Aqua NC's ability to serve customers in Neuse Colony is not limited by capacity in the Neuse Colony WWTP alone. Likewise, arguments that Aqua NC collected excess CIAC within Neuse Colony are misplaced.

To adopt the Public Staff's position would result in significant unused capacity and rate base at the Neuse Colony WWTP, which could not be otherwise utilized, and consequently would not be in the interest of the ratepayers or the Company. In the final analysis, this is a matter of property rights and a question of which party owns the facility. The Neuse Colony WWTP is owned by Aqua NC and not by the developers who develop

[20] See e.g., Order of Clarification, In the Matter of Carolina Water Service, Inc., of North Carolina – Investigation of Tap and Plant Modification Fees, Docket No. W-354, Sub 118, et al., p. 7 (Feb. 27, 1998).

the lots. There is simply no evidence to show that the policy followed by the Company has or is likely to result in outflows, incomplete treatments, or contaminant exceedances as predicted by the Public Staff. The Commission relies on DEQ determinations as to whether sufficient capacity exists to permit appropriate treatment. Flow reductions have doubled the capacity available for the Company to sell, which increases the potential capacity (reservation) fees to be collected and revenues to be generated, benefitting both the Company and its ratepayers. Accordingly, the Commission concludes that the Company has not committed capacity in excess of what is available through a combination of capacity at the Neuse Colony WWTP and capacity obtained from the County's WWTP, and, furthermore, that Aqua NC may continue to allow reservation of additional capacity for which it collects additional corresponding CIAC, as long as Aqua NC remains in compliance with DEQ determinations and regulations in so doing.

CIAC Collected for Construction of Buffalo Creek Pump Station and Force Main

On May 14, 2002, River Dell Utilities, Inc., Rebecca Flowers Finch (d/b/a River Dell Company), and Heater entered into an Amended Purchase Agreement for the purchase of the water and wastewater utility systems serving Buffalo Creek. The Amended Purchase Agreement provided that Heater "will treat the wastewater from the land at Flowers Plantation Sections I, II and IIIB on an interim basis at [the Neuse Colony WWTP], and then in the future have the County provide bulk wastewater treatment for Heater." Ex. Vol. 12, p. 172. This provision necessitated construction of a pump station and force main to deliver the wastewater from the Buffalo Creek side to the Neuse Colony WWTP. "Functionally, wastewater from both the Neuse Colony side and the Buffalo Creek side would flow to the Neuse Colony WWTP site where it would be diverted to the County based on operational needs." Tr. Vol. 12, pp. 138-139. Additionally, the Amended Purchase Agreement states, in pertinent part:

> Heater shall pay $75,000 plus 50% of the cost of the construction of the Pump Station and Force Main ... Heater's 50% payment of the balance shall be recovered equally from the first 2,000 single-family equivalents.

Ex. Vol. 12, p. 186.

Company witness Becker testified that Aqua NC failed to include a pro rata portion of the costs of construction of the Buffalo Creek Pump Station and Force Main in secondary developer contracts executed between 2006 and 2018, resulting in approximately $315,000 of uncollected CIAC, which should have been collected as contemplated for in the Amended Purchase Agreement. Witness Becker explained that part of the reason for this oversight was the complicated and unusual nature of the 1999 and 2002 multi-party contracts. Witness Becker also noted that when the Company acquired Heater in 2004, the Company's management team underwent a significant transition of key personnel. He likewise noted that, between the time when CIAC was first collected toward the Johnston County capacity purchase and when this issue came before the Commission for adjudication, four rate cases and numerous contiguous

extension filings have occurred that allowed an opportunity for regulatory oversight of the secondary developer contracts in question.

In response to questions from the Commission, witness Becker noted that Aqua NC does not have a uniform connection fee and that the connection fees fluctuate by area. He further testified that, before a lot can be connected to a wastewater collection system, it is subject to review by the Public Staff and must be approved by the Commission through an application for a Certificate of Public Convenience and Necessity or a Notification of Contiguous Extension.

Witness Junis testified, and was uncontroverted by the Company, that after removing Heater's contractually-allowable investment of $75,000, overhead, and interest costs from the $1,079,301 total cost of the Buffalo Creek Pump Station and Force Main, Heater's 50% of the balance amounts to $440,816. Heater collected the $440,816 costs that were to be recovered from Rebecca Flowers Finch (d/b/a/ River Dell Company). Ex. Vol. 16, p. 289. Witness Junis further testified that $440,816, divided equally among 2,000 single-family residential equivalents (SFREs), per the terms of the Amended Purchase Agreement, would be $220.41 per SFRE. According to witness Junis, Aqua NC failed to invoice developers for CIAC, to which it was contractually entitled, in the amount of $315,687[21]. Ex. Vol. 12, pp. 145-146. On examination by Chairman Finley, witness Junis testified that approximately one-third of the CIAC for the Buffalo Creek Pump Station and Force Main should have been collected prior to the end of the updated test year period, ending October 31, 2013, in Aqua NC's last general rate case in Docket No. W-218, Sub 363. Witness Junis provided a late-filed exhibit, clarifying that Aqua NC failed to invoice and collect from developers $218,999 in CIAC for the Buffalo Creek Pump Station and Force Main subsequent to the Sub 363 updated test year cutoff of October 31, 2013.

Company witness Becker disagreed with witness Junis' proposed adjustment to impute $315,687 of uncollected CIAC for the Buffalo Creek Pump Station and Force Main. Witness Becker reiterated that the Amended Purchase Agreement was executed in 2002, that much of the Heater management team subsequently left the Company in early 2005, and that the first developer contract entered into pursuant to the Amended Purchase Agreement was not executed until 2006. Witness Becker admitted that, as a result of these changes and an oversight during the transition in management, Aqua NC failed to collect a pro rata portion of the capacity fees from developers between 2006 and 2018, resulting in approximately $315,000 of uncollected CIAC. Witness Becker contended that, with the benefit of hindsight and after numerous filings and proceedings in which these issues conceivably could have been raised, the Public Staff now is seeking what amounts to a $315,000 write-off of rate base and penalty to Aqua NC. Tr. Vol. 14, pp. 24-25.

[21] Through June 2018, Aqua NC failed to collect wastewater capacity payments from 1,432.27 SFREs (1432.27 SFREs x $220.41 per SFRE = $315,687).

In a late-filed exhibit,[22] the Public Staff stated that the Amended Purchase Agreement and a secondary developer contract were filed with the Commission on February 7, 2006, and approved[23] by the Commission in Docket No. W-218, Sub 538, by Order dated April 6, 2006.

Discussion and Conclusions

The Commission concludes that the Company did not act prudently or reasonably when it failed to collect CIAC to which it was contractually entitled in the amount of $315,687, for the construction of the Buffalo Creek Pump Station and Force Main. The Bulk Wastewater Agreement was approved by the Commission in 2002, prior to Aqua NC's acquisition of Heater. However, in the Company's Notification of Contiguous Extension filed on February 7, 2016, in Docket No. W-274, Sub 538, Aqua NC's management attached as an exhibit the Amended Purchase Agreement, which outlined Aqua NC's right to collect from developers sufficient CIAC for the construction of the Buffalo Creek Pump Station and Force Main. Similarly, the Amended Purchase Agreement was approved by Commission Order dated April 6, 2006, and Aqua was required to comply with the terms of all other Commission-approved contracts referenced herein.[24] In addition, an internal Heater memo dated August 6, 2004, clearly set forth Heater's understanding that 50% of the cost of the Buffalo Creek Pump Station and Force Main was to be collected from the secondary developers, pertaining to the first 2,000 SFREs. The amount of capacity fees as CIAC that should have been, but was not, collected by Aqua NC for the construction of the Buffalo Creek Pump Station and Force Main is not in dispute by the parties in this proceeding.

The Commission gives weight to Aqua NC's admission that it failed to include the appropriate contractual language in its contracts with secondary developers executed between 2006 and 2018. Likewise, Aqua NC does not dispute that it failed to collect CIAC in the amount of $315,687, as a result of Company management's "oversight." Tr. Vol. 14, pp. 24-25. The Commission also gives weight to Aqua NC witness Becker's admission on cross-examination, for which the Commission applauds Aqua NC for its accountability on this issue, that documentation exists demonstrating Aqua NC's intent to collect from the master developer of the Flowers Plantation the agreed-upon capacity fees as CIAC on a going-forward basis, but that Aqua NC's management failed to follow through on this. Failure of Aqua NC's management to review appropriately the contracts and other documentation addressing the utility's responsibilities and obligations

[22] On October 11, 2018, and as corrected on October 15, 2018, the Public Staff entered into the record its Late-Filed Exhibit Relating to the Flowers Plantation Contributions In Aid of Construction Issues.

[23] Ordering Paragraph 5 of the Commission's Order Recognizing Contiguous Extension and Approving Rates states "[t]hat Heater's agreements with developer, Walker Woods Development, LLC, and the developer River Dell Utilities, Inc., and River Dell Company, are hereby approved."

[24] Despite said contracts being filed with the Commission and subject to review by the Public Staff, the capacity fee Aqua NC charged to developers for the Flowers Plantation lots were neither included in Aqua NC's filed tariff, nor raised as a contested issue in any of Aqua NC's prior general rate cases or its numerous filings of contiguous extension notifications.

undertaken by the prior owner with respect to Flowers Plantation provides insufficient excuse for failing to collect the contracted-for CIAC.

While the Commission agrees with Aqua NC that one contributing factor to this "oversight" could have been the fact that the pertinent capacity fees to be collected as CIAC for the Buffalo Creek Pump Station and Force Main should have been, but were not, included on the Company's tariff, the Commission is unpersuaded that this fact somehow excuses Aqua NC's responsibility to prudently manage the various contractual obligations and rights it assumed, and over which it subsequently had control, after it acquired Heater in 2004. On the other hand, Commission Orders in prior Aqua NC general rate cases have included the costs of the Buffalo Creek Pump Station and Force Main in rate base without offsetting CIAC that Aqua NC failed to collect. It is the Company's obligation to include in its filings and its rate case proceedings information concerning its ability to collect CIAC to help finance utility plant; it is not the Commission's obligation to guess about such matters. The Commission also depends on the Public Staff, as the agency responsible for investigating and auditing Aqua NC's books, to make timely recommendations with respect to cost-of-service adjustments. The contractual provisions at issue here were available for inspection and review prior to the instant case and more appropriately should have been brought to the Commission's attention in a timelier manner.[25] With that said, however, the Commission finds unpersuasive Aqua NC's contention that subsequent Commission approval of a secondary developer contract that lacked certain language pertaining to Aqua NC's right to collect capacity fees as CIAC somehow superseded the controlling terms of the 2002 Amended Purchase Agreement and Bulk Wastewater Agreement. Furthermore, upon Commission approval of the controlling Amended Purchase Agreement and Bulk Wastewater Agreement, the Commission had no reason, until the instant proceeding, to suspect that Aqua NC would not appropriately enforce the rights and obligations it was afforded pursuant to such contracts. It was Aqua NC's sole responsibility, not the responsibility of the Public Staff or of the Commission, to ensure that appropriate wording would be appropriately carried forward to future secondary contracts with developers.

For these reasons, the Commission will limit its disallowance of CIAC to that which Aqua NC failed to collect after its last rate case test year period, ending October 31, 2013, in Docket No. W-218, Sub 363. The Commission, therefore, concludes that it was not reasonable or prudent for Aqua NC's management to fail to collect sufficient CIAC to which it was entitled, in the amount of $218,999 (reflecting the amount of CIAC that the Company failed to collect subsequent to the updated cutoff date in its last rate case of

[25] With respect to future proceedings to review applications for Certificates of Public Convenience and Necessity and/or notifications of contiguous extensions filed with the Commission pursuant to Commission Rule R7-38, the Commission expects that, going forward, the Public Staff will audit and more closely scrutinize water and sewer contracts governing capacity and/or connection fees between the developer, the utility, and/or any third party from whom wastewater capacity is purchased. In the future, the Public Staff shall, for all such water utility contracts (not only those to which Aqua is a party), more closely investigate developer contracts before recommending the approval of such contracts to the Commission. Likewise, the Commission also expects the applicant (utility) to disclose and account for CIAC available from third parties.

October 31, 2013), for the construction costs of the Buffalo Creek Pump Station and Force Main.

The Commission further notes that Aqua NC witness Becker indicated that the Company will review the lots to determine if additional CIAC can be collected by addressing the capacity fee issue in its future contracts with secondary developers. If Aqua NC is able to collect additional capacity fees as CIAC for the construction of the Buffalo Creek Pump Station and Force Main, Aqua NC may request that the Commission reevaluate this issue in a future proceeding based upon what Aqua NC may be able to collect in the future from lots other than the first 2,000 SFREs (i.e., Aqua NC could, in theory, and assuming it is able to now collect these fees pursuant to future contracts executed with secondary developers, request that the imputed CIAC in this proceeding become actual cash CIAC collected prior to the Company's next general rate case).

Aqua NC's Payment to Johnston County for 250,000 gpd of Wastewater Capacity

Company witness Becker testified that the Flowers Plantation development is expected to grow by approximately 300 lots per year. Based on this anticipated growth, the Company in 2017 began reviewing its capacity needs for Buffalo Creek based on actual flows. While considering plans to expand the Neuse Colony WWTP, the Company decided to examine the option of purchasing (reserving) wastewater treatment capacity from Johnston County (the County). The Company's option to purchase (reserve) wastewater capacity from the County expires in 2022. For these reasons, the Company determined that the prudent approach was to begin acquiring (reserving) and using capacity from the County before such time as Aqua NC's option to purchase capacity from the County expires.

In a Bulk Wastewater Service Agreement executed on May 14, 2002, Heater and Johnston County agreed that at some future date (possibly after Heater built out its 750,000 gpd Neuse Colony WWTP), Heater would purchase (reserve) bulk wastewater from the County and pay the County's then-prevailing capacity fee. The Bulk Wastewater Service Agreement further provided that the County's then-current capacity fee was $5.50 per gpd, which would be adjusted by Johnston County in the future, based on the County's cost of construction of its WWTP.

According to witness Becker's testimony, in 2009, Johnston County quoted a price of $6.29 per gpd for capacity, which included $4.83 per gpd for wastewater treatment capacity and $1.46 per gpd for transmission fees to upgrade the County collection system. The Company did not consider this to be a prevailing rate as referred to in the 2002 Bulk Wastewater Service Agreement, but rather to be an initial price quote. Aqua NC reached this conclusion because Johnston County does not have published (prevailing) rates for wastewater capacity, but rather states in its guidelines that wastewater capacity fees are determined on a negotiated basis.

In 2018, Johnston County quoted a rate of $8.48 per gpd to Aqua NC, which included a $5.34 gpd charge for wastewater treatment capacity and $3.14 per gpd for

transmission fees to upgrade the County's collection system.[26] Aqua NC decided to begin the process of purchasing (reserving) capacity from the County in 2018, and consequently paid the $8.48 per gpd rate.

Because Aqua NC had been collecting $6.00 per gpd in CIAC from most developers, the Company concluded that it had appropriately charged and received sufficient funding to purchase (reserve) the 250,000 gpd of wastewater capacity from the County in 2018. The Company viewed the $5.34 per gpd capacity charge to be reasonable, but not the $3.14 per gpd transmission fee, because the initial contract provided that the capacity fee could be adjusted based only on the cost of construction for the County's WWTP and it was the Company's understanding that Johnston County's WWTP had not been upgraded since 2006.

Company witness Becker stated that Aqua NC engaged the Public Staff to proactively discuss the purchase of Johnston County wastewater capacity to serve Buffalo Creek. Tr. Vol. 5, p. 39. On June 21, 2018, Aqua NC purchased 250,000 gpd of wastewater treatment capacity from Johnston County for $2,120,000.

On cross-examination by the Public Staff on September 24, 2018, witness Becker stated and then reaffirmed that Aqua NC has received the necessary engineering approvals from DEQ to construct the interconnection to the Johnston County wastewater system. Tr. Vol. 15, p. 54.

Witness Junis cited Paragraph 7.I. of the Amended Purchase Agreement, which provides, in pertinent part, that "Secondary Developer shall pay to Heater a cash contribution in aid of construction the same dollar amount per gallon as the County's then current bulk wastewater capacity fee, which at the time of the execution of this Amended Agreement is $5.50 per gallon." Ex. Vol. 12, p. 141.

Witness Junis testified that Aqua NC sold (reserved) approximately 333,671 gpd of wastewater capacity to Buffalo Creek developers. He further testified that Aqua NC charged developers CIAC in the amount of $5.50 per gpd in 2006, which was the first time the Company sold (reserved) wastewater capacity to serve Buffalo Creek. Witness Junis testified that Aqua NC subsequently charged Buffalo Creek developers CIAC in the amount of $6.00 per gpd. Witness Junis asserted that the wastewater capacity fee to be paid to the County is a negotiated rate that was provided by Johnston County to Aqua NC on at least four occasions – in 2002, in 2009, and twice in 2018. Ex. Vol. 12, p. 146.

In support of the Public Staff's position, witness Junis testified that Aqua NC collected $1,497,400 for 250,000 gpd of wastewater capacity between January 11, 2006, and November 10, 2017. Tr. Vol. 12, p. 148. He testified that, in his opinion, the capital

[26] This fee does not reimburse the County for the interconnection facilities between Aqua NC's Neuse Colony WWTP and the County's collection system. Aqua incurs these costs. However, the interconnection point is to the County's collection system, not directly into the County's WWTP. The $3.14 per gpd is a fee the County assesses generically to those connecting to its transmission and connection system.

cost of $2.120 million for the wastewater capacity purchased from Johnston County and associated CIAC of $1.497 million should be removed from rate base. Tr. Vol. 12, pp. 148-150. Witness Junis asserted that Aqua NC could have avoided creating rate base if it (1) had better tracked the quantities of capacity being sold (reserved) to developers on each side of the Flowers Plantation development; (2) better matched the CIAC to be collected with Johnston County's then-current capacity rate; and (3) incrementally purchased (reserved) capacity from Johnston County as it received the associated CIAC from developers. Tr. Vol. 12, pp. 151-152.

Witness Junis asserted that the wastewater capacity purchased (reserved) by Aqua NC from Johnston County is not used and useful, as Aqua NC has not yet interconnected to Johnston County's wastewater collection system.

The Public Staff in its late-filed exhibit confirmed that the Agreement was filed with the Commission and approved by Commission Order in Docket No. W-274, Sub 392.[27] The Agreement was not found to be filed in any other dockets.

In rebuttal, witness Becker again testified that the capacity that witness Junis contends that the Company should have been purchasing (reserving) over the last decade was not needed throughout that time, and, therefore, it would have been imprudent for the Company to purchase (reserve) additional capacity before it was needed.[28] For that reason, witness Becker argued that it would be inappropriate for the Commission to impute $622,500 of CIAC, as recommended by the Public Staff, because Aqua NC acted prudently in not purchasing (reserving) unneeded capacity over the past 12-year period.

Witness Becker testified that it is appropriate to include these costs in rate base because the capacity will be used and useful within a reasonable time frame after the close of the evidentiary hearing. He stated that he has been advised that North Carolina courts have held that customers could be assessed costs for future customers when the costs were based on a short-term projection. For these reasons, witness Becker argued that it is appropriate to include this purchase in rate base, or, in the alternative, to allow the Company to create an asset held for future use and recover carrying charges on the

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[27] Ordering Paragraph 5 of the Commission's Order Granting Franchise and Approving Rates states "[t]hat Heater's agreement with Johnston County and the developer, Rebecca Flowers, d/b/a River Dell Company, is hereby approved."

[28] Aqua NC had concerns that if the payment to Johnston County was made to reserve wastewater capacity prior to the time the actual capacity was needed, the Company would not receive rate base treatment on the asset (capacity purchased from Johnston County). On p. 20 of Aqua NC witness Becker's rebuttal testimony, he states that "the premature purchase of unneeded capacity from Johnston County benefits only [Johnston] County..." Tr. Vol. 14, p. 28. The Commission agrees with Aqua NC that it was prudent to wait to reserve capacity from the County until needed and that construction of Aqua NC's interconnection to the County should appropriately coincide with the need for the capacity. The Commission rejects inclusion of the costs of capacity payments as not yet used and useful. Had Aqua NC adhered to the Public Staff's view that the Company reserve capacity concurrently with receipt of CIAC from Buffalo Creek developers, Aqua NC for years unwisely would have expanded rate base funds ineligible to include in cost of service because not used and useful.

amount of the purchase. As a second alternative, witness Becker argued that both the purchased capacity asset and the entire amount of CIAC collected toward same should be removed as offsetting rate base assets.

Company witness Becker testified that, based on the rapid growth rate of the Flowers Plantation development and the 2022 sunset clause on Aqua NC's option to purchase wastewater capacity from Johnston County, Aqua NC determined that it needed the capacity and purchased 250,000 gpd of capacity for $8.48 per gpd. He explained that "Aqua decided to purchase as much capacity as could be purchased using the CIAC received from Buffalo Creek developments of $2,000,925" for 333,671 gpd. Tr. Vol. 14, p. 30.

Witness Becker asserted that the Amended Purchase Agreement does not explain how the $5.50 per gpd capacity fee was determined or how it is defined. He added that the capacity fee to be paid to Johnston County "shall be adjusted in the future based on the County's cost of construction of the County's wastewater treatment plant," and to the Company's knowledge, there has been no construction of the Johnston County wastewater treatment plant since 2006. Tr. Vol. 14, p. 27. Witness Becker testified that, with the advantage of hindsight, Public Staff witness Junis effectively proposes to impute money (the shortage of approximately $2.49 gpd) that Aqua NC did not collect from developers as CIAC. Id. at 30-31.

Witness Becker disagreed with witness Junis' proposed adjustment to remove from Plant in Service the wastewater capacity fee of $2.120 million that Aqua NC paid to Johnston County in 2018. He stated that witness Junis does not recommend removing a corresponding amount of CIAC, but instead recommends removing only $1.497 million of CIAC. Tr. Vol. 14, p. 34. Witness Becker did not dispute that the Company "only collected an average of $5.99 per gpd from developers over the past 12 years for the first 250,000 gallons" of wastewater capacity for Buffalo Creek. Tr. Vol. 14, p. 31.

Witness Becker stated that the Bulk Wastewater Service Agreement was filed with the Commission in Docket No. W-274, Sub 392. He further stated that, had the provisions for recovery of capacity fees to be collected from developers and paid to the County been included in Heater's tariff, then it would have been less likely that these provisions "would have been overlooked." Tr. Vol. 14, p. 32. Witness Becker testified that "[t]he Commission's Orders are important, and they are relied upon by investors." Tr. Vol. 14, pp. 32-33.

Witness Becker testified that the purchased wastewater capacity from Johnston County will be used and useful within a reasonable amount of time after the test period, and, therefore, it would be appropriate to include the full amount in rate base. Alternatively, witness Becker asserted that, at the very least, the Company should be

allowed to create an asset held for future use and recover carrying charges on the amount of the 250,000 gpd capacity purchase from Johnston County. Tr. Vol. 14, p. 35.

Discussion and Conclusions

The Commission has carefully reviewed the evidence and contentions of the parties on the issue of reservation and transmission fees paid to Johnston County and the reservation fees collected from Flowers Plantation developers.

As a preliminary matter, throughout the litigation of this rate case, both Aqua NC and the Public Staff have consistently treated the capacity payment to Johnston County as an asset accounted for in the same account Aqua NC uses for its Plant in Service. The Commission relies on this specific accounting classification, which was uncontested by any party to this rate case, in deciding the disputed issues related to Johnston County. In so doing, the Commission does not make any determinations as to the appropriateness or accuracy, for ratemaking purposes, of the non-dispositive accounting classifications and/or treatment of the capacity payment to Johnston County as an asset in Aqua NC's Plant in Service account.

In deciding these issues, the Commission highlights that there were several different ways it could have decided the myriad complex issues presented by the circumstances comprising the Johnston County and Flowers Plantation facts. Indeed, the parties litigated these issues zealously, but the Commission is not persuaded that any of the outcomes suggested by the parties as they pertain to these issues are (1) correct as a matter of law; or (2) preferable over the ratemaking discretion exercised by the Commission in determining these issues in the manner set forth herein.

In this case, no party has questioned whether the costs to purchase capacity from Johnston County are "known and measurable"; indeed, the Company documented these costs and has shown that they were in fact incurred. Rather, the arguments raised by the Public Staff challenging the inclusion of the Company's Johnston County capacity costs in rates hinge on whether those costs are "reasonable and prudent" and whether they are "used and useful."

The Commission notes that the published Johnston County Water and Sewer Policies do not establish a prevailing rate for wastewater treatment capacity but rather provide for a negotiated fee based on gpd of average flow based on the cost of infrastructure improvements. Furthermore, the County's capacity fee was to be adjusted in the future based on the County's cost to construct its WWTP. A negotiated fee contemplates some interaction between the parties and envisions that a mutual decision will be reached. The record is clear that no such qualifying upgrades have been made by the County to its WWTP since 2006.

The Commission further notes that it is possible that Johnston County, sometime after the execution of the May 14, 2002 Agreement, changed its policy such that increases in its prevailing capacity fee would be negotiated based on costs of infrastructure

improvements, including those made to its collection system, and would not be based upon the cost of construction of its WWTP. However, even if such policy changes were made, they do not negate or otherwise supersede the contractual obligations accepted by Johnston County in the May 14, 2002 Agreement. An analysis of the rate proposals offered by the County in 2009 and 2018 must be reconciled with the provisions of the May 14, 2002 Agreement, which clearly contemplate that the capacity fee and the charges for transmission and treatment services are separate and distinct. The 2009 letter from Johnston County to the then-President of Aqua NC distinguishes the $4.83 per gpd capacity cost as being based on the unit capital cost of the County's most recent WWTP facilities expansion, which is consistent with the original Agreement. The $1.46 per gpd transmission cost was stated as another charge, separate and distinct from the capacity charge, and is not related to treatment as specifically referenced by the Agreement.

A review of the July 18, 2018 letter from Johnston County to witness Becker leads to a similar conclusion. Although the total fee proposal was $8.48 per gpd, it was separated into a proposed capacity fee of $5.34 per gpd for WWTP capacity based on the cost of the last expansion, which occurred in 2006, again consistent with the intent of the May 14, 2002 Agreement. The email from Johnston County to the Company on August 23, 2018, supports this interpretation. Accordingly, the Commission concludes that the Company's contention that the rate quoted by the County in 2018 included a capacity fee of $5.34 per gpd for capacity and a separate charge of $3.14 per gpd for transmission is reasonable.

The Public Staff alleges that it was unreasonable for the Company not to purchase capacity from the County over time or to adjust the amount of CIAC charged to developers based on the rates provided by Johnston County over time. However, to accept this argument, the Commission must ignore the existing contractual provision that the capacity charge and the transmission charge are separate and distinct charges, which is a position that the Commission does not accept. Even if the May 14, 2002 Agreement were subject to a different interpretation, the Commission is unable to conclude that Aqua NC's interpretation is unreasonable, and further notes that the Company's interpretation of the contract has remained consistent since 2002. Furthermore, the Commission notes that the 2002 Agreement is ambiguous or silent about several material issues now disputed in the instant proceeding, including whether the capacity would be reserved in small increments, when the capacity would be reserved, and the timing of when such reservation payments would be owed by Aqua NC.[29] The Agreement also states, "Heater shall pay to the County the County's then prevailing capacity fee for bulk wastewater. The current fee is $5.50 per gpd, which shall be adjusted by the County in the future, based on the County's cost of construction of the County's wastewater treatment plant."

The final capacity fee was clearly the result of a negotiated rate. Therefore, the Commission concludes that it would have been unreasonable for Aqua NC to ignore the contractual provisions that offered financial protection to the Company and its ratepayers

[29] One such example of the contract's ambiguous nature includes that reservation payments "shall be paid for by Heater as Heater takes down the capacity." Ex. Vol. 12, p. 328.

by raising the $6.00 per gpd charge to secondary developers to match what amounted to mere offers received from Johnston County. Similarly, it would have been unreasonable for Aqua NC to purchase capacity on a piecemeal basis when the Company did not yet have a need for the capacity. Further, the approximate $6.00 per gpd CIAC capacity charge has been subject to review by both the Public Staff and the Commission in numerous rate cases and filings for contiguous extensions involving Aqua NC, of which the Commission takes judicial notice.

Reservation fees the Company pays to Johnston County should reduce the County's fixed costs recovered through the County's rates. As previously discussed herein, Aqua NC's payments to the County are to be negotiated. Aqua NC, therefore, should stress to the County that these reservation fee prepayments reduce the County's fixed costs, and thus should be reflected in a reduced capacity charge that Aqua NC pays to the County.

The Commission concludes that Aqua NC paid Johnston County $1,335,000, or $5.34 per gpd, to reserve the 250,000 gpd of capacity in the test year in this rate case. The Commission also concludes that Aqua NC paid Johnston County $785,000, or $3.14 per gpd, during the test year to defray the County's maintenance, upkeep, and potential extension of the County's transmission and distribution system. The Commission, in its discretion, concludes that it is reasonable and appropriate to treat the $785,000 differently from the $1,335,000.

The Commission concludes that the $1,335,000 should not be added to Aqua NC's rate base at this time because Aqua NC's interconnection to the County's transmission and distribution system was not completed as of the end of the test year, as extended to the close of the hearing, and thus, Aqua NC could not make use of its Johnston County capacity payment to serve customers at that time. Likewise, the Commission is not convinced that Aqua NC's interconnection to the County's transmission and distribution system will occur within a reasonable time period after the close of the test year in this case. Under the statute, Aqua NC's capacity payment to Johnston County, therefore, is not used and useful. This finding is consistent with North Carolina case law holding that current customers should not have to pay for plant costs related to future customers.[30]

In so determining, the Commission relies on the Company's late-filed exhibits of October 3, 2018, which included a cover letter stating, in pertinent part, that "the permit for the construction of Aqua NC's wastewater collection system extension" interconnecting the Neuse Colony WWTP and Johnston County's collection Force Main was issued on September 28, 2018 (four days after witness Becker's testimony that Aqua NC had already received the necessary regulatory approval to construct the

[30] See N.C.G.S. § 62-133(b)(1); see, e.g., State ex rel. Utils. Comm'n v. Carolina Water Service, Inc., 328 N.C. 299, 401 S.E.2d 353 (1991); State ex rel. Utils. Comm'n v. Public Staff-North Carolina Utils. Comm'n, 333 N.C. 195, 424 S.E.2d 133 (1993).

interconnection).[31] While not specifically requested by the Commission, yet informative, the Company provided a letter from witness Pearce in response to a request for information from DEQ that stated that "[i]t is currently estimated that the engineering plan submittal for the Pump Station will be submitted to DEQ before August 15, 2018 and for the interconnect construction to be completed by March 31, 2019." [32] However, Aqua NC did not submit a request to DEQ for an Authorization to Construct until September 4, 2018.[33] It similarly did not file with the Commission an application for the Wastewater Collection System Extension Permit until September 4, 2018, supplementing its application with additional information on September 11, 2018. The aforementioned submittals were provided by Aqua NC at minimum 20 days later than previously estimated by the Company. The Commission gives weight to the discrepancy between the expected and actual dates of these submittals as evidence of uncertainty as to the estimated completion date of March 31, 2019 (the last day of the first quarter of 2019), for the interconnection between the Neuse Colony WWTP and Johnston County's collection Force Main.

The Commission further notes, however, that the prototypical "used and useful" analysis does not apply neatly to these Aqua NC capacity reservation fees. Aqua NC will not use the capacity reserved from Johnston County to serve customers for some time after Aqua NC's interconnection to the County's system. Instead, Aqua NC needs the capacity to enable developers of lots within the Flowers Plantation to receive necessary development approvals and, ultimately, complete buildout. In this respect, timing of the interconnection is far less significant than placing on-line utility plant needed immediately or in the near term to serve load. With the County's commitment, Aqua NC can accommodate developers' needs now, even though Aqua NC's interconnection to the County's system is not yet complete. This arguably could have led the Commission to a different conclusion on the "used and useful" dispute, and is one factor relied upon by the Commission to treat the reservation fees as capacity payments, and, thus, differently from the transmission charge.

As discussed above, the Commission determines it unwise and inappropriate to match developer capacity reservation fees that Aqua NC assesses in Flowers Plantation with any particular asset. This determination is particularly appropriate where, as is the case here, the asset is considered Plant in Service and the capacity made available under such agreement will be available to Aqua NC for use throughout Flowers Plantation. Consequently, the Commission rejects treatment that would disallow as an offset to rate base any CIAC Aqua NC collected through the end of the hearing with respect to any property being developed within Flowers Plantation. On a related note, there would be no rate base effect if the capacity purchased from Johnston County and the CIAC of equal

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[31] The Wastewater Collection System Extension Permit was entered into the record as Aqua NC Johnston County Late-Filed Exhibit 3.

[32] The letter was entered into the record as Aqua NC Johnston County Late-Filed Exhibit 1.

[33] The Authorization to Construct was entered into the record as Aqua NC Johnston County Late-Filed Exhibit 2.

amounts were both included in rate base; the converse also is true – there would be no rate base effect if the capacity purchased from Johnston County and the CIAC of equal amounts were both excluded from rate base. It seems clear that the intent of the parties, as memorialized in the contracts at issue here,[34] was to effectuate these transactions in a rate base-neutral and revenue-neutral manner (the developers pay Aqua NC, and then Aqua NC pays Johnston County), where feasible.[35] The Commission further notes that Aqua NC's ratepayers have benefitted over the years from the inclusion in rate base of CIAC subsequently used to purchase capacity from the County. The Commission, on balance and in exercising its discretion, endeavors to decide these issues in a manner that is both in the public interest (here, meaning rate base-neutral), and is consistent with the intent of the underlying contract.

Because Aqua NC's payments to Johnston County constitute a situation with a unique set of facts, the Commission determines to treat the $785,000 payment differently. While there are different ways that this test year payment might be appropriately treated, for ratemaking purposes, the Commission determines that the $785,000 payment should be treated as an expense on the income statement. As best the Commission can determine based on the state of the record before it, the County collects this fee to maintain, repair, and potentially expand its transmission and distribution system. It is not used to defray the costs of building or expanding the County's WWTP, at least to the extent that no such upgrades to the County's WWTP have occurred since 2006, when Aqua NC first began collecting CIAC toward its eventual capacity purchase from the County. Tr. Vol. 14, p. 27. Aqua NC will connect its transmission line from the Neuse Colony WWTP at a point on the County's collection system, not at the County's WWTP itself.

While the Commission determines to treat the $785,000 transmission fee as an expense, it further concludes, in its discretion, that this expense should not be recognized entirely in one cost of service year, but instead should be amortized and recovered over six years with no unamortized balance in rate base. Accordingly, $130,833 should be expensed in this case. This amortization period, in the Commission's discretion, appropriately balances the interests between Aqua NC and its ratepayers.

The Commission recognizes that there is additional CIAC yet to be collected by Aqua NC from developers as the Flowers Plantation continues to expand. In so recognizing, the Commission directs Aqua NC to charge, in all future contracts executed with Flowers Plantation developers, a reservation fee of at least $8.48 per gpd, unless and until such time as Aqua receives written communication from the County informing Aqua NC that it has changed the $8.48 per gpd rate, inclusive of the transmission and distribution expense charge, at which point the modified rate controls. The Commission further directs Aqua NC to obtain such written documentation of the current capacity fees

[34] This intent also is evidenced in the letter then-President of Aqua NC, Tom Roberts, wrote in April 2015, and in Ruffin Poole's e-mail of October 2013.

[35] In calculating the revenue requirement impact of the exclusion from plant in service of the $1,335,000 capacity payment to the County, the Commission uses a 2.00% depreciation rate and a useful life of 50 years.

charged by Johnston County on at least an annual basis until such time as Aqua NC's option to reserve capacity from the County expires. Finally, the Commission directs Aqua NC to use, going forward, accounting treatment and classifications for rate base purposes in a manner consistent with the treatment afforded by this Order.

Aqua NC's Request for Deferral Accounting Treatment of Purchased Capacity

Having already determined that the Company has failed to show that the capacity purchased from Johnston County is used and useful Plant in Service to Aqua NC's ratepayers as of the end of the test period in this case, or will be used and useful within a reasonable time thereafter, the Commission finds premature, and thus, moot, the Company's request, made in the alternative, to allow deferral accounting through the establishment of a regulatory asset for the Johnston County capacity costs. Therefore, the Commission concludes that the Company's request in the alternative to allow deferral accounting treatment for the capacity it purchased from the County should be denied.

ADIT

The difference in the level of ADIT is due to the differing levels of unamortized rate case expense, post-test year plant additions, unamortized repair tax credit, and EDIT recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in the Order, the Commission concludes that the appropriate level of ADIT for use in this proceeding is $24,849,085.

Summary Conclusion

Based on the foregoing, the Commission concludes that the appropriate level of rate base for combined operations for use in this proceeding is as follows:

Item	Amount
Plant in Service	$492,295,394
Accumulated depreciation	(155,246,692)
Contributions in aid of const.	(196,384,493)
Accum. amortization of CIAC	70,758,708
Acquisition adjustments	2,055,735
Accum. amort. of acquis. adj.	1,040,444
Advances for construction	(4,467,841)
Net Plant in Service	210,051,255
Customer deposits	(379,445)
Unclaimed refunds	(193,255)
Accum. deferred income taxes	(24,849,085)
Materials and supplies inventory	2,405,967
Excess capacity adjustment	(1,322,276)
Working capital allowance	4,759,698
Original cost rate base	$190,472,859

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 53-58

The evidence supporting these findings of fact is contained in the Application and in the testimony of Public Staff witnesses Cooper and Junis, and Company witness Gearhart. The following table summarizes the differences between the Company's level of operating revenues under present rates from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Service revenues	$54,039,950	$55,496,957	$1,457,007
Late payment fees	113,213	114,830	1,617
Miscellaneous revenues	1,283,259	1,355,499	72,240
Uncollectibles & abatements	(404,234)	(414,248)	(10,014)
Total operating revenues	$55,032,188	$56,553,038	$1,520,850

With the Stipulation and the revisions made by the Public Staff in its supplemental testimony and Revised Supplemental Cooper Exhibit I, the Company does not dispute the following Public Staff adjustments to operating revenues under present rates:

Item	Amount
Reflect Company pro forma level of service revenues	$1,457,007
Adjustment to late payment fees	1,617
Adjustment to reclassify availability revenues	72,240
Adjustment to uncollectibles & abatements	(10,014)
Total	$1,520,850

Therefore, the Commission finds and concludes that the adjustments listed above, which are not contested, are appropriate adjustments to be made to operating revenues under present rates in this proceeding.

Summary Conclusion

Based on the foregoing, the Commission concludes that the appropriate level of operating revenues under present rates for combined operations for use in this proceeding is as follows:

Item	Amount
Service revenues	$55,496,957
Late payment fees	114,830
Miscellaneous revenues	1,355,499
Uncollectibles & abatements	(414,248)
Total operating revenues	$56,553,038

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 59-86

The evidence supporting these findings of fact is contained in the Application and Aqua NC's NCUC Form W-1 filing, the testimony of Public Staff witnesses Cooper, Henry, Boswell, Feasel, Junis, and Darden, and Company witnesses Gearhart, Becker, Kopas, Pearce, and Berger.

The following table summarizes the differences between the Company's level of O&M and G&A expenses from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Salaries and wages	$10,582,933	$10,048,145	($534,788)
Employee pensions and benefits	3,307,897	3,021,650	(286,247)
Purchased water/sewer	2,390,335	2,316,616	(73,719)
Sludge removal	536,333	559,382	23,049
Purchased power	3,660,633	3,570,667	(89,966)
Fuel for power production	26,809	26,809	0
Chemicals	1,403,799	1,521,967	118,168
Materials and supplies	505,720	505,720	0
Testing fees	971,148	902,172	(68,976)
Transportation	919,149	919,149	0
Contractual services – eng.	2,750	2,750	0
Contractual services – acctg.	188,101	188,101	0
Contractual services - legal	263,190	196,144	(67,046)
Contractual services - other	4,258,718	4,199,984	(58,734)
Rent	309,942	309,942	0
Insurance	963,266	650,674	(312,592)
Regulatory commission expense	224,568	92,562	(132,006)
Miscellaneous expense	1,497,272	1,444,151	(53,121)
Interest on customer deposits	32,388	32,388	0
Annual. and consumption adj.	7,051	127,978	120,927
Total O&M and G&A expense	$32,052,002	$30,636,951	($1,415,051)

With the Stipulation and the revisions made by the Public Staff in the supplemental testimony and Revised Supplemental Cooper Exhibit I, the Company does not dispute the following Public Staff adjustments to O&M and G&A expenses:

Item	Amount
Update salaries & wages through 6/30/18	($40,329)
Remove open positions	(174,436)
Adjustment to reflect actual overtime pay	(18,568)
Update pensions & benefits through 6/30/18	(36,587)
Remove benefits related to open positions	(149,986)
Adjustment to remove original pro forma allocated benefits	6,364
Remove duplicate Health Advocate benefits	(9,445)
Adjustment to insurance expense	(312,592)
Adjustment to communication initiative	13,989
Adjustment to remove legal invoices before test year	(12,942)
Adjustment for legal fees related to fines and penalties	(10,099)
Adjustment to purchased power	(89,966)
Adjustment to chemicals	118,168
Adjustment to contract services to remove pre-test yr. invoices	(1,366)
Adjustment to contract services for NC 811 locates	(57,368)
Remove legal fees related to legislation	(44,005)
Adjustment to payroll taxes	8,260
Total	($810,908)

Therefore, the Commission finds and concludes that the adjustments listed above, which are not contested, are appropriate adjustments to be made to the O&M and G&A expenses in this proceeding.

The Company disagrees with the following Public Staff adjustments to O&M and G&A expenses, as evidenced by the testimony of Company witnesses Gearhart, Becker, Kopas, Pearce, and Berger:

Item	Amount
Remove ½ of operators' salaries	($58,051)
Adjustment to remove 30% of bonuses	(29,648)
Adjustment to allocate 50% of executive compensation to shareholders	(213,756)
Remove ½ of four operators' benefits	(15,748)
Adjustment to allocate executive benefits to shareholders	(80,845)
Adjustment to board of directors fees	(67,110)
Annualization and consumption adjustment	120,927
Adjustment to sludge removal	23,049
Adjustment to testing	(68,976)
Adjustment to regulatory commission expense	(132,006)
Adjustment to purchased water	(73,719)
Total	($595,883)

These contested adjustments affect salaries and benefits, miscellaneous expense, sludge removal, testing, regulatory commission expense, and purchased water.

Salaries and Benefits

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Revised Supplemental Cooper Exhibit I, the Company does not dispute the following Public Staff adjustments to salaries and wages:

Item	Amount
Update through 6/30/18	$ (40,329)
Remove open positions	(174,436)
Actual overtime payroll	(18,568)
Total	$ (233,333)

Therefore, the Commission finds and concludes that the adjustments listed above, which are not contested, are appropriate adjustments to be made to salaries and wages in this proceeding.

Based on the testimony of Company witnesses Kopas, the Company disagrees with the following Public Staff adjustments to salaries and wages:

Item	Amount
Remove operators' salaries	$ (58,051)
Remove 30% of STI bonus	(29,648)
Remove 50% of executive compensation	(213,756)
Total	$ (301,455)

The difference in the level of employee pensions and benefits is due to the differing levels of salaries and wages recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in the Order regarding the levels of salaries and wages, the Commission concludes that the appropriate level of employee pension and benefits for use in this proceeding is $3,077,822.

The Public Staff and the Company disagree on the following items concerning salaries and benefits: (1) an adjustment to salaries and wages and related benefits that quantifies the expense savings as a result of USIC performing the One Call/NC 811 work previously performed by Aqua NC personnel; (2) an adjustment to remove 30% of employee bonuses that are related to earnings per share; and (3) an adjustment to allocate executive compensation and related benefits to shareholders.

Operators' Salaries and Benefits

In his direct testimony, Aqua NC witness Gearhart testified that the Company added a new contract in 2018 for USIC to perform One-Call/NC 811 responsibilities. Witness Gearhart explained that the amount included was based on estimated calculations and a pending contract with the contractor. He stated that, during discovery,

the Company submitted the executed contract and the initial invoices received from USIC to the Public Staff. Tr. Vol. 5, p. 221.

Public Staff witness Junis testified that Aqua NC filed a pro forma adjustment to the Contract Services – Other expense in the amount of $507,880, which Public Staff witness Junis cited to Column (g) of Aqua NC's Application Exhibit B3-m, for USIC to perform utility locates and other activities in response to the NC 811 system. Tr. Vol. 12, p. 152.

Witness Junis described the Public Staff's recommended adjustment to normalize the annual expense to an amount of $450,511, based on actual locate tickets received during the months of May and June 2018, after USIC started to perform the responsibilities. Tr. Vol. 12, p. 153. The Company agreed to Public Staff witness Junis' proposed adjustment as part of the Stipulation.

Witness Junis testified that, in an effort to quantify the expense savings as a result of USIC performing the One Call/NC 811 work previously performed by Aqua NC personnel, the Public Staff made multiple data requests. See Junis Exhibit 21, EDR 33 Q2 and Junis Exhibit 22, EDR 45 Q1. Witness Junis testified that Aqua NC management originally planned to hire six full-time employees to fully perform the work the Company had been deficient in completing. The evaluation had excluded supervisor time necessary to conduct a cursory review and assign workable tickets in the Company's service territory. Witness Junis stated that Mr. Joe Pearce, Aqua NC's Director of Operations, estimated the expense that Aqua NC avoided by contracting USIC to be approximately $693,667, which includes the fully loaded costs of 10 field staff and one supervisor. Furthermore, the Company stated:

> Approximately 10% of 811 work orders are currently being worked... the remaining 90% are not being addressed timely. This delinquency has exposed ANC to fines/penalties, lawsuits, and significant repair costs necessary to fix damaged unmarked lines.

EDR 45 Q1, p. 1.

Based on an allegation of Aqua NC's inability to quantify the actual expense incurred in the test year to address One Call/NC 811 tickets, the responses referenced above, and the fact that the Company has stated approximately 40% of all the tickets were workable and only 10% of those were being completed, Public Staff witness Junis recommended reducing workforce expense for 50% of a Field Supervisor I's workload and 50% of three Utility Technicians' workload, one from each of the three regions, to complete tickets that the Company responded to prior to contracting with USIC.

In his rebuttal testimony, Aqua NC witness Becker testified that he disagreed with the Public Staff's proposed adjustment to reduce the Company's workforce labor and benefits expense by 50% for four positions, due to Aqua NC's decision to contract with USIC to do line locates. Witness Becker asserted that witness Junis seeks to arbitrarily

eliminate part of Aqua NC's workforce, overriding a responsible management decision to redeploy employees to other tasks, due to management's decision to employ an outside vendor to comply with One Call/NC 811 work. According to witness Becker, witness Junis' adjustment is essentially the elimination of two full time employees (FTEs) and that adjustment should be summarily rejected as it: (a) reflects an unsupportable and inappropriate intrusion into management decisions; (b) ignores Aqua NC's demonstrated need and prerogative to contract with outside vendors for completion of a range of activities which are not the Company's core competencies, specifically including line locates; and (c) ignores the fact that there was no staff reduction, as staff time was reassigned to other core services.

Witness Becker further stated that Aqua NC began looking at the possibility of outsourcing the One Call/NC 811 work in 2017. During that year, the Company's operations management team made and supported a recommendation to outsource line locate work related to One Call/NC 811 requirements. The Company determined that these functions are more reasonably managed and handled by outside vendors who specialize in the activity. The contract with USIC was executed on February 26, 2018, and USIC began to handle Aqua NC's NC 811 call volume on May 1, 2018.

Company witness Becker testified that certain factors supported the Company's decision to rely on an outside vendor to meet this function. Specifically, witness Becker stated that management focused on the choices and the evaluation of alternatives, including hiring more FTEs to perform the work internally, and decided to outsource this activity based on the following factors:

(1) The skill set necessary to complete line locates is different than those of water and wastewater professionals;
(2) Using Aqua NC's water and wastewater professionals to complete the large volume of line locates is disruptive to their normal work schedules;
(3) This work is episodic and includes emergency locate requirements;
(4) It is an inefficient use of a water/wastewater supervisor's time to continuously manage this effort; and
(5) Using a firm with statewide coverage, specific expertise, and ongoing activity in Aqua NC's areas of operation provides efficiencies and assurance of consistency.

According to witness Becker, it was clear to Aqua NC management that use of outside, specialized resources was the most appropriate option. The decision to contract line locate work additionally included, but was not limited to, consideration of benefits of avoiding additional hires for line locates, elimination of the responsibility of managing a non-core service, and reduction of risk and liability related to unaddressed line locates. Time previously spent by Aqua NC employees to respond to line locate work orders is now used for other water and wastewater duties which are more directly in line with Aqua NC's core services. These services, the need for which is increasing over time, not decreasing, include maintenance on filters, pumps, lift stations, wastewater treatment

plant equipment, and collection and distribution lines; reporting requirements; environmental regulatory compliance; flushing initiatives; sludge hauling; testing; "Close the Loop" initiatives; and meeting customer expectations.

Witness Becker argued that the Public Staff has not made or supported any claim in this case that Aqua NC is overstaffed. To the contrary, Aqua NC's field workforce and supervisors are fully utilized daily to handle their workload. Witness Junis' testimony does not state that Aqua NC has either an excessive field supervisory or field staff workforce. Moreover, prior to the Public Staff's filing of testimony in this rate case, witness Becker stated that he had never heard anyone from the Public Staff or any other regulatory agency state that Aqua NC is overstaffed for field personnel. Witness Becker asserted that he could confidently state that the Company's field staff employees are fully utilized. Further, he asserted that, to the contrary, the Public Staff has, on several occasions in public forums in the past year, stated that Aqua NC was significantly understaffed in some respects.

Witness Becker stated that Aqua NC's intent related to line locate work was and is to cost-effectively meet regulatory requirements and reduce the Company's risk of asset damage and liability.

Witness Becker further testified that he disagreed with witness Junis' assumption that an Aqua NC supervisor was spending half of his/her time managing the One Call/NC 811 process. He stated that such assumption was incorrect and that, in fact, the lack of a supervisor, or half of a supervisor, was one of the drivers for the need to outsource this program.

Witness Becker testified that he could not say at this time whether there will be repair savings by having reduced contract claims. However, he asserted that any attempt to meaningfully correlate use of outside vendors with a change in the repair cost experience is, at this point, sheer hypothesis and is definitely not known and measurable. Witness Becker observed that the program has just begun, results will be tracked and monitored, and those results will be available for a future audit. Witness Becker contended that the proposed reduction of the expenses for employees who are actually on payroll and fully deployed doing necessary work shows indifference on the part of the Public Staff to: (a) management's prerogative to make deployment decisions; (b) the reality of Aqua NC's need for the staff; and (c) the fact that this is an opportunity to retain and use existing staff for legitimate purposes, rather than having to hire new employees.

Witness Becker recommended that the Commission reject, as inappropriate and unwarranted, all recommendations associated with reduction in workforce due to Aqua NC's decision to contract with a professional, specialized outside vendor to perform line locate services. The amount of labor previously expended addressing line locates was minimal; however, all previous time spent by these Aqua NC field staff and supervisors related to the provision of line locate services was filled with work on other core water and wastewater services necessary for operations.

Further, witness Becker noted that it is essential to Aqua NC, as a regulated utility, that regulation observe the difference between proper regulatory oversight and an attempt to supplant management's obligation to prudently run the business. Witness Becker maintained that rejection of this adjustment and of the Public Staff's insufficient rationale is appropriate. He also stated that such action would provide needed guidance about the proper balance that should be struck between the regulator and the regulated, with respect to the responsibility to manage the business on a day-to-day basis.

Based upon the foregoing, the Commission agrees with Aqua NC's decision to contract with USIC in 2018 to perform its One Call/NC 811 line locate responsibilities. Further, the Commission agrees with and finds reasonable witness Becker's testimony which recites the five factors, as previously listed herein, which led the Company to retain USIC as an outside vendor to perform the required One Call/NC 811 line locates. The Commission acknowledges that the Public Staff did not challenge Aqua NC's decision in this regard.

The Commission gives significant weight to the testimony of witness Becker that time previously spent by Company employees to respond to line locate work orders can now be used for other water and wastewater duties which are more directly in line with Aqua NC's core services. In his testimony, witness Becker listed various core services, including maintenance on filters, pumps, lift stations, WWTP equipment, collection and distribution lines, reporting requirements, environmental regulatory compliance, flushing initiatives, sludge hauling, testing, "Close the Loop" initiatives, and meeting customer expectations. The Commission recognizes the necessity for Aqua NC employees to devote additional effort to customer service and water quality concerns expressed by customers as a result of the customer testimony and statements received in this proceeding. The Commission is of the opinion that such additional needed effort cannot be accomplished simultaneously with Aqua NC's reducing its current operations personnel. Further, witness Becker testified concerning several new initiatives the Company has recently implemented to improve its customer communications and overall quality of service. The Commission recognizes that such new initiatives would require additional time and effort to be expended by Aqua NC's existing employees. Consequently, for these reasons, the Commission finds and concludes that the Public Staff's proposed adjustment to exclude 50% of the updated labor costs and benefits of four Aqua NC field operational employees from the cost of service in this case is inappropriate.

Employee Bonuses Related to Earnings per Share

Public Staff witness Henry stated in his direct testimony that Aqua NC's Application included bonuses paid to North Carolina employees during the test year, including Short-Term Incentive (STI) bonuses and achievement awards. He testified that after examining Aqua NC's bonus policies, he found it appropriate to recommend an adjustment to remove 30% of the STI bonuses paid to the North Carolina employees. He further testified that according to Aqua NC's most recent policies for the STI Plan, 60% of the metric weight depended on financial while 50% of the 60% is directly related to Aqua

America's earnings per share. Witness Henry testified that earnings per share directly benefit the shareholders' value instead of being for the ratepayers' benefit. He testified that, therefore, the Public Staff recommended an adjustment to remove 30% of the bonuses from expenses and allocate them to the Company's shareholders.

Henry Supplemental Exhibit 1, Schedule 2 Revised, line 6 as filed on September 13, 2018 shows the Public Staff's recommended adjustment to allocate to shareholders 30% of the North Carolina supervisors' bonuses related to Aqua America's earnings per share totaling $29,648. This is the same amount as presented in witness Henry's direct testimony.

Aqua NC witness Kopas testified on rebuttal that he disagreed with Public Staff witness Henry's adjustment to allocate 30% of bonuses paid to North Carolina supervisory employees to shareholders. Witness Kopas stated that, for the reasons set forth in his testimony regarding the Company's opposition to the Public Staff's accounting adjustment to executive compensation, the STI is part of the total compensation paid to attract and retain qualified supervisory employees at Aqua NC. He testified that this financial metric reinforces to employees that it is their responsibility to serve Aqua NC's customers in a prudent and efficient manner. He further testified that the Company's ability to provide reliable service to its customers is directly related to its financial viability and linking a portion of those employees' compensation to a financial target encourages employees to achieve customer-based objectives in a cost-efficient manner. Witness Kopas testified that the STI (or supervisory bonus) program for Aqua NC has been in place without any ratemaking adjustment having been proposed or made in the Company's last two rate case proceedings.

After reviewing all of the evidence presented, the Commission concludes that the Public Staff's proposed adjustment to exclude 30% of the bonuses paid to North Carolina supervisory employees in the amount of $29,648 from the cost of service in this case is unreasonable and inappropriate for the reasons testified to by Aqua NC witness Kopas.

First, the Commission gives substantial weight to Aqua NC witness Kopas' rebuttal testimony that Aqua NC's STI is part of the total compensation paid to attract and retain qualified supervisory employees who actually work for Aqua NC in North Carolina and directly provide service to customers in this State in a manner designed to ensure that those customers are served in a prudent and efficient manner.

Second, the Commission gives great weight to witness Kopas' testimony that linking a portion of the compensation of North Carolina supervisory personnel to a financial target, as is the case with the STI, clearly encourages those employees to achieve customer-based objectives in a cost-effective manner.

Third, the Commission gives little weight to Public Staff witness Henry's testimony, which emphasizes his earnings per share analysis as essentially benefiting only the Aqua America shareholders' value with no stated benefit to ratepayers. The Commission agrees with Aqua NC that employee compensation packages that include financial

metrics appropriately incentivize individuals to achieve goals that support strong operations of a company that ultimately does benefit ratepayers.

Further, the Commission concludes that if it approved the Public Staff's position on this issue, it would send the wrong message to Aqua NC and its North Carolina-based supervisory personnel. The Public Staff does not propose to exclude any of the salaries or other benefits earned by Aqua NC's North Carolina supervisory personnel in this case, and the Commission finds no reasonable basis to exclude any portion of the STI program from the Company's cost of service in this proceeding. Also, the Commission notes that witness Kopas specified that there have been no similar ratemaking adjustments either proposed or made in Aqua NC's last two rate case proceedings.

Finally, although the Public Staff specified in its proposed order that the Commission should not discourage incentive pay for Aqua NC's North Carolina supervisors and that the incentive metrics should benefit Aqua NC's customers, the Commission does not find the examples provided by the Public Staff reasonable or appropriate. The examples are not specific enough to be adopted in this case. However, the Commission finds that Aqua NC should review its STI bonus plan and consider basing the 50% of the 60% financial weighting of its current bonus plan on a more customer-specific metric.

Accordingly, for the reasons set forth above, the Commission concludes that the Public Staff's proposed adjustment to allocate 30% of North Carolina supervisory employee STI bonuses in the amount of $29,648 to shareholders and thereby exclude those expenses from the cost of service in this case is inappropriate and unsupported by the facts in this case. Therefore, the Public Staff's proposed adjustment to exclude 30% of North Carolina supervisory employee bonuses from Aqua NC's cost of service in this proceeding is hereby denied.

Executive Compensation and Benefits Related to Shareholders

Public Staff witness Henry testified that the Public Staff has proposed an adjustment to remove 50% of the compensation, including pension and incentive plans, of the top five executive officers of Aqua America as listed in the 2017 Annual Meeting of Shareholders Proxy Statement from Aqua NC's cost of service in this proceeding. He testified that Aqua America is the second largest investor owned water and wastewater utility in the United States with its shares traded on the New York Stock Exchange (NYSE) having a $6.709 billion market capitalization at the August 17, 2018, market close as reported by Morningstar. He further testified that Aqua America's market capitalization is larger than the cumulative market capitalization of $6.297 billion of the next four largest investor-owned water utilities which are American States Water Co. (NYSE), California Water Service Group (NYSE), SJW Group (NYSE), and Connecticut Water Service, Inc. (NASDAQ).

Witness Henry testified that the five executives identified by the Public Staff are: (1) the President and Chief Executive Officer; (2) the Executive Vice President and Chief

Financial Officer; (3) the Executive Vice President and Chief Operating Officer; (4) the Executive Vice President, Strategy and Corporate Development; and (5) the Senior Vice President, General Counsel and Secretary. He asserted that the Public Staff's recommendation is not based on the premise that the compensation of the identified Aqua America executive officers is excessive or should be reduced. Witness Henry testified that the Public Staff's recommendation is based on the Public Staff's belief that it is reasonable and appropriate for the shareholders of the very large water and wastewater utilities to bear some of the cost of compensating those individuals who are most closely linked to furthering shareholder interests, which are not always the same as those of ratepayers.

Witness Henry further testified that executive officers have fiduciary duties of care and loyalty to shareholders, but not to customers. Consequently, witness Henry maintained, the Company's executive officers are obligated to direct their efforts not only to minimizing the costs and maximizing the reliability of the Company's service to customers, but also to maximizing the Company's earnings and the value of its shares. Witness Henry testified that it is reasonable to expect that management will serve the shareholders as well as the ratepayers; therefore, he argued that a portion of management compensation and pension should be borne by the shareholders.

Public Staff witness Henry testified that in addition to salaries and pensions, these five executive officers receive compensation from incentive plans, including an Annual Cash Incentive Award that for 2016 was based upon Aqua America's budgeted annual net income, and in 2017 the Award was weighted 60% based upon earnings per share. He testified that there are also Long-Term Incentive Awards in the form of Performance Share Awards of Aqua America shares that for 2016 were weighted 60% based on Total Shareholder Return and in 2017 were weighted 45% based upon Total Shareholder Return. He further testified that their Stock Options are based upon achieving at least an adjusted return on equity equal to 150 basis points below the return on equity granted by the Pennsylvania Public Utility Commission during Aqua America's Pennsylvania subsidiary's last rate case proceeding.

Witness Henry testified that the 2017 Proxy Statement on page 46 states:

> The Compensation Committee [of the Board of Directors] believes that by providing the named executive officers with the ability to earn stock options, the named executive officers' interests are aligned with the shareholders' interests as the value of the stock option is a function of the price of the Company's stock.

Public Staff Henry Supplemental Exhibit 1, Schedule 2 Revised, line 7 shows the Public Staff's recommended adjustment to remove 50% of the executive compensation for the top five Aqua America executives totaling $213,756, and Public Staff Henry Supplemental Exhibit 1, Schedule 3 Revised, line 7 shows the Public Staff recommended

adjustment to remove 50% of the top five Aqua America executives' pensions and incentive plans totaling $80,845.

Public Staff witness Henry also testified that in each of the respective recent general rate cases, both Duke Energy Progress LLC, (DEP) in Docket No. E-2, Sub 1142, and Duke Energy Carolinas LLC (DEC) in Docket No. E-7, Sub 1146, excluded in their E-1 filings 50% of the compensation of the top four executive officers, as shown on Public Staff Henry Redirect Exhibit 1. He testified that in both cases the Public Staff recommended removing the compensation for a fifth executive, specifically the Chief Legal Officer. He testified that DEP and the Public Staff (in the DEP case) and DEC and the Public Staff (in the DEC case) stipulated to removing 50% of the compensation and benefits of the five top officers. Witness Henry testified that it is the Public Staff's principled position that work and loyalties are divided between shareholders and customers.

Aqua NC witness Kopas, in his rebuttal testimony, contested Public Staff witness Henry's proposed adjustment to remove 50%, including pension and incentives, of Aqua America's top five executives' compensation that is allocated to Aqua NC. Witness Kopas stated that Aqua America sets compensation levels for its executives to attract and retain qualified personnel and to remain competitive in the market. Noting witness Henry's acknowledgement that the Company's executive officers are obligated to direct their efforts to minimizing the costs and maximizing the reliability of the Company's service to customers, witness Kopas framed differently than witness Henry the value to ratepayers of the executives' obligation to support earnings and share value. Witness Kopas focused on the extent to which the efforts of Aqua America's executives benefit ratepayers through controlling costs and managing a strong overall company which allows it to attract capital at lower costs. Witness Kopas asserted that Aqua America officers have a responsibility not only to all investors in the Company, which includes both shareholders and bondholders, but also to employees and "most of all - to customers."

Further, noting the extent of regulation both on the environmental side and the financial side, witness Kopas explained that Aqua America officers are charged with the responsibility of meeting these standards of providing safe and reliable water and wastewater service to customers served by Aqua NC. Witness Kopas asserted that only upon its success in serving ratepayers is Aqua NC afforded an opportunity to earn a return on the dollars invested by shareholders. Witness Kopas offered his opinion that the ability of Aqua NC as a public utility to meet the needs of its customers is the highest priority of all Company employees, and that only then will the financial returns be achieved to attract both debt and equity capital needed in the business. He maintained that executive compensation is a necessary part of the Company's overall cost of service to meet the needs of its customers and that a reduction of 50% to Aqua America executive compensation including pension and incentive plans is not warranted.

Finally, witness Kopas testified that in the 2011 Aqua NC rate case (Docket No. W-218, Sub 319), the Commission rejected the Public Staff's proposed adjustment to remove 50% of the executive compensation for the top four Aqua America executives,

however that the Commission did conclude that a 25% adjustment to the executive compensation expense item was reasonable in that case. Witness Kopas stated that if the Commission concludes that an accounting adjustment to executive compensation is justified in this case, then the Company, as an alternative proposal, requests that the percentage disallowance be set at no greater than the 25% adjustment that was found reasonable by the Commission in Docket No. W-218, Sub 319.

On cross-examination by the Public Staff, Aqua NC witness Kopas testified on the executive compensation provisions outlined in the Aqua America, Inc. 2018 Annual Meeting of Shareholders Proxy Statement (Proxy Statement), as filed with the United States Securities and Exchange Commission that was identified during the evidentiary hearing as Public Staff Kopas Rebuttal Cross-Examination Exhibit 2. As requested on cross-examination, witness Kopas read into the record that page 25 of the Proxy Statement states that an objective of the Aqua America executive compensation program was to align the interests of the named executive officers and shareholders.

Witness Kopas also testified that page 27 of the Proxy Statement states that Equity Incentives are:

> Designed to reward named executive officers for (1) enhancing our financial health, which also benefits our customers (2) improving our long-term performance through both revenue increases and cost control, and (3) achieving increases in the Company's equity and in absolute shareholder value and shareholder value relative to peer companies, as well as helping to retain executives due to the long-term nature of these incentives.

Witness Kopas testified that page 28 lists the components of compensation paid to the named executive officers in 2017 and that the Long-Term Equity Incentive Awards provide restricted stock units, performance share units, and options. He testified that page 28 states that the compensation objective for restricted stock units is to: "Align executive interests with shareholder interests; retain key executives."

Witness Kopas stated that the compensation objective for the performance share units as shown on page 28 of the Proxy Statement is to: "Align executive interests with shareholder interests; create a strong financial incentive for achieving or exceeding long-term performance goals."

Witness Kopas further testified that the compensation objective for the options as shown on page 28 of the Proxy Statement states: "Align executive interests with shareholder interests; through performance-based nature, provides strong incentives to achieve core company goals".

Aqua NC witness Kopas further testified that on page 33 it states that for the 2017 annual cash incentive award metrics that 60% of the award is based upon earnings per share. He testified that for the annual cash incentive award, earnings per share metric,

the five executives received a 110% payout. Witness Kopas testified that page 36 of the Proxy Statement shows that all five of the executives' actual 2017 cash incentives were substantially greater than the 2017 target cash incentives.

Witness Kopas further stated that the Proxy Statement outlines the performance share awards on page 37 and notes, in part:

> The performance goals to be achieved under the PSU awards have been based on the following performance goals, with the weighting of each goal assessed each year. The Company's total shareholder return (TSR) at the end of the performance period as compared to the TSR of the other large investor-owned water companies (American Water Works Company, American States Water Company, Connecticut Water Service, Inc., California Water Service Group, Middlesex Water Company, and SJW Corporation); the Company's TSR compared to the TSR for the companies in the S&P Midcap Utility Index (Appendix A); the achievement of maintaining Operating and Maintenance expenses within the Company's regulated operations over the performance period; and, the achievement of the three-year cumulative total earnings before taxes in non-Aqua Pennsylvania subsidiaries.

Witness Kopas testified that for the total shareholder return compared to the S&P 400 Utilities Index there was a 127.78% payout to the five executives.

Company witness Kopas further testified that page 41 of the Proxy Statement states:

> Stock Options. In 2017, the Compensation Committee added performance-based stock options to the grants to the named executive officers. The Compensation Committee believes that the award of stock options, when paired with performance and service-based stock awards, completely aligns the interests of the named executive officers with those of the shareholders.
>
> The Compensation Committee believes that by providing the named executive officers with the ability to earn stock options, the named executive officers' interests are aligned with the shareholders' interests as the value of the stock option is a function of the price of the Company's stock. In addition, stock options provide the use of an additional performance metric for the earning of long-term equity compensation.

Witness Kopas testified that the five executive positions in the Proxy Statement are the same five positions that the Public Staff recommended removal of 50% of their salaries, pensions, and incentive plans.

After considering all of the evidence in the record, the Commission finds the Public Staff's proposed adjustment to allocate 50% of the top five Aqua America executives compensation, including pensions and incentive plans, to shareholders to be unreasonable and not supported by the evidence presented. However, the Commission is persuaded by the record of evidence that an adjustment to remove 25% of the compensation, including pension and incentive plans, of the top five Aqua America executives totaling $106,878 in compensation and $40,423 in pensions and incentive plans is reasonable and appropriate in this proceeding.

In reaching this conclusion, the Commission gives some weight to Aqua NC witness Kopas' rebuttal testimony that adequate compensation plans are necessary to attract and retain qualified executive leadership. The Commission also gives some weight to witness Kopas' testimony that the interests of Aqua NC ratepayers and Aqua America, Inc. shareholders are aligned in terms of the necessity to attract very large amounts of capital at a reasonable cost. The Commission generally agrees that shareholders provide the capital that is essential to the capital-intensive water and wastewater industry, and thus, ratepayers depend on corporate leadership to attract the shareholders whose investment is essential to the ability to serve those ratepayers. This evidence does not support a 50% adjustment as proposed by the Public Staff.

Further, the Commission gives little weight to the Public Staff's observation that the Commission approved 50% adjustments for executive compensation for DEP in its Order Accepting Stipulation, Deciding Contested Issues and Granting Partial Rate Increase issued on February 23, 2018, in Docket No. E-2, Sub 1142, and for DEC in its Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction issued on June 22, 2018, in Docket No. E-7, Sub 1146. Both DEC and DEP originally filed their rate cases reflecting removal of 50% of the executive compensation of the top four executive officers and later in the proceedings, the Company and the Public Staff reached a stipulation to remove 50% of the executive compensation for the top five executive officers; therefore, the Commission did not resolve the issue through litigation in either case.

The Commission also notes that Aqua NC witness Kopas stated that if the Commission concludes that an accounting adjustment to executive compensation is justified, then Aqua NC recommends as an alternative proposal that the percentage disallowance be set at no greater than 25%, consistent with the Commission's decision in Aqua NC's 2011 rate case proceeding (Docket No. W-218, Sub 319).

Therefore, for the reasons set forth above, the Commission concludes that the Public Staff's proposed adjustment to exclude from the Company's cost of service 50% of the executive compensation for the top five executives named by the Public Staff is inappropriate. However, the Commission is persuaded by the evidence presented

including Aqua America, Inc.'s 2018 Proxy Statement that a portion of these expenses should be allocated to the Company's shareholders and that witness Kopas' alternative proposal to remove 25% of such costs is reasonable. The Commission also notes that this decision is consistent with the Commission's decision in Aqua NC's 2011 rate case (Docket No. W-218, Sub 319). The Commission finds it appropriate to allocate 25% of the executive compensation including pensions and incentive plans of the top five Aqua America executives as identified by the Public Staff, to the shareholders, and, therefore, to remove $106,878 in executive compensation salaries and $40,423 in executive pension and incentive plans for a total of $147,301 from Aqua NC's cost of service in this case.

Miscellaneous Expense (Board of Directors Compensation and Expenses)

Public Staff witness Henry testified that the Public Staff has proposed an adjustment to remove 50% of the compensation and expenses associated with the Board of Directors of Aqua America that have been allocated to Aqua NC in this proceeding. Witness Henry specified that the allocations to Aqua NC encompass the Board of Directors' compensation and other miscellaneous expenses. He further testified that the premise of the adjustment is closely linked to the premise of the adjustment made by the Public Staff related to executive compensation. Witness Henry maintained that it is reasonable and appropriate for the shareholders of the very large water and wastewater utilities to bear a reasonable share of the costs of compensating those individuals who have a fiduciary duty to protect the interests of shareholders, which may differ from the interests of ratepayers.

Public Staff witness Henry testified that the Aqua America, Inc. Board of Directors Corporate Governance Guidelines (The Board of Directors Guidelines) state in Section II:

> RESPONSIBILITIES OF THE BOARD
>
> 1. It is the responsibility of the Board to provide guidance and direction on the Corporation's general business goals and strategy, and to provide general oversight of, and direction to, management so that the affairs of the Corporation are conducted in the long-term interests of all its shareholders.

Public Staff witness Henry further testified that Aqua America allocated to Aqua NC $116,838 for Board of Directors compensation and $17,381 for Board of Directors expenses. He testified that the Public Staff recommends that 50% of the Board of Directors' compensation totaling $58,419, and 50% of the Board of Directors' expenses totaling $8,691 be removed as a shareholder expense as shown on Public Staff Henry Supplemental Exhibit 1, Schedule 4 Revised, lines 2 and 3.

Aqua NC witness Kopas stated in his rebuttal testimony that he opposes the Public Staff's proposed adjustment related to Board of Directors compensation and expenses for the same reasons he opposed the Public Staff's proposed adjustment to remove

50% of the compensation paid to the top five executive officers. Aqua NC maintained in its proposed order that the Board of Directors' fiduciary responsibilities inure to the benefit of ratepayers, in terms of assuring the provision of sufficient capital at reasonable costs to support this capital-intensive industry. Witness Kopas stated that, as an alternative to full recovery in cost of service of the Board of Directors' compensation and expenses, he recommended that, at most, the Commission impose a 25% adjustment, consistent with the adjustment made by the Commission regarding executive compensation for the top four executives in 2011, in Docket No. W-218, Sub 319.

On cross-examination by the Public Staff, witness Kopas testified that Public Staff Kopas Rebuttal Cross-Examination Exhibit 1 as admitted into evidence is the Aqua America Board of Directors Guidelines. He testified that on page one it states:

> The following corporate governance guidelines will provide the principles by which the Board of Directors (the "Board") of Aqua America, Inc. (the "Corporation"), will organize and execute its responsibilities along with the requirements of the Corporation's Articles of Incorporation, Bylaws and the laws and regulations governing the Corporation and the Board.

See Public Staff Kopas Rebuttal Cross-Examination Exhibit 1.

Witness Kopas further testified on cross-examination that on page six under Roman Numeral II, Responsibilities of the Board, Number 1, it states:

> It is the responsibility of the Board to provide guidance and direction on the Corporation's general business goals and strategy and to provide general oversight of and direction to management so that the affairs of the Corporation are conducted in the long-term interests of all its shareholders.

See Public Staff Kopas Rebuttal Cross-Examination Exhibit 1.

Witness Kopas also testified that on page eight, paragraph 10, of the Board of Directors Guidelines it states:

> The Executive Compensation Committee will periodically review the compensation package for directors and make recommendations to the Board for any changes. Such reviews shall take place annually. The Board should make changes in its director compensation and only upon recommendation by the Executive Compensation Committee and after discussion and approval by the Board. Both the Executive Compensation Committee and the Board should be guided by the following principles: compensation should fairly pay directors for the work required; compensation should align directors' interests with the long-term interests of shareholders, while not calling into question their objectivity,

and the structure of the compensation should be simple, transparent, and easy for shareholders to understand.

See Public Staff Kopas Rebuttal Cross-Examination Exhibit 1.

Witness Kopas further testified that he accepted, subject to check, that the word "customer" does not appear even once in the Aqua America Board of Directors Guidelines. Tr. Vol. 12, pp. 202-203.

Based upon consideration of all of the evidence presented in this case, the Commission finds that it is appropriate to remove 25% of the Board of Directors' compensation and expenses from the Company's cost of service in this proceeding. In reaching this conclusion, the Commission has given some weight to the testimony of Aqua NC witness Kopas. The Commission generally agrees with Aqua NC's assertions that adequate compensation is required to attract extremely competent, qualified members of a Board of Directors to lead a company such as Aqua America, Inc. and that North Carolina ratepayers and Aqua America, Inc. shareholders share a mutual interest in a highly skilled and qualified Board. The Commission also generally agrees that ratepayers' best interests depend on a regulated utility's ability to attract capital; in this instance, to support the level of investment required by Aqua NC as a regulated water and wastewater service provider in this state. As stated by Aqua NC, these financial and investment decisions are made at the parent company level and are integrally related to and supportive of the local company's ability to provide safe and reliable service.

However, the Commission is not convinced by Aqua NC's recommendation that no amount of the Board of Directors compensation and expenses should be removed in this proceeding. The Commission agrees with Public Staff witness Henry that a reasonable share of the cost should be removed but does not agree with the Public Staff that a reasonable amount is 50%. Clearly, based on the Board of Directors Guidelines as entered into evidence in this proceeding as Public Staff Kopas Rebuttal Cross-Examination Exhibit 1 one of the responsibilities of the Board of Directors is to provide guidance and direction to the Company so that the affairs of the Corporation are conducted in the long-term interest of all of its shareholders.

The Commission notes that Aqua NC witness Kopas provided the Commission with an alternative proposal to remove 25% of the Board of Directors compensation and expenses from Aqua NC's cost of service in this proceeding, and the Commission finds this alternative proposal to be fair and reasonable.

Accordingly, for the reasons set forth above, the Commission concludes that the Public Staff's proposed adjustment to exclude from cost of service 50% of the expenses associated with Board of Directors' compensation and expenses, in the amounts of $58,419 and $8,691, is inappropriate. However, the Commission is persuaded that a portion of the Board of Directors' compensation and expenses should be allocated to the Company's shareholders, and that Aqua NC witness Kopas' alternative proposal to remove 25% of such costs is reasonable. Therefore, the Commission finds it appropriate

to allocate 25% of the Board of Directors' fees to the shareholders and, therefore, to remove $29,210 in Board of Directors' compensation and $4,345 in Board of Directors' expenses from Aqua NC's cost of service in this proceeding.

Sludge Removal

The Public Staff and the Company disagree as to the appropriate amount of expenses related to sludge hauling. This disagreement centers on the time period that should be used to calculate the expenses.

In its Application, Aqua NC included sludge expense of $536,333 for the test year. On July 20, 2018, the Company provided a post-test year update to sludge expense that included an increase in sludge disposal amounts in the Central/Cary region in 2018. The Company's initial update proposed an increase of $89,875 to the test year sludge expense. On September 4, 2018, Company witness Pearce filed rebuttal testimony proposing a revised increase of $70,424 to the test year sludge expense, which reflects the one-year average of sludge hauling records ending in June 2018.

On August 21, 2018, the Public Staff filed schedules, which included an adjustment to increase sludge expense by $23,049 to incorporate updated sludge hauling expense amounts provided by the Company. With this adjustment, the Public Staff's recommended sludge expense reflects the two-year average of sludge hauling records ending in June 2018 and reflects the projected annual costs for two WWTPs, The Legacy at Jordan Lake and Westfall, which began producing sludge in 2018 after the test year. The projected annual costs for the two WWTPs were based on available historical data for 2018 provided by the Company.

In her prefiled direct testimony, Public Staff witness Darden testified that the Company's sludge hauling data from its Cary/Central region shows an increase in the quantity of sludge hauled in the post-test year period from January 2018 through June 2018 as compared to the test year. Further, witness Darden testified that more significant increases occurred in March, April, and May 2018, and that there was a return to a level closer to the two-year average in June 2018. Tr. Vol. 9, p. 24. On redirect-examination, witness Darden testified that data provided by the Company for July 2018 showed a return to a sludge hauling level below the two-year average. Tr. Vol. 9, p. 47. Witness Darden Redirect Examination Exhibit 1 is a graph showing monthly sludge hauling quantities for the Company's Central/Cary region from July 2016 through July 2018. Ex. Vol. 9, p. 44. The graph shows the two-year average sludge hauling quantity advocated by the Public Staff, which is approximately 300,000 gallons, and the one-year average quantity advocated by the Company, which is approximately 350,000 gallons. The graph shows an increased volume of sludge hauled during the months of March through May 2018 ranging between approximately 425,000 gallons and 600,000 gallons. It also shows a decrease to a level of approximately 325,000 gallons in June 2018, and a further decrease to a level of approximately 290,000 gallons in July 2018.

Witness Darden noted that increased sludge hauling could be a response to sludge storage approaching full capacity and an attempt to prevent associated compliance and operational issues. Witness Darden explained that, if this were the case, sludge hauling could return to regular maintenance levels once sludge levels were reduced. Tr. Vol. 9, p. 24. Witness Darden testified that operational changes could also affect sludge hauling levels. Tr. Vol. 9, p. 36.

Witness Darden opined that, due to the short time frame over which the most significant increases in the Company's sludge hauling occurred, it was unclear whether these increases represented a peak or a trend. Tr. Vol. 9, pp. 24-25. Due to the uncertainty as to whether the comparatively significant increases in sludge hauling that occurred in March through May 2018 would continue going forward, and in order to avoid annualizing what could be an isolated peak in sludge hauling levels, witness Darden advocated the use of a two-year average ending in June 2018 to determine sludge expenses. Tr. Vol. 9, p. 25. Witness Darden noted that the two-year average takes into account The Legacy at Jordan Lake and Westfall WWTPs, which both began producing sludge in 2018. Id. Witness Darden further noted that the two-year average accounts for the operational changes the Company indicated it made at the WWTPs by incorporating sludge hauling data provided by the Company through June 2018. Tr. Vol. 9, pp. 32-33.

Aqua NC witness Pearce testified in prefiled rebuttal testimony that the Company had made changes to its WWTP operations to reduce mixed liquor suspended solids concentrations that would, in turn, increase sludge production. Tr. Vol. 13, p. 122. Witness Pearce provided an example calculation to demonstrate how decreasing mixed liquor suspended solids results in an increased sludge production rate. Tr. Vol. 13, p. 123. The calculation assumes a number of values including values for WWTP operating capacity, hydraulic retention time, and mixed liquor suspended solids concentration. Witness Pearce did not indicate the source of the values used in his example calculation. Witness Pearce also included in his rebuttal testimony a graph from the 1992 edition of the Water Environment Federation Manuals of Practice showing net sludge production as compared to solids retention time. Tr. Vol. 13, pp. 123-124. Witness Pearce extrapolated from the graph that a greater than 10% increase in sludge production would result from improving the pollutant removal efficiency of WWTPs. Like the example calculation provided by witness Pearce, the graph and extrapolation assumed values the source of which witness Pearce did not disclose. Witness Pearce gave no indication in his prefiled rebuttal testimony whether the values upon which his example calculation and extrapolation were based represent actual operational data from one or more of the Company's WWTPs. It was not until he was questioned about the source of the assumptions on cross-examination that witness Pearce asserted that his example calculation and extrapolation were based on actual data from an Aqua NC WWTP. Tr. Vol. 13, p. 134. Witness Pearce recommended sludge expense, totaling $606,756.78 ($507,699.28 for Aqua NC Sewer and $99,057.50 for Fairways Sewer) based on data from July 2017 through June 2018. Tr. Vol. 13, p. 125. This amount represents an increase of $70,424 over the amount of sludge expenses stated in the Company's Application.

On cross-examination, witness Pearce verified that, based on the extrapolation from the graph included in his rebuttal testimony, operational changes made the second week of April 2018 would result in an approximately 10% increase in sludge production. When confronted with the fact that the Company's actual sludge hauling data shows an increase in sludge hauling far in excess of 10%, witness Pearce testified that the 10% increase he estimated would be accurate "over the 12-month period." Tr. Vol. 13, pp. 135-136. Witness Pearce acknowledged that the actual sludge hauling levels for eight of the 12 months that make up the test period advocated by the Company were lower than the Company's one-year average level. Tr. Vol. 13, p. 131.

On redirect-examination of witness Pearce, the Company introduced Aqua Pearce Redirect Exhibit 1. That exhibit is a graph showing monthly sludge hauling quantities for the Company's Central/Cary region from July 2016 through August 2018. Ex. Vol. 9, p 65. Witness Pearce testified that he had received the Company's sludge hauling logs for the month of August 2018, and that the level of sludge hauled during the month of August 2018 was higher than the two-year average advocated by the Public Staff. Tr. Vol. 13, p. 145.

The Commission has carefully reviewed the evidence in this docket and concludes that it is appropriate to adjust sludge hauling expense by $23,049 based on the two-year average advocated by the Public Staff. By basing sludge hauling expenses on an average of the two-year period ending June 2018, this will take into account the addition of two WWTPs that started producing sludge in 2018 and it will reflect other operational changes made at some of the Company's WWTPs. The use of the two-year period average also ensures that the uncharacteristically high levels of sludge hauling that occurred during the months of March, April, and May 2018 are given appropriate emphasis in determining expenses. Although the Commission acknowledges that the operational changes made to the Company's WWTPs in April 2018 have increased the quantity of sludge hauled by Aqua NC for several months in 2018, the Commission is not persuaded by the testimony of witness Pearce that such operational changes would result in the approximately 10% increase in sludge production rate indicated by his example calculation. Witness Pearce did not clearly set forth the source of the values used in his example calculation for which he bases his estimated 10% increase in the sludge production rate. Consequently, the Commission gives minimal weight to the testimony of witness Pearce in that regard.

For the foregoing reasons, the Commission determines that using the two-year average advocated by the Public Staff rather than the one-year average advocated by the Company will produce a level of sludge hauling expense that is more representative of the Company's actual ongoing sludge hauling expense.

Testing Expense

In its Application, the Company included testing expenses of $971,149 for the test year. On July 20, 2018, the Company provided a post-test year update to testing expense that included an increase in NOD site testing. The Company's update increased test year

testing expense by $111,538. In her direct testimony, Public Staff witness Darden recommended that testing expenses in the amount of $882,746 should be approved, with an increase of $19,426 for NOD site testing. Witness Darden's pro forma adjustments resulted in a decrease of $88,402 to the level of test year compliance and operational testing expense as proposed by the Company in its Application and a decrease of $92,112 to Aqua NC's proposed post-test year update of $111,538 to NOD testing expense.

Annual Compliance and Operational Testing Expenses

Witness Darden testified that she did not agree with Aqua NC's use of its per book amounts or the manner in which the Company calculated pro forma adjustments. Witness Darden further stated that the Company's calculations did not account for the variation in the frequency with which specific water quality tests must be performed, as some tests are conducted with different frequencies of every three, six, or nine years, and therefore should be amortized by the number of years. The Company filed a testing expense with pro forma adjustments based on comparisons of the test year to the past three years individually and as an average. Witness Darden testified that she disagreed with the Company's amortization, noting that it does not capture the amortization of tests with frequencies that exceed one year. Tr. Vol. 9, p. 39.

Public Staff witness Darden calculated testing expenses in the present case in the same manner that the Public Staff has traditionally calculated the testing expense – using current testing schedules going forward, amortizing the expense over the number of years corresponding to the testing frequencies for the various tests, and using the current unit costs of the tests. Tr. Vol. 9, p. 18. Witness Darden noted that the Company provided the Public Staff with the schedules establishing the current required compliance testing frequency for each of its water and wastewater systems.

On cross-examination, witness Darden acknowledged that her calculations did not include operational testing and were based on EDR 3. Witness Darden noted that Aqua NC has not tracked operational testing historically, and that the appropriate amount of operational testing expense has been agreed upon by the Company and the Public Staff in the past. Further, witness Darden testified that, in this case, the Company and the Public Staff did not agree. Witness Darden recommended that the testing expense should include the required compliance testing and the NOD testing update provided by Aqua NC. Witness Darden testified on cross-examination that the Public Staff recognizes that operational testing should be recovered as long as it is reasonable and cost-effective. Tr. Vol. 9, pp. 41-42.

Company witness Berger testified on rebuttal that she disagreed with the adjustments made by Public Staff witness Darden and noted that witness Darden began her inquiries by requesting, in EDR 3, "the minimum water system testing test type and frequency as determined by DEQ". Witness Berger testified that the information requested did not provide a full picture and did not contain sufficient information to warrant the adjustments made by witness Darden.

Witness Berger asserted that the information requested by the Public Staff in EDR 3 and the follow-up request on August 3, 2018, only accounted for minimum testing compliance required by DEQ. Witness Berger further stated that compliance testing is designed to determine compliance with the rules and regulations at a moment in time, not just the time in which the compliance testing occurred. Witness Berger then explained the difference between compliance testing and operational testing, noting that operational testing is utilized by the operator to determine the effectiveness of treatment and for proactive identification of issues. Tr. Vol. 16, p. 136.

Witness Berger testified that operational testing is performed continuously based on need and judgment of the operator. She observed that regulatory agencies do not establish operational testing requirements but they do expect the utility to understand the treatment methods used to ensure the delivery of drinking water that meets regulatory requirements.

Further, witness Berger acknowledged under cross-examination on September 25, 2018, that the Company was unable to provide the Public Staff with operational testing expenses when the Public Staff requested them on September 5, 2018. In particular, she testified, "if we could have been asked to provide the operational . . . versus the compliance we could have done so, just not on such a short timeline." Tr. Vol. 16, p. 166. However, when asked if Aqua NC currently is tracking compliance and operational testing separately, witness Berger responded that some of the Company's operational testing expenses were still not being tracked. Id.

On cross-examination, witness Berger also stated that the Public Staff's request for information concerning the test year level of operational testing would have required her to go line-by-line through each monthly invoice–typically 150-250 pages each. To comply with the Public Staff's request, in this regard, as best as possible within the short time frame, witness Berger testified that a software package was utilized to provide approximately 85-90% of the data requested from 2016 up to August 31, 2018. She commented "[a]nd I think it had over 20,000 entries in it so it provided at least some known documentation to support". Tr. Vol. 16, pp. 164-165.

The Commission recognizes that both the Public Staff and the Company are in agreement that operational testing is a reasonable operating expense; it is a testing expense incurred by Aqua NC separate and apart from the compliance testing required by DEQ, and a reasonable level of this type of testing expense should be included in test year operating expenses. However, in the present proceeding neither the Public Staff nor Aqua NC has submitted to the Commission evidence which clearly supports the dollar amount of a reasonable level of operational testing expense. Aqua NC contends that the Public Staff did not ask for this specific information early-on in the audit process in EDR 3, and therefore the Company had insufficient time to accumulate this information and provide it to the Public Staff for review. The Public Staff asserts that Aqua NC does not track its per book operational testing expense separately from its per book compliance testing expense such that the information can be readily identified and provided to the Public Staff for review.

Historically, the Public Staff has restated the amount of compliance testing for all regulated water utilities because per book amounts, typically, do not reflect: (1) current testing schedules going forward; (2) the amortization of the expense over the number of years corresponding to the testing frequencies for the various tests; and (3) the current unit costs of the tests. Aqua NC's per book accounting for testing expense provides no reason for exception to this practice by the Public Staff. The Commission acknowledges that in Aqua NC's last rate case proceeding (Sub 363), Public Staff witness David Furr filed similar testimony regarding the problems that arise when per book amounts are used to calculate pro forma testing expense. As a result of prior rate case audits by the Public Staff and Commission decisions, the Company should be well aware of the Public Staff's method for calculating its recommended pro forma level of testing expense.

Based upon the testimony received in this proceeding, the Commission recognizes the distinction between compliance testing and operational testing and finds that operational testing is essential to the proper operation of a water utility. Further, during the course of the hearing in this matter, there was much discussion about the need to maintain and improve water quality for customers. The Commission understands that operational testing is an essential part of that effort. However, in this proceeding, the Commission is not persuaded that the level of operational testing expense the Company seeks to recover is reasonable. The Company did not maintain adequate records of its operational testing expenses separate from its compliance testing such that the Company could provide the Public Staff with an appropriate analysis of the cost data for its test year operational testing expense in its Application. A review of such expenses for reasonableness is necessary in order for the Public Staff to make a recommendation to the Commission for inclusion in test year operating expenses in this proceeding.

The Commission understands from the testimony of witness Darden that historically, Aqua NC and the Public Staff were, through discussions, were able to agree upon a testing expense amount which included both compliance and operational testing expense; however, in the present proceeding the parties have not been able to agree on testing expense. In her rebuttal testimony, witness Berger referenced Aqua NC's response to NCUC Form W-1, Item 12(b), which presented comparisons between Aqua NC's test year operating expenses and its prior three years' per books operating expenses, in support of the Company's position that the Public Staff's recommended level of testing expense is incomplete. Nonetheless, witness Berger did not specify what portion of the testing expense included on Aqua NC's NCUC Form W-1, Item 12(b) related to the level of operational testing incurred in the test year and prior years; nor did she provide the amount of operational testing agreed upon by the Company and the Public Staff and approved in prior rate case proceedings.

The Commission is of the opinion that, as discussed previously in this Order, due to the need for Aqua NC to maintain and improve water quality for customers in the future, some level of operational testing fees will be required to accomplish that objective. In this proceeding, the Public Staff did not present a level of operational testing fees expense for the Commission's consideration. The Commission agrees with the testimony of witness Darden that Aqua NC's use of per book numbers to calculate its proposed level

of operational testing fees expense is flawed as it does not generally reflect current testing schedules going forward, the appropriate amortization periods, and the current unit costs of the tests. Further, Aqua NC's per book amounts do not track operational testing expense such that those expenses can be readily quantified. The Commission is of the opinion that Aqua NC's utilization of a software package to provide approximately 80-90% of the data requested by the Public Staff for the period 2016 through August 31, 2018 and providing that information to the Public Staff to sort out does not equate to sufficient evidence. Further, Aqua NC's contention that since such report contained approximately 20,000 entries, it provided at least some known documentation to support actual operational testing expense does not satisfy the Company's responsibility in documenting this expense. The Commission does not dispute that Aqua NC has incurred operational testing expense during the test year and such expense will continue. However, it is the responsibility of the utility to provide justification for the costs it seeks to recover from customers in a manner that can be audited and evaluated by the Public Staff within a reasonable timeframe. In all fairness, the Commission does acknowledge that the Public Staff could have sought this information sooner in its discovery process; nonetheless, that does not alter the requirement that Aqua NC should provide this information in a manner that can be effectively reviewed and evaluated by the Public Staff.

Although the Commission finds that Aqua NC failed to provide sufficient and specific evidence concerning its test year level of operational testing in the present proceeding, the Commission determines that some level of operational testing expense is important. Thus, due to the lack of specific evidence in the record on this issue, in order to determine an appropriate level of operational testing fees to include in this proceeding, the Commission has examined its prior Aqua NC rate case final orders with respect to total testing fees approved for Aqua NC Water Operations. Based upon a review of the level of total testing fees approved by the Commission in the Sub 363 Order and Sub 319 rate case proceedings for Aqua NC Water Operations, and considering that there are many factors involved when calculating the total ongoing level of testing expense, the Commission, in its discretion, finds and concludes that 50% of the amount in dispute or $44,201, should be included for operational testing expense in this proceeding.

Furthermore, the Commission strongly encourages Aqua NC to maintain its books and records on a going-forward basis in a manner that will allow the Company to track its operational testing expense separately from its compliance testing expense such that those expenses can be readily quantified by Aqua NC, presented to the Public Staff for review of reasonableness, and proffered to the Commission for inclusion in test year operating expenses in the Company's next rate case. If Aqua NC should determine that such separate accounting would be cost-prohibitive to implement, the Commission recommends that the Company work with the Public Staff to formulate a mutually-acceptable method to determine and present operational testing costs in future rate case proceedings.

Based upon the foregoing, the Commission finds and concludes that the appropriate level of testing expense is $926,947, consisting of $882,746 for compliance

testing and $44,201 for operational testing, prior to considering the update for the NOD site testing expense.

NOD Testing Expense

Witness Darden testified that the Company filed updated testing expenses for a post-test year sampling program in Aqua NC's Central Cary area as a result of NODs for approximately 50 systems. DEQ and Aqua NC set up short-term sampling for the sites that were issued NODs. In calculating testing expenses associated with NOD sites, the Company annualized the amount spent between January and June 2018 and arrived at a total of $111,538. Whereas, Public Staff witness Darden recommended the addition of $58,278 as a sub-category to testing expense to account for NOD site testing. Tr. Vol. 9, p. 21. In calculating this amount, witness Darden applied a price decrease which took effect in April 2018 to the period April through June 2018. For ratemaking purposes, witness Darden testified that the total NOD site testing expense would be averaged over three years. Witness Darden disagreed with annualizing these costs, as the Company proposed, on the basis that DEQ Public Water Supply Section (PWSS) could reduce the sampling frequencies for NOD sites after the third testing quarter, which ended September 30, 2018. Under cross-examination, witness Darden noted that the testing that occurred during the one-year period ending September 2018 would provide a historical benchmark, and, therefore, it was likely that reductions in sampling frequencies would occur after that point. She stated that additional sampling data may not be necessary at the same sampling frequency for every site. Tr. Vol. 9, pp. 43-44. For example, if all the samples at a particular site are consistent, the sampling frequency could be reduced due to the consistency and the fact that the samples provide a benchmark of historical testing data. Tr. Vol. 9, p. 45. Witness Darden testified on redirect that if certain sites are consistently producing the same results on a monthly basis, the testing frequency could be changed to quarterly, then to semiannually, and then to annually if the historical data supported it. Also, she pointed out that when treatment is installed, a different sampling schedule would be utilized from the sampling schedule that had been required for the initial monitoring. Tr. Vol. 9, p. 50.

Due to the likelihood that sampling frequencies will be reduced after September 2018, the Public Staff recommended that the actual expenses of $58,278 spent on the NOD site testing be recovered over three years and that testing expenses continue to be tracked and then recovered in future rate cases. Therefore, the Public Staff recommended an increase to test year operating expenses for NOD site testing of $19,426 which results from the amortization of such total testing expenses of $58,278 over three years.

Company witness Berger testified in her prefiled rebuttal testimony that witness Darden was incorrect when she testified that sampling frequencies for NOD sites could be reduced after the third quarter of 2018. She further testified that, pursuant to the State's rules regarding the concentration of iron and manganese, DEQ determines the sampling frequencies required for these constituents, and that the requirement to sample for these constituents is ongoing. Tr. Vol. 16, p. 140. However, on cross-examination, witness

Berger acknowledged that, in practice, the utility submits a recommendation regarding the appropriate testing frequency to DEQ for its approval. She further acknowledged that DEQ has the authority to amend testing schedules for NOD sites. Tr. Vol. 16, p. 169. In an excerpt from an audio recording made by witness Berger of an August 29, 2018, meeting between Aqua NC, DEQ PWSS, and the Public Staff, Bob Midgette, the head of the operational branch of DEQ PWSS, stated that he anticipates Aqua NC could reduce NOD site testing frequency from monthly to quarterly in 2019, and possibly to annually thereafter if the data support such a reduction.[36] When asked about Mr. Midgette's statement under cross-examination, witness Berger acknowledged, "[Mr. Midgette] does make that recommendation on a specific case-by-case basis where we have the data that demonstrates that we have a resolution in place that, yes, we can propose [a reduction in testing frequencies]." Witness Berger went on to testify that the Company intended to use surplus NOD testing expenses resulting from any reductions in NOD testing frequencies to perform sampling on non-NOD sites to proactively address secondary water quality issues. Tr. Vol. 16, p. 176.

The Commission finds and concludes that the evidence of record demonstrates that NOD site-testing frequencies will be reduced after September 2018 and it is, therefore, appropriate that actual costs should be recovered and amortized over three years as recommended by the Public Staff. The future costs associated with the NOD site testing are not currently known and measurable and, therefore, it is appropriate that they be recovered in future rate cases. Based upon the foregoing, the Commission concludes that the total annual testing expense for use in this proceeding, including the increase of $19,426 for NOD site testing recommended by the Public Staff is $946,373 ($926,947 + $19,426).

Purchased Water

In its Application, Aqua NC included purchased water expense of $1,947,892 for the test year ending September 30, 2017. Public Staff witness Junis proposed an adjustment to decrease the Company's filed purchased water expense of $1,947,892 by $73,670. The Company and the Public Staff disagree on the appropriate amount of allowable, recoverable water loss.

Company witness Gearhart stated in his direct testimony that for all purchased water systems, the test year actual volumes of water purchased were used with the most recent/known vendor pricing applied to that volume. He explained that a pro forma adjustment was made to include purchased water expense from the City of Belmont, because in June 2018 the City of Belmont began to supply water to three of Aqua NC's

[36] A transcription of two excerpts from the audio recording was entered into the record as Public Staff Berger Cross-Examination Exhibit 5. A CD containing the excerpts from the audio recording transcribed in Exhibit 5 was entered into the record as Public Staff Berger Cross-Examination Exhibit 6.

subdivisions which had previously been supplied from Aqua NC's wells.[37] Witness Gearhart testified that during discovery, the Company found that there were purchased water systems with abnormal volume activity during the test year. He stated that these systems merited adjustments and in response to a Public Staff engineering data request, resulted in a reduction in the Company's annual purchased water expense. The Company adjusted the purchased water expense to $1,941,621, a decrease of $6,271 from the originally filed amount. He stated that the response also included an adjustment for the vendor's price increase that went into effect in July 2018. Tr. Vol. 5, pp. 217-218.

Public Staff witness Junis testified that Aqua NC's operations resulted in test year water losses exceeding 15% for nine of its third-party water provider accounts. The highest two being the City of Asheville and the City of Concord that resulted in 74% and 64% unaccounted for purchased water, respectively. Tr. Vol. 12, p.155.

In response to Public Staff EDR 13,[38] the Company provided explanations for unaccounted for purchased water supplied by the City of Asheville, City of Concord, City of Mount Airy, Davidson Water, Harnett County, Iredell Water, Town of Pittsboro, and Town of Spruce Pines. The response stated in part that "Aqua NC has a purchased water loss percentage of 13%." Witness Junis testified that the overall 13% included a surplus (Aqua NC sells more gallons than it buys) from the City of Lincolnton and Aqua NC buys approximately half of the overall purchased water for its Aqua NC Water rate division from Johnston County and sells that purchased water to customers in the Flowers Plantation development. Tr. Vol. 12, pp. 155-156.

In response to Public Staff EDR 53,[39] the Company provided an update to its purchased water workpapers, which witness Junis testified that the update included the quantity of gallons purchased from the City of Lincolnton and an increase in the cost of purchasing water utility service from Johnston County. Witness Junis provided Table 12 in his direct testimony that details the Company's purchased water quantities, water losses, and the Public Staff's recommended adjustment based on an acceptable level of water loss of 15%. Tr. Vol. 12, p. 156.

Based on the most recent, available information, Public Staff witness Junis concluded that the customers should not pay for excessive water loss due to lack of

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[37] These affected subdivisions include Heather Glen, Highland on the Point, and Southpoint Landing Subdivisions located in Gaston County, North Carolina. See Docket No. W-218, Sub 491 for additional information.

[38] The Company's response to Public Staff EDR 13 Q1 was entered into the record as Junis Exhibit 23.

[39] The Company's response to Public Staff EDR 53 Q3 with witness Junis' adjustments was entered into the record as Junis Exhibit 24.

oversight, maintenance, and repair. Witness Junis recommended a decrease of $73,670[40] to the purchased water expense filed by the Company.

In reference to the non-revenue water analysis that Company witness Berger included in her rebuttal testimony, under cross-examination Public Staff witness Junis stated that the difficulty with utilizing that method is there is not the level of detail, in terms of information available to do a water balance analysis as described by the American Water Works Association (AWWA). Tr. Vol. 10, p. 123. On cross-examination, witness Junis agreed that Aqua NC does not meter hydrant flow when flushing, and stated that doing so would provide the level of detailed information necessary for an accurate non-revenue water or water balance analysis. Tr. Vol. 10, p. 126.

Concerning the issue of water loss that was captured prior to water main replacements to address leaks, Public Staff witness Junis testified that he considered whether it is appropriate for the Company to recover both the extremely high water loss amount that the Aqua NC system is not now experiencing due to leak repairs and the capital costs associated with the repairs. Tr. Vol. 10, p. 128.

Public Staff witness Junis clarified that allowing for a reasonable amount of water losses is not the same as discouraging the Company from doing flushing. The reasonable amount of water losses may include flushing amounts. The Public Staff requested records of the Company's flushing and the Company could not quantify their flushing. Tr. Vol. 10, p. 129.

On cross-examination, Public Staff witness Junis stated that the 15% of allowable water loss is reasonable due to AWWA information. AWWA recommends that action needs to be taken to address water loss at 15%. Witness Junis further clarified that, after the Company addressed water loss issues for systems exceeding 15%, those systems were under the 15% water loss threshold. Tr. Vol. 10, p. 130.

In her rebuttal testimony, Company witness Berger contended that the Public Staff's use of the concept for Unaccounted for Water is an outdated measure of water loss and that a certain amount of water is necessary for system processes to maintain compliance with DEQ regulations. Tr. Vol. 16, pp. 123-124.

On cross-examination, Company witness Berger stated that water loss calculations should consider other factors that contribute to water loss including environmental factors and construction factors. Tr. Vol. 16, p. 146. Company witness Berger pointed out that her rebuttal testimony included background information indicating that, for a number of systems, water loss was due at least in part to operational flushing to address Disinfection-By-Product (DBP) issues. Tr. Vol. 16, p. 148. On further

[40] Exhibit B3-b-a to the Application listed a variance of $49.64 between columns (i) and (j) that was excluded from the Application, however, it was included in the Company's and witness Junis' workpapers. Whether the variance is included or not would impact the filed amount and the recommended adjustment but not the recommended level of expense. For the purposes of discussion, the variance has been reduced ($73,719.33 - $49.64 = $73,669.69) from witness Junis' adjustment.

cross-examination, witness Berger confirmed that, with the exception of the Town of Pittsboro, her rebuttal testimony, filed on September 4, 2018, was the first time Aqua NC indicated that DBP flushing contributed to its water loss, even though Aqua NC had previously provided two responses to data requests on that very issue. Tr. Vol. 16, pp. 154-155.

In her rebuttal testimony, Company witness Berger testified that witness Junis failed to investigate root causes and did not consider the Company's proactive measures to address customer concerns and regulatory requirements. Tr. Vol. 16, p. 134. However, on cross-examination, witness Berger agreed that witness Junis' request for a detailed explanation for water losses in EDR 13, Q 1 was an investigation of the root causes of those losses. Tr. Vol. 16, p. 151. The Public Staff contended that witness Berger's testimony on cross-examination contradicted her prefiled rebuttal testimony on this issue.

In reference to a Public Staff engineering data request[41] in the rebuttal testimony of Company witness Berger, she stated that the Company was unable to provide historical data for flushing records at this time, due to the short timeline to satisfy this request. She also stated that the Company cannot provide an accurate estimate of the amount of flushing required in the future. Tr. Vol. 16, p. 156.

Under cross-examination, Company witness Berger confirmed that Aqua NC had 74% water losses in the Asheville system for the test year. Company witness Berger stated that she does not think it is reasonable for customers to pay for 74% water loss. She stated that she does agree it is high, but that it was a case where the circumstances behind the specific leak and attempts by the Company to repair the leak should be considered. Tr. Vol. 16, pp. 158-159.

In her rebuttal, Company witness Berger stated that witness Junis failed to factor the costs involved in any potential infrastructure improvements that may be associated with further addressing the water loss issues. Tr. Vol. 16, p. 134. Under cross-examination, witness Berger agreed that water main replacements, main extensions to eliminate dead ends to help address DBP issues, and treatment systems and filters to comply with water standards are all eligible for recovery between rate cases through the WSIC mechanism. She added that she did not see where witness Junis had applied that reasoning in his calculation. Tr. Vol. 16, pp. 159-160.

While the Commission acknowledges that the testimony presented by Aqua NC in this proceeding explains several operational reasons why some level of water loss in Aqua NC's systems will exist, the Commission finds that it is in the best interest of both Aqua NC and its customers for the Company to be mindful of an acceptable standard of water loss as it monitors its water losses from period to period. The Commission is of the opinion that with an established water loss standard in place, Aqua NC will more aggressively seek to investigate water losses and will strive to identify the cause(s), and make the necessary corrections, if applicable, more expeditiously. Public Staff witness

[41] Public Staff Engineering Data Request #58, Questions 3-5 and 7 with the Company's responses were entered into the record as Public Staff Berger Rebuttal Cross-Examination Exhibit 3.

Junis recommended that an acceptable standard for water loss should be 15% based on an AWWA recommendation that action needs to be taken to address water loss occurring at that level. Although Aqua NC witness Berger disagreed with witness Junis' utilization of a maximum system-specific acceptable overall water loss of 15%, in part, because it fails to consider the size, age, or operating characteristics of individual systems, she did not offer any other acceptable standard or detailed criteria to hold Aqua NC accountable to an acceptable level of water loss. Rather, witness Berger testified that the Company performs water audits in accordance with the AWWA Manual 36, Water Audits and Loss Control Programs. In particular, witness Berger stated that Aqua NC reviews water purchased versus water billed and then requires its operations group to investigate and provide explanations.

Based upon the evidence received in this proceeding, the Commission agrees with the Public Staff that an acceptable water loss percentage should be applied to Aqua NC's purchased water expense. The Commission finds and concludes that 15% is a reasonable and appropriate amount of recoverable water loss for use in this proceeding. The Commission accepts for purposes of this proceeding that the 15% of recoverable water loss encompasses reasonable levels of necessary operational flushing, flushing due to compliance issues, and leaks; and also encourages the Company to monitor and address water losses. Accordingly, as recommended by the Public Staff, the Commission finds that the appropriate level of annual purchased water expense in this proceeding is $1,874,173.

Regulatory Commission Expense

In regard to regulatory commission expense, which is also known as rate case expense, the Public Staff and the Company disagree on the amortization period for the applicable expenses. In its Application, Aqua NC included a three-year amortization period for rate case expense. In her direct testimony filed on August 21, 2018, Public Staff witness Cooper recommended a three-year amortization period for rate case expense, except for the depreciation study, which she recommended a five-year amortization period.[42]

As part of her supplemental testimony, Public Staff witness Cooper recommended an amortization period of five years for rate case expense instead of the three years she initially recommended in her prefiled direct testimony. Her supplemental testimony did not explicitly explain the Public Staff's reasoning for the adjustment to the recommended amortization period. On cross-examination, Public Staff witness Cooper testified that five years was more favorable to customers because of the extraordinary number of attorneys that were representing the Company.[43] This would in turn result in a substantial increase in attorney fees for this proceeding. The Public Staff contended that another reason for

[42] See Cooper Exhibit 1, Schedule 3-5, Column B filed on August 21, 2018.

[43] On August 23, 2018, a Notice to Appear was filed on behalf of the Company adding three additional attorneys for this proceeding. This brought the total number of attorneys representing the Company to six, including Aqua America attorney Kim Joyce.

its recommendation of a five-year amortization is the fact that the Company utilizes the WSIC and SSIC mechanism for upgrades and improvements between rate cases. Because the Company has the ability to recover some of those costs before a rate case is filed, it seems reasonable to the Public Staff that there would be a greater time span between rate case filings. As noted by the Public Staff, the time span between this rate case and the previous rate case was approximately four and a half years. Tr. Vol. 8, p. 114.

On cross-examination, witnesses Cooper and Henry agreed that it is possible that Aqua NC would hit the 5% cap on WSIC before the next five years lapse, in light of the emphasis on capital investments in the conversations about solutions to the secondary water quality concerns expressed by customers. Witness Cooper acknowledged on cross-examination her understanding that it has been usual and customary for the Public Staff to recommend utilization of a three-year amortization period for regulatory commission expense in water and wastewater cases. Witness Henry testified that this case has imposed a major workload on both the Public Staff and the Company, acknowledged (implicitly) by the participation of multiple Public Staff attorneys, and he agreed that a largely unsettled case of this sort would be expected to result in increased legal fees. He noted that the Public Staff is interested in smoothing out that financial impact to customers by amortizing those fees over a longer period, and he also acknowledged the potential of a cash flow impact for the Company if a longer amortization period is used.

As stated earlier, the recommendation for the five-year amortization was filed in the supplemental testimony of Public Staff witness Cooper, but there was no rebuttal filed by the Company related to this issue. On cross-examination, Company witness Gearhart stated that this issue was not included in his rebuttal testimony because he had not been made aware that witness Cooper's proposed amortization period had changed. Tr. Vol. 13, p. 104.

Witness Gearhart testified on cross-examination by the Public Staff that in the Company's initial schedules, the amortization period was listed as three years, except for the depreciation study, which was five years. Referring to the relevant pages from the rate case Orders of 2009, 2010, 2011, 2012, and 2014, he noted that the amortization period for these kinds of expenses was three years in all instances, except for expenses associated with depreciation studies. Witness Gearhart disagreed with the Public Staff's change in methodology, stating that it does not reflect the amount of time that historically existed between rate cases. He stated that this is the first time during his tenure where Aqua NC's rate case interval has exceeded three years, and argued that this interval was an outlier, noting that the Company was "...spending a lot of money." He testified that the Company's Three Year WSIC plan has a $27,000,000 cap, and that the cap is anticipated to be met in the next three years.

Witness Becker agreed on cross-examination that Aqua NC continued to collect in its revenue requirement for rate case expenses that were amortized for three years in the last rate case, pursuant to the Sub 363 Order. However, he noted that this is the first time the Company has been able to stay out that long, that the continuation of revenues based

on the prior amortization has helped the Company hold off on a rate case filing, and that it has offset increases in other expenses that have not been updated since the last rate case. He agreed on cross-examination that with respect to that single item, one could say the Company had "over-recovered."

Witness Becker, on redirect-examination, discussed the efforts, commitment of resources, and difficulty associated with attempting to respond to discovery requests that delved into events that occurred as far back as 2005, for purposes of meeting challenges posed in this rate case. He contended that the Company's effort to reconstruct the history and the inputs into Aqua NC's decisions over the period of time from 2005 until now was comprehensively undertaken and was very difficult. He also discussed, on redirect-examination of his rebuttal testimony, a series of examples of the magnitude and pace of the discovery process, which started late and continued through the Friday before the commencement of the evidentiary hearing on the following Tuesday.

Witness Becker discussed the Company's need for a heightened level of legal counsel for this rate case as a result of the certainty or the likelihood that: (a) there would be no global settlement discussions of any kind prior to the Public Staff filing its testimony; (b) certain significant issues were not going to settle, under any foreseeable circumstances; (c) the Company would have 10 days from receipt of the Public Staff's testimony to respond, attempt to negotiate, and develop extensive rebuttal testimony; (d) significant impacts on company rate base were at stake; (e) little time would remain after the filing of rebuttal to prepare for a fully-litigated case; and (f) the Company was accused by the Public Staff of mismanagement. Additionally, witness Gearhart spoke to the volume of discovery in this case, which required internal response and legal support. Witness Becker testified that Aqua NC had conducted the case up to that point with the assistance of two consulting attorneys and had no internal staff – legal or otherwise – dedicated entirely to regulatory support.

In its proposed order, Aqua NC requested that it be allowed to recover its total rate case expenses related to the current proceeding over a four-year period, except for the 2017 depreciation study for which a five-year amortization period was requested.

On November 19, 2018, as required by the September 17, 2018 Stipulation, Aqua NC filed the affidavit of Dean R. Gearhart which provided the rate case expense incurred to date in conjunction with the present proceeding. Affiant Gearhart requested that the Commission approve and include total rate case costs in this proceeding in the amount of $818,397. Affiant Gearhart explained that he provided the Public Staff all required documentation related to such update and that all cost amounts provided were for actual costs incurred to date except for one estimate related to the costs of preparing and mailing notices to customers once the Commission issues its final order in this proceeding.

As detailed in the affidavit of Gearhart, the total rate case costs consists of the following:

Description	Amount
Aqua Service Company Capitalized Time	$5,699
Billing Analysis/Rate Design	52,416
Consultants	38,536
Depreciation Study	58,664
External Audit Fee	2,000
Legal Fees – Current Proceeding	417,876
Legal Fees – Defending WSIC/SSIC[44]	55,560
Mailing/Printing Customer Notices	99,737
NCUC Hearing Costs[45]	11,057
NCUC Rate Case Filing Fee	500
ROE/Capital Structure Witness	48,537
Travel Expenses	1,815
Environmental Finance Center Studies[46]	26,000
Total Rate Case Expense	$818,397

Consequently, as a result of these final updated rate case costs, Aqua NC requested that the Commission include in rates in this proceeding annual rate case expense of $201,666.

On November 26, 2018, the Public Staff filed its response to Gearhart's affidavit. The Public Staff stated that it has reviewed the documentation filed by Aqua NC for rate case expense as listed in the affidavit of Gearhart. The Public Staff contended that while it does not dispute that the Company has provided documentation supporting the expenses listed in the affidavit, due to the magnitude of the expenses, in particular the legal fees from the rate case proceeding in the amount of $417,876, the Public Staff maintains its previously stated position that all rate case expenses should be amortized over a five-year period to mitigate the impact to customers.

The Commission has weighed the facts and specific circumstances of this case and concludes that the appropriate and reasonable amortization period for regulatory commission expense should be four years, except for the depreciation study amortization period which should remain at five years, as proposed by Aqua NC and the Public Staff, which is consistent with prior Commission orders.

Aqua NC's initial proposal to amortize rate case expenses over three years is consistent with prior practice, and the Commission specifically does not by this ruling

[44] This expense is for the costs associated with defending the Commission's final Order in the Sub 363 rate case before the North Carolina Supreme Court in response to the appeal taken by the North Carolina Department of Justice.

[45] This expense item is for the costs associated with outside court reporting services.

[46] The Environmental Finance Center "Studies of Volumetric Wastewater Rate Structures and a Consumption Adjustment Mechanism for Water Rates of Aqua North Carolina, Inc." were filed jointly by Aqua NC and the Public Staff in Docket No. W-218, Sub 363A on March 31, 2016. These studies were prepared for use in this proceeding and were in fact used and cited by both Aqua NC and the Public Staff in this case.

reject the standard practice. The Public Staff's proposal, revised from its original position in its supplemental testimony, to apply a five-year amortization period to Aqua NC's regulatory commission expenses in this case, is, for the most part, a recognition of the significantly increased costs of this case, driven by the parties' exercise of their right to fully litigate these significant issues. Aqua NC's revised proposal for a four-year amortization period presented in its proposed order is viewed by the Commission as a compromise position by the Company based upon the unique circumstances of this case.

The costs of defense of any proceeding before this Commission are influenced in great measure by two factors: the vigor of the opposition of the consumer advocates and other intervenors, and the extent of the possibility of settlement of some or all of the contested issues. In this case, costs were clearly driven by a vigorous application of Public Staff resources on behalf of the ratepayers, whether measured by personnel, by amount or complexity of discovery, or by the sheer scope of the investigation, in terms of the duration of the period of examination. Similarly, the Company mounted an extensive and committed effort to contest and litigate a full slate of issues before this Commission. This case was unlike Aqua NC's last litigated rate case proceeding, being Docket No. W-218, Sub 319, which evidentiary hearing lasted approximately three days, or any other water and wastewater litigation before this Commission in recent memory. The present proceeding illustrates the proposition that parties are entitled to try their cases. Furthermore, the evidentiary hearing in this present proceeding included seven days of hearings scattered over the course of 11 business days. The hearing began on September 11, 2018 and, due to the impacts of Hurricane Florence[47] and other previously-calendared Commission hearings and commitments in September, concluded on September 25, 2018. There are costs to such undertakings, and so long as such costs are reasonably incurred, they should be recoverable in a timely fashion.

The Commission is also mindful of the testimony that suggests that the length of the interval since Aqua NC's last case (four years) is an anomaly, and that – given the magnitude of current and planned expenditures on water quality improvements – the interval until the next rate case may not be of such duration. Specifically, the Company suggested that its WSIC expenditures will cap in about three years. However, in recognition of the significantly increased costs of this case, driven by the parties' exercise of their right to fully litigate the significant issues involved in this particular proceeding, the Commission in of the opinion that a four-year amortization period for rate case expense is an appropriate compromise based upon the facts and circumstances of this proceeding.

Therefore, in this case, for good cause shown, and without suggesting a change to the standard three-year amortization period, the Commission concludes based on the evidence presented in this proceeding that it is reasonable and appropriate to utilize a four-year amortization period for all allowable rate case related costs, as recommended by Aqua NC in its proposed order, except for the depreciation study which should be amortized over five years, as proposed by the Company and the Public Staff.

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[47] Hurricane Florence made landfall over Wrightsville Beach, North Carolina on Friday, September 14, 2018. In preparation for the hurricane, the hearing was adjourned midday on September 12, 2018 and was reconvened the morning of September 18, 2018.

Communications Initiative

Public Staff witness Cooper testified that Aqua NC applied for rate case expenses including what the Company describes as a Communications Initiative totaling $133,000. She testified that the Public Staff removed from rate case expense the $133,000 estimate which included $58,000 to The Paige Group and $75,000 for Aqua Efforts – Customer Education and Mailings. She testified these expenses were not incurred during the test year and, although the communications contain information on Aqua NC's water quality plans, these are Aqua NC self-promotional communications. She further testified the timing of the mailings suggests that the purpose was to promote a more positive image of Aqua NC going into the customer hearings in this rate proceeding. She testified Aqua NC's retention of a public relations firm to develop the mailings, which easily could have been developed in-house, further demonstrates the mailings were primarily for public relations purposes. She further testified it is not appropriate for customers to pay for expenses associated with Aqua NC's self-promotion.

Public Staff witness Cooper testified that Aqua NC filed this rate increase Application on March 7, 2018. The informational mailings to all Aqua NC water customers were sent on February 19, 2018. She testified subsequent mailings were sent to Raleigh area subdivisions that had experienced Aqua service issues, including Brayton Park, Brandon Station, Stillwater Landing, Stonehenge, Wildwood Green, and Coachman's Trail, in June 2018 prior to the June 25, 2018, Commission public witness hearing in Raleigh.

Public Staff witness Cooper testified while the mailings provided some information useful to customers, the Aqua NC website www.ncwaterquality.com has useful customer information and customers could be directed to this useful website information by regular customer bill notations or regular billing inserts. She testified even if Aqua NC deemed the letters appropriate for a mailing, the Company could have included the letters as a monthly billing insert at a lower cost.

Aqua NC witness Becker testified on rebuttal that he agreed that the entirety of the Communications Initiative should not be included in rate case expense, but he believes the entire amount should be recoverable, with 50% as rate case expense and 50% as a line-item in cost of service. He testified Aqua NC's communications plan is directly related to its Water Quality Plan. He testified Aqua NC is pressing forward with a water quality operations program that is utilizing a combination of increased capital and operational process improvements to address water quality. He testified Aqua NC's ability to educate and communicate with Aqua NC's customers on this issue is a critical piece of the success of the program.

Aqua NC witness Becker testified the specific functions performed by the consulting firm The Paige Group included the following:

- Developed www.ncwaterquality.com content for each section of the website.
- Developed a letter to all Aqua NC customers mailed in February 2018 announcing the Company's water quality improvement plan/approach and directing customers to the website.
- Developed 18 distinct letters to customers within various Aqua NC systems that have been most engaged with Aqua NC on secondary water quality issues. The letters outlined any improvement work already completed in each system, discussed any future planned work, and directed customers to the water quality website. All letters issued in June 2018.
- Developed a bill insert in June/July 2018 directing all customers to the water quality website.
- Developed two e-newsletters (one issued in June and another issued in August) to customers that signed up to receive updates on the water quality website.
- Developed a customer "print on the run" (POTR, similar to a bill insert), issued in August directing customers to the water quality website.

He testified all of these communications are designed to direct customers to the information on Aqua NC's Water Quality Plan, which is found at www.ncwaterquality.com. He further testified the materials are essential to efforts to educate Aqua NC customers, both about infrastructure investment, the necessity and components of rate increases, and in particular about secondary water quality issues.

Aqua NC witness Becker concluded rebuttal stating that Aqua NC's recommendation is that the Communications Initiative expenses be recoverable either as rate case expenses or as an expense line item.

On cross-examination, Aqua NC witness Becker testified The Paige Group conducted an Aqua NC survey to understand what customers want to see, how they want to see it, where they want to see it, and how often they want to see it. He testified The Paige Group designed Aqua NC's water quality website, but website updates would be necessary at less cost. He further testified some of the future communications could be prepared by Aqua NC in-house personnel, but Aqua NC intended to utilize The Paige Group or another consultant going forward on customer communications. Witness Becker also testified that the actual Communications Initiative cost was $83,000, instead of the $133,000 estimate that Aqua NC provided the Public Staff.

After carefully evaluating the evidence, including the agreement reached between Aqua NC and the Public Staff on this issue, the Commission concludes that the actual costs of $83,940 for the Communications Initiative are not rate case expenses as the information provided to customers does not educate the customers on rate case issues. The Commission concludes that the Communications Initiative expenses are reasonable operating expenses to educate customers on water quality issues. The Commission concludes that as the $83,940 includes the completed Aqua NC customer survey and the completed design of Aqua NC's water quality website, the reasonable ongoing expenses

will be reduced. The Commission concludes that one half of the $83,940 expense, which is $41,970, should be amortized over three years thereby providing the reasonable ongoing annual expense of $13,990 to be included in the operating expenses, as stipulated.

Annualization/Consumption Factor

In his direct testimony, Public Staff witness Junis testified that updating the test year billing data to the 12-month period ending June 30, 2018, resulted in a higher level of bills than reflected in the originally filed application for the 12-month test year period ending September 30, 2017. He stated that he had adjusted the consumption for the updated data using a three-year average (July 2015 through June 2018) compared to only using the 12 months ended June 30, 2018. According to witness Junis, the consumption adjustment resulted in a 0.47% decrease for Aqua NC Water, a 1.85% decrease for Aqua NC Sewer, a 1.21% increase for Brookwood Water, a 2.97% increase for Fairways Water, and a 0.91% decrease for Fairways Sewer to reflect the difference between the test year per customer usage and the three-year average for the period ended June 30, 2018.

Witness Junis further testified that using the data in his billing analysis exhibit updated through June 30, 2018, Public Staff witness Henry calculated the growth and consumption factors referred to in his testimony. In addition, witness Junis stated that he recommended that Public Staff witness Henry apply the growth and consumption factors to the sewer and water short-term variable expenses identified by the EFC. (EFC Report, pp. 6 and 11) The exceptions were for sludge removal, purchased wastewater treatment, and purchased water expenses. Witness Junis stated that the sludge removal expense was calculated by Public Staff witness Darden to be the annual average of the updated two-year period ending June 2018, which includes recent growth and changes in consumption. According to witness Junis, short-term variability of the purchased wastewater treatment and purchased water expenses are almost entirely matched by variability of the commodity revenues of those systems.

Aqua NC witness Gearhart disagreed with the Public Staff's annualization and consumption adjustments. According to witness Gearhart, the purpose of this adjustment is to update variable expenses to match Aqua NC's period-end (June 30, 2018) customer count using a calculated "Annualization Factor" along with a "Consumption Factor" that is calculated using current consumption levels versus Aqua NC's three-year average consumption. Witness Gearhart further stated that the methodology to apply these factors has been consistently applied over Aqua NC's last two rate cases; however, the Public Staff has changed from its prior methodology in three areas, as follows:

1. <u>The "Consumption Factor" has been applied in this case to Aqua NC's two Sewer Rate Divisions; whereas the consumption factor should only apply to Aqua NC's three Water Rate Divisions</u>.

Witness Gearhart testified that in Aqua NC's two previous rate cases (Docket Nos. W-218, Sub 319 and W-218, Sub 363), the consumption factor was not applied to either the Aqua NC Sewer or Fairways Sewer rate entities. According to witness Gearhart, the variable expenses for these sewer entities is primarily customer driven, while the consumption factor is designed to apply to only water rate entities.[48]

Further, witness Gearhart stated that, as a result, on Cooper Exhibit I, Schedule 3-5(a)(1), the Consumption Factor on line 2 for Aqua NC Sewer, should be changed from -1.85% to 0.00% and that line 4 for Fairways Sewer should be changed from -0.91% to 0.00%.

2. Adjustments for Sludge Hauling expense that have been part of the annualization calculation in each of Aqua NC's last two rate cases (Docket Nos. W-218, Sub 319 and W-218, Sub 363) have been excluded from the annualization calculation in this rate proceeding.

Company witness Gearhart stated that Public Staff witness Junis recommended that an annualization and consumption adjustment should be applied to items identified as short-term variable expenses by the EFC study, filed with the Commission on March 31, 2016, in Docket No. W-218, Sub 363A. See pages 6 and 11. Nonetheless, he testified that witness Junis specifically excludes sludge hauling expense, which is recommended for inclusion in the calculation by the EFC study on page 6 and included in the prior Public Staff rate case calculations mentioned above.

Witness Gearhart further stated that, despite Aqua NC's disagreement with the Public Staff's position concerning the ongoing level of sludge hauling expense calculated by Public Staff witness Darden and contested in Aqua NC witness Pearce's rebuttal testimony, the annualization factor is a separate calculation to take the historic balances (or averages) and annualize them for current end-of-period customer counts.

According to witness Gearhart, sludge hauling is the removal of wastewater solids from a WWTP. The increase in wastewater based on the Company's current customer count (as of June 30, 2018) will result in the requirement to remove more sludge material. Public Staff witness Junis excluded sludge hauling expense from his calculation, citing the fact that sludge hauling expense was calculated separately by the Public Staff to be the annual average of the two-year period ending June 2018. Witness Gearhart noted that the mid-point of these two years is June 2017. Since Aqua NC's total sewer customer

[48] In response to Question 1 of Public Staff EDR 60 (entered in the record in this case as Public Staff Gearhart Rebuttal Cross-Examination Exhibit 1), witness Gearhart responded that:

> The basis for this contention was the fact that the consumption factor used in this adjustment is based on customer gallons billed. Applying that factor to sewer entitles where the vast majority of customers are flat rate and have no billed consumption would seem to be inappropriate.
> This factor has not been applied to sewer entitles for any Aqua NC rate cases dating back to at least 2007 and neither the company nor the Public Staff have disagreed on this concept.

count has increased by 4.2% since June 2017, witness Gearhart testified that this does not represent the expense levels that will be incurred using the current customer count at June 30, 2018. He stated that an average understates the actuality of an end-of-period number and undermines the intent of the annualization adjustment and the Company's opportunity to recover the costs associated with these customers.

Further, witness Gearhart stated that witness Junis' reasoning to selectively exclude an expense line that is directly related to customer counts from the annualization adjustment because it was separately updated using an average is flawed.

For the reasons stated, witness Gearhart requested that sludge hauling expense be added to the annualization adjustment calculation for this case, consistent with the practice in the Company's two prior rate cases.

On cross-examination by the Public Staff, witness Gearhart testified that, while he agreed that if water customers use less water, there would be less wastewater and less sludge produced, because only a small population of Aqua NC's sewer customers are metered sewer customers "...it isn't appropriate to apply the [consumption] adjustment to the entire population of the sewer rate entities ... both historically and logically, to the Company's way of thinking." Tr. Vol. 13, p. 109.

3. Materials and Supplies Expense has been erroneously excluded from the Annualization and Consumption Adjustments despite being included in the previous two rate orders cited above.

Witness Gearhart testified that materials and supplies expense is a variable expense where a large portion of the annual amounts increases with both the number of customers served and the level of annual consumption supported. Neither the Company nor the Public Staff has disputed this position in previous rate proceedings; however, witness Junis excluded these expenses from his annualization calculation. Witness Gearhart requested that materials and supplies expense be added to the annualization and consumption adjustment calculations for this case.

Witness Gearhart concluded by stating that witness Junis' exclusion of certain variable expenses effectively reduces revenues to which Aqua NC is entitled, and excludes legitimate costs associated with the number of customers which the Company serves as of June 30, 2018, at its current level of consumption. Per the Company's calculations, the impact of failing to apply the annualization and consumption adjustment factors to the three items enumerated above reduces the expenses which the Company is entitled to recover in this case.

Based upon the foregoing, the Commission concludes that the Public Staff's proposed consumption adjustment factors should not be applied to either Aqua NC's Sewer Operations rate division or the Company's Fairways Sewer Operations rate division. The consumption adjustment factors proposed by the Public Staff should only be applied to the Company's three Water Operations rate divisions (Aqua NC Operations

Water, Brookwood Operations Water, and Fairways Operations Water). Further, the Commission finds and concludes that Aqua NC's sludge hauling expense should be included in the calculation of the Company's annualization adjustment, whereas Aqua NC's materials and supplies expense should be excluded from the calculation.

The Commission reaches these conclusions for several reasons. First, the Commission finds the rebuttal testimony offered by Company witness Gearhart to be more persuasive on the annualization and consumption adjustment issues than the testimony offered by Public Staff witness Junis, except for the testimony by witness Gearhart concerning the inclusion of materials and supplies expense in the calculation of the annualization adjustment. The Commission gives more weight to the testimony of witness Junis concerning that particular contested matter.

Second, a consumption adjustment factor was not applied to either of the Aqua NC Sewer Rate Divisions in the Company's two prior rate cases and the Commission does not find good cause to depart from that treatment in this case. The Commission gives substantial weight to Aqua NC witness Gearhart's argument that the Public Staff's consumption factors used in these adjustments were based on the gallons billed for a small number of metered sewer customers and the factors were applied to sewer entities where the vast majority of the sewer customers are flat rate customers that have no billed consumption. The Commission concludes that such calculations would be inappropriate and would not result in reasonable consumption adjustments for Aqua NC's sewer rate entities.

Third, the annualization adjustment for sludge hauling expense was applied in the Company's two prior rate cases. The Commission does not find good cause to depart from that treatment in this case. The Public Staff has not offered adequate justification in support of its proposal to convince the Commission to change precedent and exclude sludge hauling expense from the annualization adjustment in this case. The Commission agrees with witness Gearhart that the Public Staff's proposal to selectively exclude sludge hauling expense from the annualization adjustment because it was separately updated by use of a two-year average, is flawed and should be rejected.

Fourth, the Commission gives substantial weight to the fact that the EFC Report does not include materials and supplies expense as a variable expense in its analysis as pointed out by Public Staff witness Junis. Although witness Gearhart testified that materials and supplies expense is a variable expense "where a large portion of the annual amounts increases with both the number of customers served and the level of annual consumption", he did not provide any specific examples of the types of materials and supplies expense that Aqua NC incurs which are variable that would indicate that the EFC Report is incorrect in that regard.

Accordingly, for the reasons set forth above, the Commission finds and concludes that the Public Staff's proposed consumption adjustment factors should not be applied to either Aqua NC's Sewer Operations rate division or the Company's Fairways Sewer Operations rate division, and Aqua NC's sludge hauling expense should be included in

the calculation of the Company's annualization adjustment whereas its materials and supplies expense should be excluded.

Summary Conclusion

Based on the foregoing, the Commission concludes that the appropriate level of O&M and G&A expenses for combined operations for use in this proceeding are as follows:

Item	Amount
Salaries and wages	$10,242,720
Employee pensions and benefits	3,077,822
Purchased water/sewer treatment	2,316,616
Sludge removal	559,382
Purchased power	3,570,667
Fuel for power production	26,809
Chemicals	1,521,967
Materials and supplies	505,720
Testing fees	946,373
Transportation	919,149
Contractual services-engineering	2,750
Contractual services-accounting	188,101
Contractual services-legal	196,144
Contractual services-other	4,330,817
Rent	309,942
Insurance	650,674
Regulatory commission expense	201,666
Miscellaneous expense	1,477,705
Interest on customer deposits	32,388
Annualization & Consumption Adj.	190,392
Total O&M and G&A expenses	$31,267,804

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 87-91

The evidence supporting these findings of fact is contained in the testimony of Public Staff witnesses Cooper and Junis and Company witnesses Gearhart and Becker. The Company's level of depreciation and amortization expense on its Application is $9,926,332. The Public Staff's recommended level of depreciation and amortization expense is $9,986,078 for a difference of $59,746.

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Revised Supplemental Cooper Exhibit I, the Company does not dispute the following Public Staff adjustments to depreciation and amortization expense:

Item	Amount
Adjustment for post-test year plant additions	$146,775
Update costs related to future customers	173
Update Mid South growth PAA to 6/30/18	1,647
Adjustment for Mountain Ridge AIA	2,500
Total	$151,095

Therefore, the Commission finds and concludes that the adjustments listed above, which are not contested, are appropriate adjustments to be made to depreciation and amortization expense in this proceeding.

Based on the testimony of Company witnesses Gearhart and Becker, the Company disagrees with the following Public Staff adjustments to depreciation and amortization expense:

Item	Amount
Adjustment for Neuse Colony WWTP CIAC	$51,673[49]
Adjustment for meters and meter installations	(139,727)
Adjustment for excess capacity	(3,295)
Total	($91,349)

Neuse Colony WWTP CIAC

The Public Staff made an adjustment to reduce amortization expense by $42,676 related to the CIAC collected towards the total capacity of the Neuse Colony WWTP and $8,997 for the imputation of CIAC for the Buffalo Creek force main and pump station costs that Aqua NC did not collect from developers. As discussed elsewhere in this Order, the Commission has concluded that the adjustment recommended by the Public Staff to remove from rate base the CIAC collected by Aqua NC in the amount of $1.497 million related to the Neuse Colony WWTP is not appropriate in this proceeding. Further, the Commission concluded that the adjustment for the imputation of CIAC for the Buffalo Creek force main and pump station costs should be $218,999 rather than $315,687. Therefore, the Commission concludes that the Public Staff's adjustment of $8,997 should be adjusted to $6,241 and that $6,241 of amortization expense should be included in this proceeding.

Meters and Meter Installations

The Public Staff made an adjustment to remove $139,727 of depreciation expense related to its removal of $2,834,632 and $1,399,522 in AMR meters and related

[49] Comprised of $42,676 related to the amortization of the $1.497 million in CIAC plus $8,997 in amortization expense related to the imputed CIAC in the amount of $315,687. Due to an inadvertent error, the Public Staff reduced total amortization expense by the $8,997 adjustment rather than increasing amortization expense as it intended.

installation costs from Plant in Service for Aqua NC Water Operations and Brookwood Water Operations. As discussed elsewhere in this Order, the Commission disagreed with the Public Staff's adjustments to remove these costs from Plant in Service. Therefore, the Commission concludes that the corresponding adjustment to remove $139,727 of depreciation expense is inappropriate and should not be made in this proceeding.

Excess Capacity

The Public Staff made an adjustment to increase depreciation expense by $20,372 and amortization expense by $23,667 for excess capacity for the Carolina Meadows, The Legacy at Jordan Lake, and Westfall WWTPs. As discussed elsewhere in this Order, the Company contended that approximately $1.7 million of rehabilitation and upgrades that were made in 2018 for the Carolina Meadows WWTP should not be subject to an excess capacity adjustment because this would disallow 30.63% of the upgrade immediately after the investment is made by the Company. In the present Order, the Commission has concluded that 50% of the $1.7 million rehabilitation and upgrades should be included as part of the excess capacity adjustment and 50% should be included in rate base as a post-test year update. Therefore, the Commission concludes that the corresponding adjustment to increase depreciation expense by $28,890 and amortization expense by $23,667 related to the Carolina Meadows, The Legacy at Jordan Lake, and Westfall WWTPs is appropriate and should be made in this proceeding.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 92-95

The evidence supporting these findings of fact is contained in the testimony of Public Staff witnesses Henry and Cooper, and Company witness Gearhart. The following table summarizes the differences between the Company's level of other taxes and Section 338(h) adjustment from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Property taxes	$635,463	$635,463	$0
Payroll taxes	779,805	788,065	8,260
Other taxes	308,886	308,886	0
Section 338(h) adjustment	(20,024)	(20,024)	0
Total	$1,704,130	$1,712,390	$8,260

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Revised Supplemental Cooper Exhibit I, the Company does not dispute any of the Public Staff adjustments to other taxes.

Therefore, the Commission finds and concludes that the adjustments listed above, which are not contested, are appropriate adjustments to be made to other taxes in this proceeding.

The difference in the level of payroll taxes is due to the differing levels of salaries and wages recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in this Order regarding the levels of salaries and wages, the Commission concludes that the appropriate level of payroll taxes for use in this proceeding is $789,484.

Summary Conclusion

Based on the foregoing, the Commission concludes that the appropriate level of other taxes for combined operations for use in this proceeding is as follows:

Item	Amount
Property taxes	$635,463
Payroll taxes	789,484
Other taxes	308,886
Section 338(h) adjustment	(20,024)
Total	$1,713,809

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 96-99

The evidence supporting these findings of fact is contained in the testimony of Public Staff witnesses Boswell, Henry, and Cooper, and Company witness Kopas.

The following summarizes the differences between the Company's level of regulatory fee and income taxes from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Regulatory fee	$77,046	$79,174	$2,128
Deferred income taxes	(639,532)	(120,648)	518,884
State income taxes	186,463	295,538	109,075
Federal income taxes	1,266,088	2,006,711	740,623
Total	$890,065	$2,260,775	$1,370,710

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Revised Supplemental Cooper Exhibit 1 and in the testimony of witness Boswell and Boswell Revised Exhibit2, the Company agreed with the Public Staff's adjustment to deferred income tax of $120,648 to reflect the annual amortization of protected federal EDIT.

Regulatory Fee

The difference in the level of regulatory fee is due to the differing levels of revenues recommended by the Company and the Public Staff. Based on conclusions reached elsewhere in this Order regarding the levels of revenues, the Commission concludes that the appropriate level of regulatory fee for use in this proceeding is $79,174.

State Income Taxes

The difference in the level of state income taxes is due to the differing levels of revenues and expenses recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in this Order regarding the levels of revenues and expenses, the Commission concludes that the appropriate level of state income taxes for use in this proceeding is $272,043.

Federal Income Taxes

The difference in the level of federal income taxes is due to the differing levels of revenues and expenses recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in this Order regarding the levels of revenues and expenses, the Commission concludes that the appropriate level of federal income taxes for use in this proceeding is $1,847,171.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 100-104

The evidence in support of these findings of fact is contained in the testimony of Company witness Kopas, the testimony of Public Staff witness Boswell, the Stipulation filed in this docket, and the entire record in this proceeding.

On December 22, 2017, the Tax Act was signed into law. Among other provisions, the Tax Act reduced the federal corporate income tax rate from 35% to 21%, effective January 1, 2018.[50] It also repealed the manufacturing tax deduction and eliminated bonus depreciation.

When the federal corporate income tax rate is reduced, as it was in the Tax Act, a portion of the accumulated deferred income tax that the utility has accumulated from the ratepayers will never be needed by the utility for the payment of taxes. This portion is classified as federal EDIT. The IRC requires that certain EDIT must be normalized, or flowed back, subject to certain limitations. Federal EDIT that is subject to this limitation is classified as protected federal EDIT. All other types of federal EDIT are termed

[50] In response to the enactment of the Tax Act, on January 3, 2018, the Commission opened a rulemaking docket (Docket No. M-100, Sub 148, i.e., the Tax Docket) for the purpose of determining how the Commission should proceed. In the Order establishing the Tax Docket, the Commission placed certain public utilities on notice that the federal corporate income tax expense component of all existing rates and charges, effective January 1, 2018, would be billed and collected on a provisional rate basis.

unprotected, in that there are no limitations placed upon them by the IRS with regard to the length of time over which they may be returned to ratepayers.

In its Application, the Company reflected tax expense at the reduced federal corporate income tax rate of 21%. Aqua NC witness Kopas recommended in his direct testimony that the overcollection of federal taxes related to the reduction in the federal corporate income tax rate to income earned after January 1, 2018 be returned to customers over a one-year period as a credit beginning when the new base rates are implemented to reflect the new income tax rate.

Further, in the revised direct testimony of Company witness Kopas filed on August 6, 2018, the Company proposed to return federal protected EDIT to ratepayers over a period of time equal to the expected lifespan of the plant, property and equipment with which they are associated (based on the average rate assumption method (ARAM) as required by the IRS), return federal unprotected EDIT to ratepayers over 20 years, and return state EDIT to ratepayers over four years.

In testimony filed on September 5, 2018, Public Staff witness Boswell presented the Public Staff's proposal regarding the flowback of federal and state EDIT. She included four adjustments based on the information provided by the Company. First, she recommended the return of protected federal EDIT based upon the Company's calculation of the net remaining life of the timing differences, as required under the IRC. For unprotected federal EDIT, she recommended removing the federal EDIT regulatory liability associated with the unprotected differences from rate base, and placing it in a rider to be refunded to ratepayers over three years on a levelized basis, with carrying costs. Witness Boswell stated that immediate removal of unprotected federal EDIT from rate base increases the Company's rate base and mitigates regulatory lag that may occur from refunds of unprotected federal EDIT not contemporaneously reflected in rate base. Further, witness Boswell maintained that refunding the unprotected federal EDIT over three years allows the Company to properly plan for any future credit needs. For state EDIT related to House Bill 998 (HB 998) and addressed in Docket No. M-100, Sub 138, witness Boswell recommended returning that EDIT to customers through a levelized rider that would expire at the end of a three-year period. Finally, witness Boswell testified that the Public Staff does not oppose the Company's proposal to refund to ratepayers the overcollection of federal taxes related to the decrease in federal tax rates for the period beginning January 1, 2018, and corresponding interest, as a credit for a one-year period beginning when the new base rates become effective in the current docket.

On September 17, 2018, the Company and the Public Staff jointly filed a Stipulation. The Stipulation settles, among other items, the treatment of federal EDIT, state EDIT related to HB 998 and addressed in Docket No. M-100, Sub 138, and the overcollection of federal corporate income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018. The Stipulation specifically states in Section III, Paragraphs II, JJ, and KK, as follows:

II. The Company agrees to accept the Public Staff's proposals for addressing the Federal Tax Cuts and Jobs Act (the Tax Act). The unprotected Federal EDIT created by enactment of the Tax Act will be returned to customers through a levelized rider that will expire at the end of a three-year period. The protected EDIT will be flowed back following the tax normalization rules utilizing the average rate assumption method (ARAM) required by IRC Section 203(e).

JJ. The state EDIT that the Company recorded pursuant to the Commission's May 13, 2014 Order in Docket No. M-100, Sub 138 will be returned to customers through a levelized rider that will expire at the end of a three-year period.

KK. The Stipulating Parties agree to the Company's proposal to refund to the ratepayers the overcollection of federal taxes related to the decrease in federal tax rates for the period beginning January 1, 2018, and corresponding interest, as a surcharge credit for a one-year period beginning when the new base rates become effective in the current docket.

The AGO stated in its post-hearing brief that ratepayers should promptly enjoy the benefits of Aqua NC's cost savings resulting from recent changes in the federal tax law. The AGO asserted that recent reductions in federal and state corporate income tax rates result in lower operating expenses for utilities, with a favorable impact on the cost of public utility service, and produce an excess accumulation of funds for deferred income taxes that may be returned to ratepayers. The AGO noted that the Commission determined in its recent Order in a generic proceeding that the issue of how to reflect the changes in federal tax rates in new utility rates would be determined for Aqua NC in this general rate case proceeding. See Order Addressing the Impacts of the Federal Tax Cuts and Jobs Act on Public Utilities in Docket No. M-100, Sub 148 issued on October 5, 2018, p. 69. The AGO stated that it supports rate adjustments to flow through the benefits of tax changes to ratepayers as soon as possible.

The AGO further noted that the changes in tax rates have five impacts on rates as proposed by Aqua NC or resolved by agreement between Aqua NC and the Public Staff:

1. Operating expenses will reflect the federal corporate income tax rate reduction from 35% to 21%;

2. The amount of tax expense that was overcollected in rates from January 1, 2018 until new rates take effect will be returned to ratepayers as a bill credit over a period of one year;

3. The excess accumulated deferred income taxes associated with the change in the North Carolina corporate income tax rate under HB 998 will be returned to ratepayers in a rider to rates over a three-year period;

4. The unprotected excess accumulated deferred income taxes associated with the reduction in the federal corporate income tax rate will be returned to ratepayers in a rider to rates over a three-year period; and

5. The protected excess deferred income taxes associated with the reduction in the federal corporate income tax rate will be returned to ratepayers in rates over a period of 20 plus years reflecting the period required by federal tax provisions.

See p. 9 of Stipulation filed on September 17, 2018.

The AGO maintained that it supports the prompt adjustment of rates to reflect the tax reductions both through the reduction in operating expenses and the return of excess deferred income taxes. The AGO noted that in the recent Duke Energy Carolinas rate case in Docket No. E-7, Sub 1146, the AGO recommended a return of excess deferred taxes over a period of two years or less, so that ratepayers are able to benefit as soon as possible from the amounts they are owed.[51] The AGO asserted that although two years is preferable, in light of the resolution of the issue as proposed by Aqua NC and the Public Staff, the AGO does not oppose the return of excess deferred taxes over a three-year period under the circumstances of this case.

Based upon all of the evidence of record in this case, the Commission finds it appropriate to accept the Stipulation by the Company and the Public Staff concerning the tax issues. Therefore, the following will be accepted and approved by the Commission in this proceeding:

1. The Company's revenue requirement shall reflect the reduction in the federal corporate income tax rate from 35% to 21%, on the Company's ongoing federal income tax expense.

2. The Company's protected federal EDIT shall be flowed back to customers following the tax normalization rules utilizing the ARAM as required by the rules of the IRS.

3. The Company's unprotected federal EDIT shall be returned to ratepayers through a levelized rider over a period of three years.

4. The Company shall refund to its ratepayers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest,

[51] See p. 141 of the AGO's post-hearing brief filed on April 27, 2018 in Docket No. E-7, Sub 1146.

through a surcharge credit for a one-year period beginning when the new base rates become effective in the current docket.

5. The Company's state EDIT recorded pursuant to the Commission's Order Addressing the Impacts of HB 998 on North Carolina Public Utilities issued May 13, 2014, in Docket No. M-100, Sub 138 shall be returned to ratepayers through a levelized rider that will expire at the end of a three-year period.

Finally, both the Company and the Public Staff included the same language in their respective proposed orders in this docket to specify that if new base rates are not established prior to completion of the refund to customers related to the levelized rider established for the flowback of excess deferred income taxes (approximately thirty-six months) the Company will file new tariffs for any rate division whose rates exceed the initial increase requested in the Application. The Company and the Public Staff also stated that the new base rates will be implemented the first month after the credit expires. They further provided language to state that the sole purpose of any new tariffs implemented at the time the rider for unprotected federal EDIT expires is to reduce the rates approved in Docket No. W-218, Sub 497 to a level no greater than the amount noticed for each rate division in that docket. The language states that there will be no deferral for recovery of the difference between the originally approved amount and the amount resulting from the new tariffs. Since it appears the Company and the Public Staff agree to this language, the Commission finds it appropriate to approve such language for inclusion in this Rate Order.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 105-113

The evidence supporting these findings of fact and conclusions is contained in the Company's Application and corresponding NCUC Form W-1, the testimony and exhibits of the public witnesses, the testimony and exhibits of Company witness D'Ascendis, Public Staff witness Hinton, the Stipulation, and the entire record of this proceeding.

Rate of Return on Equity

In its Application and in the direct testimony of Aqua NC witness Dylan D'Ascendis, the Company requested approval for its rates to be set using a rate of return on equity of 10.90%. In his rebuttal testimony, witness D'Ascendis reduced his recommended rate of return on equity to 10.80% after removing his adjustment for flotation cost. For the reasons set forth herein, the Commission finds that a rate of return on equity of 9.70% is just and reasonable.

Rate of return on equity, also referred to as the cost of equity capital, is often one of the most contentious issues to be addressed in a rate case. In the absence of a settlement agreed to by all parties, the Commission must exercise its independent judgment and arrive at its own independent conclusion as to all matters at issue, including the rate of return on equity. See, e.g., State ex rel. Utils. Comm'n v. Carolina Utils. Customers Ass'n, 348 N.C. 452, 466, 500 S.E.2d 693, 707 (1998). In order to reach an appropriate independent conclusion regarding the rate of return on equity, the

Commission should evaluate the available evidence, particularly that presented by conflicting expert witnesses. State ex rel. Utils. Comm'n v. Cooper, 366 N.C. 484, 491-93, 739 S.E.2d 541, 546-47 (2013) (Cooper I). In this case, the evidence relating to the Company's cost of equity capital was presented by Aqua NC witness D'Ascendis and Public Staff witness Hinton. No other rate of return on equity expert evidence was presented by any party.

In addition to its evaluation of the expert evidence, the Commission must also make findings of fact regarding the impact of changing economic conditions on customers when determining the proper rate of return on equity for a public utility. Cooper I, 366 N.C. at 494, 739 S.E.2d at 548. This was a factor newly announced by the Supreme Court in its Cooper I decision and not previously required by the Commission or any appellate courts as an element that must be considered in connection with the Commission's determination of an appropriate rate of return on equity. The Commission's discussion of the evidence with respect to the findings required by Cooper I is set out in detail in this Order.

Cooper I was the result of the Supreme Court's reversal and remand of the Commission's approval of the agreement regarding the rate of return on equity in a stipulation between the Public Staff and Duke Energy Carolinas, LLC (DEC) in Docket No. E-7, Sub 989. The Commission has had occasion to apply both prongs of Cooper I in subsequent orders, specifically the following:

- Order Granting General Rate Increase, Docket No. E-2, Sub 1023 (May 30, 2013) (2013 DEP Rate Order), which was affirmed by the North Carolina Supreme Court in State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 444, 761 S.E.2d 640 (2014) (Cooper III)[52];

- Order on Remand, Docket No. E-7, Sub 989 (Oct. 23, 2013) (DEC Remand Order), which was affirmed by the North Carolina Supreme Court in State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 644, 766 S.E.2d 827 (2014) (Cooper IV);

- Order Granting General Rate Increase, Docket No. E-7, Sub 1026 (Sep. 24, 2013), which was affirmed by the Supreme Court in State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 741, 767 S.E.2d 305 (2015) (Cooper V);

- Order on Remand, Docket No. E-22, Sub 479 (July 23, 2015), which was not appealed to the Supreme Court;

[52] An intervening case, State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 430, 758 S.E.2d 635 (2014) (Cooper II), arose from Dominion North Carolina Power's 2012 rate case and resulted in a remand to the Commission, inasmuch as the Commission's Order in that case predated Cooper I.

- Order Approving Rate Increase and Cost Deferrals and Revising PJM Regulatory Conditions, Docket No. E-22, Sub 532 (Dec. 22, 2016);

- Order Accepting Stipulation, Deciding Contested Issues and Granting Partial Rate Increase, Docket No. E-2, Sub 1142 (Feb. 23, 2018); and

- Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction, Docket No. E-7, Sub 1146 (June 22, 2018).

In order to give full context to the Commission's decision herein and to elucidate its view of the requirements of the General Statutes as they relate to rate of return on equity, as interpreted by the Supreme Court in Cooper I, the Commission deems it important to provide in this Order an overview of the general principles governing this subject.

A. Governing Principles in Setting the Rate of Return on Equity

First, there are, as the Commission noted in the 2013 DEP Rate Order, constitutional constraints upon the Commission's rate of return on equity decisions established by the United States Supreme Court Decisions in Bluefield Waterworks & Improvement Co. v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679 (1923) (Bluefield), and Fed. Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944) (Hope):

> To fix rates that do not allow a utility to recover its costs, including the cost of equity capital, would be an unconstitutional taking. In assessing the impact of changing economic conditions on customers in setting an return on equity, the Commission must still provide the public utility with the opportunity, by sound management, to (1) produce a fair profit for its shareholders, in view of current economic conditions, (2) maintain its facilities and service, and (3) compete in the marketplace for capital. State ex rel. Utilities Commission v. General Telephone Co. of the Southeast, 281 N.C. 318, 370, 189 S.E.2d 705, 757 (1972). As the Supreme Court held in that case, these factors constitute "the test of a fair rate of return" in Bluefield and Hope. Id.

2013 DEP Rate Order, p. 29.

Second, the rate of return on equity is, in fact, a cost. The return that equity investors require represents the cost to the utility of equity capital. In his dissenting opinion in Missouri ex rel. Southwestern Bell Tel. Co. v. Missouri Pub. Serv. Comm'n, 262 U.S.

276 (1923), Justice Brandeis remarked upon the lack of any functional distinction between the rate of return on equity (which he referred to as a "capital charge") and other items ordinarily viewed as business costs, including operating expenses, depreciation, and taxes:

> Each is a part of the current cost of supplying the service; and each should be met from current income. When the capital charges are for interest on the floating debt paid at the current rate, this is readily seen. But it is no less true of a legal obligation to pay interest on long-term bonds ... and it is also true of the economic obligation to pay dividends on stock, preferred or common.

Id. at 306 (Brandeis, J. dissenting) (emphasis added). Similarly, the United States Supreme Court observed in Hope, "From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business ... [which] include service on the debt and dividends on the stock." Hope at 603.

Leading academic commentators also define rate of return on equity as the cost of equity capital. Professor Charles Phillips, for example, states that "the term 'cost of capital' may be defined as the annual percentage that a utility must receive to maintain its credit, to pay a return to the owners of the enterprise, and to ensure the attraction of capital in amounts adequate to meet future needs." Phillips, Charles F., Jr., The Regulation of Public Utilities (Public Utilities Reports, Inc. 1993), p. 388. Professor Roger Morin approaches the matter from the economist's viewpoint:

> While utilities enjoy varying degrees of monopoly in the sale of public utility services, they must compete with everyone else in the free open market for the input factors of production, whether it be labor, materials, machines, or capital. The prices of these inputs are set in the competitive marketplace by supply and demand, and it is these input prices which are incorporated in the cost of service computation. This is just as true for capital as for any other factor of production. Since utilities must go to the open capital market and sell their securities in competition with every other issuer, there is obviously a market price to pay for the capital they require, for example, the interest on capital debt, or the expected return on equity.
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> * * *
>
> [T]he cost of capital to the utility is synonymous with the investor's return, and the cost of capital is the earnings which must be generated by the investment

> of that capital in order to pay its price, that is, in order to meet the investor's required rate of return.

Morin, Roger A., Utilities' Cost of Capital (Public Utilities Reports, Inc. 1984), at pp. 19-21. Professor Morin adds: "The important point is that the prices of debt capital and equity capital are set by supply and demand, and both are influenced by the relationship between the risk and return expected for those securities and the risks expected from the overall menu of available securities." Id. at 20 (emphasis added).

Changing economic circumstances as they impact Aqua NC's customers may affect those customers' ability to afford rate increases. For this reason, customer impact weighs heavily in the overall ratemaking process, including, as set out in detail elsewhere in this Order, the Commission's own decision of an appropriate authorized rate of return on equity. In addition, in the event of a settlement, customer impact no doubt influences the process by which the parties to a rate case decide to settle contested matters and the level of rates achieved by any such settlement.

However, a customer's ability to afford a rate increase has absolutely no impact upon the supply of or the demand for capital. The economic forces at work in the competitive capital market determine the cost of capital – and, therefore, the utility's required rate of return on equity. The cost of capital does not go down because some customers may find it more difficult to pay for an increase in water and wastewater prices as a result of prevailing adverse economic conditions, any more than the cost of capital goes up because some customers may be prospering in better times.

Third, the Commission is and must always be mindful of the North Carolina Supreme Court's command that the Commission's task is to set rates as low as possible consistent with the dictates of the United States and North Carolina Constitutions. State ex rel. Utils. Comm'n v. Pub. Staff-N. Carolina Utils. Comm'n, 323 N.C. 481, 490, 374 S.E.2d 361, 370 (1988). Further, and echoing the discussion above concerning the fact that rate of return on equity represents the cost of equity capital, the Commission must execute the Supreme Court's command "irrespective of economic conditions in which ratepayers find themselves." (2013 DEP Rate Order, p. 37.) The Commission noted in that Order:

> The Commission always places primary emphasis on consumers' ability to pay where economic conditions are difficult. By the same token, it places the same emphasis on consumers' ability to pay when economic conditions are favorable as when the unemployment rate is low. Always there are customers facing difficulty in paying utility bills. The Commission does not grant higher rates of return on equity when the general body of ratepayers is in a better position to pay than at other times, which would seem to be a logical but misguided corollary to the position the Attorney General advocates on this issue.

Id. Indeed, in Cooper I the Supreme Court emphasized "changing economic conditions" and their impact upon customers. Cooper I, at 548.

Fourth, while there is no specific and discrete numerical basis for quantifying the impact of economic conditions on customers, the impact on customers of changing economic conditions is embedded in the rate of return on equity expert witnesses' analyses. The Commission noted this in the 2013 DEP Rate Order: "This impact is essentially inherent in the ranges presented by the return on equity expert witnesses, whose testimony plainly recognized economic conditions – through the use of econometric models – as a factor to be considered in setting rates of return." 2013 DEP Rate Order, p. 38.

Fifth, under long-standing decisions of the North Carolina Supreme Court, the Commission's subjective judgment is a necessary part of determining the authorized rate of return on equity. State ex rel. Utils. Comm'n v. Pub. Staff, 323 N.C. 481, 490, 374 S.E.2d 361, 369 (1988). As the Commission also noted in the 2013 DEP Rate Order:

> Indeed, of all the components of a utility's cost of service that must be determined in the ratemaking process, the appropriate [rate of return on equity] the one requiring the greatest degree of subjective judgment by the Commission. Setting a return on equity [rate of return on equity] for regulatory purposes is not simply a mathematical exercise, despite the quantitative models used by the expert witnesses. As explained in one prominent treatise,
>
> > Throughout all of its decisions, the [United States] Supreme Court has formulated no specific rules for determining a fair rate of return, but it has enumerated a number of guidelines. The Court has made it clear that confiscation of property must be avoided, that no one rate can be considered fair at all times and that regulation does not guarantee a fair return. The Court also has consistently stated that a necessary prerequisite for profitable operations is efficient and economical management. Beyond this is a list of several factors the commissions are supposed to consider in making their decisions, but no weights have been assigned.
> >
> > The relevant economic criteria enunciated by the Court are three: financial integrity, capital attraction and comparable earnings. Stated another way, the rate of return allowed a public utility should be high enough: (1) to maintain the financial integrity of the

> enterprise, (2) to enable the utility to attract the new capital it needs to serve the public, and (3) to provide a return on common equity that is commensurate with returns on investments in other enterprises of corresponding risk. These three economic criteria are interrelated and have been used widely for many years by regulatory commissions throughout the country in determining the rate of return allowed public utilities.
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> In reality, the concept of a fair rate of return represents a "zone of reasonableness." As explained by the Pennsylvania commission:
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> > There is a range of reasonableness within which earnings may properly fluctuate and still be deemed just and reasonable and not excessive or extortionate. It is bounded at one level by investor interest against confiscation and the need for averting any threat to the security for the capital embarked upon the enterprise. At the other level it is bounded by consumer interest against excessive and unreasonable charges for service.
>
> As long as the allowed return falls within this zone, therefore, it is just and reasonable. . . . It is the task of the commissions to translate these generalizations into quantitative terms.
>
> Charles F. Phillips, Jr., The Regulation of Public Utilities, 3d ed. 1993, pp. 381-82 (notes omitted).

2013 DEP Rate Order, pp. 35-36.

Thus, the Commission must exercise its subjective judgment so as to balance two competing rate of return on equity-related factors – the economic conditions facing the Company's customers and the Company's need to attract equity financing in order to continue providing safe and reliable service.

The Supreme Court in Cooper V affirmed the 2013 DEC Rate Order, in which this framework was fully articulated. But to the framework we can add additional factors based upon the Supreme Court's decisions in Cooper III, Cooper IV, and Cooper V. Specifically, the Supreme Court held that nothing in Cooper I requires the Commission to "quantify"

the influence of changing economic conditions upon customers (see, e.g., Cooper V, 367 N.C. at 745-46; Cooper IV, 367 N.C. at 650; Cooper III, 367 N.C. at 450), and, indeed, the Supreme Court reiterated that setting the rate of return on equity is a function of the Commission's subjective judgment: "Given th[e] subjectivity ordinarily inherent in the determination of a proper rate of return on common equity, there are inevitably pertinent factors which are properly taken into account but which cannot be quantified with the kind of specificity here demanded by [the appellant]." Cooper III, 367 N.C. at 450, quoting State ex rel. Utils. Comm'n v. Pub. Staff-North Carolina Utils. Comm'n, 323 N.C. 481, 490 (1988).

Finally, the Supreme Court discussed with approval the Commission's reference to and reliance upon expert witness testimony that used econometric models that the Commission had noted "inherently" contained the effects of changing economic circumstances upon customers, and also discussed with approval the Commission's reference to and reliance upon expert witness testimony correlating the North Carolina economy with the national economy. See, e.g., Cooper V, 367 N.C. at 747; Cooper III, 367 N.C. at 451.

It is against this backdrop of overarching principles that the Commission turns to the evidence presented in this case.

B. Application of the Governing Principles to the Rate of Return Decision

1. Evidence from Expert Witnesses on Cost of Equity Capital

Company witness D'Ascendis recommended in his direct testimony a rate of return on equity of 10.90%. This 10.90% was based upon his indicated cost of common equity of 10.60%, a recommended size adjustment of 0.20% and a recommended flotation adjustment of 0.11%. He rounded down his cost of common equity with these adjustments to 10.90%. In his rebuttal testimony, witness D'Ascendis eliminated his adjustment for flotation costs and amended his recommended cost of equity to 10.80% for Aqua NC.

Witness D'Ascendis' recommendation was based upon his Discounted Cash Flow (DCF) model, his Risk Premium Model (RPM), and his Capital Asset Pricing Model (CAPM), applied to market data of a proxy group of eight publicly-traded water companies (Utility Proxy Group). He also applied the DCF, RPM, and CAPM to a proxy group of domestic, non-price regulated companies (Non-Price Regulated Proxy Group) which he described as comparable in total risk to the his Utility Proxy Group.

The results derived from witness. D'Ascendis' analyses in his direct testimony are as follows:

Summary of D'Ascendis' Common Equity Cost Rate Analyses

Utility Proxy Group	
Discounted Cash Flow Model	8.95%
Risk Premium Model	11.07
Capital Asset Pricing Model	10.39
Cost of Equity Models Applied to Non-Price Regulated Proxy Group	11.57
Indicated Common Equity Cost Rate Before Adjustments	10.60%
Size Adjustment	0.20
Flotation Cost Adjustment	0.11
Indicated Common Equity Cost Rate Cost Rate After Adjustments	10.91%
Recommended Common Equity Cost Rate After Adjustments	10.90%

Witness D'Ascendis concluded that a common equity cost rate of 10.60% for Aqua NC is indicated before any Company-specific adjustments. He then adjusted upward by 0.20% to reflect Aqua NC's smaller relative size as compared with the members of his Utility Proxy Group, resulting in a size-adjusted indicated common equity cost rate of 10.80%. As noted above, he also adjusted upward the indicated common equity cost rate by an additional 0.11% to reflect flotation costs in his direct testimony, but eliminated the 0.11% flotation cost adjustment in his rebuttal testimony.

Witness D'Ascendis testified he used the single-stage constant growth DCF model. He testified his unadjusted dividend yields are based on the proxy companies' dividends as of January 12, 2018, divided by the average of closing market prices for the 60 trading days ending January 12, 2018.[53] He made an adjustment to the dividend yield because dividends are paid periodically, usually quarterly.

For witness D'Ascendis' DCF growth rate, he testified he used only analysts' five-year forecasts of earning per share (EPS) growth. He testified the mean result of his application of the single-stage DCF model is 9.09%, the median result is 8.81%, and the average of the two is 8.95% for his Utility Proxy Group.

Aqua NC witness D'Ascendis used two risk premium methods. He testified his first method is the Predictive Risk Premium Model (PRPM), while the second method is a RPM using a total market approach. He testified that the inputs to his PRPM are the historical returns on the common shares of each company in the Utility Proxy Group minus the historical monthly yield on long-term U.S. Treasury securities through December 2017. He testified he added the forecasted 30-year U.S. Treasury Bond yield, 3.54% to each company's PRPM-derived equity risk premium to arrive at an indicated cost of

[53] See Schedule DWD-3, page 1, column 1.

common equity. He testified the mean PRPM indicated common equity cost rate for the Utility Proxy Group is 12.36%, the median is 12.09%, and the average of the two is 12.23%.

Witness D'Ascendis testified his total market approach RPM adds a prospective public utility bond yield to an average of (1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, and (2) an equity risk premium based on the S&P Utilities Index. He calculated his adjusted prospective bond yield for the Utility Proxy Group to be 4.84%, and the average equity risk premium to be 5.06% resulting in risk premium derived common equity to be 9.90% for his RPM using his total market approach.

To determine the results of his risk premium method, he testified that he averaged the PRPM result of 12.23% and the RPM results of 9.90% and the indicated cost of equity from his risk premium method was 11.07%.

For his CAPM, witness D'Ascendis testified he applied both the traditional CAPM and the empirical CAPM (ECAPM) to the companies in his Utility Proxy Group and averaged the results. For his CAPM beta coefficient, he considered two methods of calculation: the average of the Beta coefficients of the Utility Proxy Group companies reported by Bloomberg Professional Services, and the average of the Beta coefficients of the Utility Proxy Group companies as reported by Value Line resulting in a mean beta of .78 and a median beta of .74.

Witness D'Ascendis testified that the risk-free rate adopted for both applications of the CAPM is 3.54%. This risk-free rate of 3.54% is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the second calendar quarter of 2019, and long-term projections for the years 2019 to 2023 and 2024 to 2028.

Witness D'Ascendis stated that he used three sources of data to determine the risk premium in his CAPM: historical, Value Line, and Bloomberg, that when averaged, result in an average total market equity risk premium of 8.69%. He testified that the mean result of his CAPM/ECAPM analyses is 10.53%, the median is 10.25%, and the average of the two is 10.39%.

Witness D'Ascendis also selected 11 domestic non-price regulated companies for his Non-Price Regulated Proxy Group that he believes are comparable in total risk to his Utility Proxy Group. He calculated common equity cost rates using the DCF, RPM, and CAPM for the Non-Price Regulated Proxy Group. His DCF result was 13.37%, his RPM cost rate was 11.28%, and his CAPM/ECAPM cost rate was 10.91%.

Witness D'Ascendis also made a 0.20% equity cost rate adjustment due to Aqua NC's small size relative to the Utility Proxy Group. He testified that the Company has greater relative risk than the average company in the Utility Proxy Group because of its smaller size compared with the group, as measured by an estimated market

capitalization of common equity for Aqua NC (whose common stock is not publicly-traded).

Public Staff witness Hinton recommended a common equity cost rate of 9.20%. Public Staff witness Hinton testified that, according to Moody's Bond Survey, yields on long-term "A" rated public utility bonds as of July 2018 were 4.27% as compared to 4.63% for January, 2014 which is the time of filing of the Public Staff and Company Stipulation in the last Aqua NC rate case (Sub 363) that included a 9.75% cost of equity. He further testified that the relative decrease in long-term bond yields since the last rate case is not indicative of an increase in financing costs for utilities; rather, it portends a lowering of financing costs for long-term capital. However, he testified that there has been an increase in the cost of short-term financing.

Witness Hinton stated that the current lower interest rates and stable inflationary environment of today indicate that borrowers are paying less for the time value of money. He testified that this is significant since utility stocks and utility capital costs are highly interest rate-sensitive relative to most industries. Furthermore, given that investors often view purchases of the common stocks of utilities as substitutes for fixed income investments, the reductions in interest rates observed over the past 10 years or more has paralleled the decreases in investor required rates of return on common equity.

Witness Hinton testified that he generally does not rely on interest rate forecasts. Rather, he believes that relying on current interest rates, especially in relation to yields on long-term bonds, is more appropriate for ratemaking in that, it is reasonable to expect that as investors are pricing bonds, they are based on expectations on future interest rates, inflation rates, etc. He testified that while he has a healthy respect for forecasting, he is aware of the risk of relying on predictions of rising interest rate cases. He presented a case that can be observed in the testimony of Company witness Ahern in the 2013 Aqua NC rate case. In that case, witness Ahern identified several point forecasts of 30-year Treasury Bond yields that were predicted to rise to 4.3% in 2015, 4.7% in 2016, and 5.2% in 2017. He presented a graph of 30-Year US Treasury Bonds yields which showed in 2016 the range was approximately 2.50% to 3.10%, and in 2017 the range was approximately 2.25% to 3.10%. Tr. 6, p. 175.

Witness Hinton testified he used the DCF model and the RPM to determine the cost of equity for the Company. He testified that the DCF model is a method of evaluating the expected cash flows from an investment by giving appropriate consideration to the time value of money. The DCF model is based on the theory that the price of the investment will equal the discounted cash flows of return. The return to an equity investor comes in the form of expected future dividends and price appreciation. He testified that as the new price will again be the sum of the discounted cash flows, price appreciation is ignored and attention focused on the expected stream of dividends.

Witness Hinton testified that he applied the DCF method to Aqua America and to a comparable group of water utilities followed by the Value Line Investment Survey (Value Line). He testified that the standard edition of Value Line covers nine water

companies. He excluded Connecticut Water Service, Inc. and the SJW Group because of a merger of the two companies and also excluded Consolidated Water Co. because of its significant overseas operations.

Witness Hinton calculated the dividend yield component of the DCF by using the Value Line estimate of dividends to be declared over the next 12 months divided by the price of the stock as reported in the Value Line Summary and Index sections for each week of the 13-week period May 25, 2018 through August 17, 2018. He testified that a 13-week averaging period tends to smooth out short-term variations in the stock prices. This process resulted in an average dividend yield of 2.1% for his proxy group of water utilities.

To calculate the expected growth rate component of the DCF, Public Staff witness Hinton employed the growth rates of his proxy group in EPS, dividends per share (DPS), and book value per share (BVPS) as reported in Value Line over the past 10 and five years. He also employed the forecasts of the growth rates of his proxy group in EPS, DPS, and BVPS as reported in Value Line. He testified that the historical and forecast growth rates are prepared by analysts of an independent advisory service that is widely available to investors, and should also provide an estimate of investor expectations. He testified that he included both historical known growth rates and forecast growth rates, because it is reasonable to expect that investors consider both sets of data in deriving their expectations.

Witness Hinton incorporated the consensus of various analysts' forecasts of five-year EPS growth rate projections as reported in Yahoo Finance. He testified that the dividend yields and growth rates for each of the companies and for the average for his comparable proxy group are shown in Exhibit JRH-3.

Witness Hinton concluded based upon his DCF analysis that a reasonable expected dividend yield is 2.1% with an expected growth rate of 6.1% to 7.1%. Thus, he testified that his DCF analysis produces a cost of common equity for his comparable proxy group of water utilities of 8.20% to 9.20%.

Witness Hinton testified that the equity risk premium method can be defined as the difference between the expected return on a common stock and the expected return on a debt security. The differential between the two rates of return are indicative of the return investors require in order to compensate them for the additional risk involved with an investment in the Company's common stock over an investment in the Company's bonds that involves less risk.

Witness Hinton testified that his method relies on approved returns on common equity for water utility companies from various public utility commissions as reported in a RRA Water Advisory, published by the Regulatory Research Associates, Inc. (RRA), a group within S&P Global Market Intelligence (RRA Water Advisory). In order to estimate the relationship with a representative cost of debt capital, he regressed the average annual allowed equity returns with the average Moody's A-rated yields for Public Utility

bonds from 2006 through 2018. His regression analysis, which incorporates years of historical data, is combined with recent monthly yields to provide an estimate of the current cost of common equity.

Witness Hinton testified that the use of allowed returns as the basis for the expected equity return has two strengths over other approaches that involve various models that estimate the expected equity return on common stocks and subtracting a representative cost of debt. He stated that one strength of his approach is that authorized returns on equity are generally arrived at through lengthy investigations by various parties with opposing views on the rate of return required by investors. He testified that it is reasonable to conclude that the approved allowed returns are good estimates of the cost of equity.

Witness Hinton testified that the summary data of risk premiums shown on his Exhibit JRH-4, page 1 of 2, indicates that the average risk premium is 4.95% with a maximum premium of 5.78% and minimum premium of 3.73%, which when combined with the last six months of Moody's A-rated utility bond yields produces yields with an average cost of equity of 9.11%, a maximum cost of equity of 9.94%, and a minimum cost of equity of 7.89%. He performed a statistical regression analysis as shown on Exhibit JRH-4, page 2 of 2 in order to quantify the relationship of allowed equity returns and bond costs. He testified that by applying the allowed returns to the current utility bond cost of 4.16%, resulted in a risk premium of 5.53%, and a cost of equity of current estimate of the equity risk premium of equity of 9.69%.

Witness Hinton concluded that based on all of the results of his DCF model that indicate a cost of equity from 8.20% to 9.20% with a central point estimate of 8.70%, and the risk premium model that indicates a cost of equity of 9.69%, he determined that the investor required rate of return on equity for Aqua NC is between 8.70% and 9.69%. He concluded that 9.20% is his single best estimate of the Company's cost of common equity.

Witness Hinton testified as to the reasonableness of his recommended return, that he considered the pre-tax interest coverage ratio produced by his cost estimates for the cost of equity. He testified that based on his recommended capital structure, cost of debt, and equity return of 9.20%, the pre-tax interest coverage ratio is approximately 3.7 times. He testified that this tax interest coverage should allow Aqua NC to qualify for a single "A" bond rating.

Witness Hinton testified that his recommended return on common equity takes into consideration the impact of the water and sewer system improvement charges pursuant to N.C.G.S. § 62-113.12 on the Company's financial risk. He testified that these improvement charges are seen by debt and equity investors as supportive regulation that mitigates business risk. Witness Hinton stated that he believes that this mechanism is noteworthy and is supportive of his 9.20% return on equity recommendation.

Witness Hinton testified that it is not appropriate to add a risk premium to the cost of equity due to the size of the company. He testified that from a regulatory policy

perspective, ratepayers should not be required to pay higher rates because they are located in the franchise area of a utility of a size which is arbitrarily considered to be small. He further testified if such adjustments were routinely allowed, an incentive would exist for large existing utilities to form subsidiaries when merging or even to split-up into subsidiaries to obtain higher allowed returns. He further testified that Aqua NC operates in a franchise environment that insulates the Company from competition and it operates with procedures in place that allow for rate adjustments for eligible capital improvements, cost increases, and other unusual circumstances that impact its earnings.

Witness Hinton observed that Aqua NC is owned 100% by Aqua America. A potential investor cannot purchase Aqua NC stock. All Aqua NC paid in equity capital is infused by Aqua America. He testified that, as stated in the testimony of Aqua NC company witness D'Ascendis, Aqua America is the second largest investor owned water and wastewater utility in the United States with its shares traded on the New York Stock Exchange (NYSE) and had a $6.9 billion market capitalization at the January 12, 2018, market close as reported by Value Line. He testified that Aqua America's market capitalization of $6.9 billion is larger than the cumulative market capitalization of the next four largest investor owned water utilities. These four are American States Water Co. (NYSE), California Water Service Group (NYSE), SJW Group (NYSE), and Connecticut Water Service, Inc. (NASDAQ).

In his rebuttal testimony, Aqua NC witness D'Ascendis disagreed with witness Hinton that a 9.20% common equity rate is appropriate for Aqua NC and stated that the Public Staff's recommendation would not be sufficient to maintain the integrity of presently invested capital and permit the attraction of needed new capital at a reasonable cost in competition with other firms of comparable risk.

Witness D'Ascendis also disagreed with witness Hinton's exclusion of the CAPM and comparable earnings model (CEM), both of which witness Hinton used as a check on his DCF and RPM in a previous proceeding involving Aqua NC (Docket No. W-218, Sub 319). According to witness D'Ascendis, both the academic literature and the Commission support the use of multiple models in determining a return on common equity. Witness D'Ascendis then attempted to supplement what would have been witness Hinton's analysis with a CAPM and CEM, which indicated results of 11.02% and 12.23%, respectively.

Witness D'Ascendis objected to witness Hinton's DCF analysis and he also took issue with witness Hinton's use of historical growth rates in EPS, DPS and BVPS as well as his use of projected growth rates in DPS and BVPS. He asserted that it is appropriate to rely exclusively upon security analysts' forecasts of EPS growth rates in a DCF analysis for multiple reasons.

First, he believed that individual investors who could potentially invest in utility stocks generally have more limited informational resources than institutional investors and are therefore likely to place greater significance on the opinions and projections expressed by financial information services such as Value Line, Reuters, Zacks, and

Yahoo! Finance, which are all easily accessible and/or available on the Internet and through public libraries. Witness D'Ascendis testified that security analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as company's abilities to effectively manage the effects of a changing industry, economic or market environment. Second, over the long run, there can be no growth in DPS without growth in EPS. Security analysts' earnings expectations have a more significant, but not exclusive, influence upon market prices than dividend expectations, providing a better matching between investors' market price appreciation expectation and the growth component of the DCF model. Third, there is academic support for the superiority of analysts' forecasts of growth in EPS as the growth component in the DCF model. Witness D'Ascendis asserted that witness Hinton should have relied exclusively upon the Value Line and Yahoo! Finance EPS forecasts.

Witness D'Ascendis also disagreed with witness Hinton's application of his RPM because of his use of annual average authorized returns on equity for water companies instead of using individual cases and his use of current interest rates instead of projected interest rates. According to witness D'Ascendis, using current or historical measures, such as interest rates, are inappropriate for cost of capital and ratemaking purposes because they are both prospective in nature.

In addition, witness D'Ascendis disagreed with witness Hinton on risk due to size. Witness D'Ascendis emphasized that because it is the rate base of a specific regulated jurisdictional utility to which a regulatory allowed rate of return will be applied, it is the unique risk of that rate base which needs to be reflected in the allowed rate of return, including any additional risk due to small size. In addition, the corporate structure of the owners of that rate base is irrelevant as it is the use of the funds which gives rise to the investment risk, not the source of those funds. It matters not whether the rate base is held privately, by a municipality, by a large holding company, by a small holding company, by an equity investment fund, multiple shareholders or a single shareholder. Only the riskiness of the particular rate base is relevant. The size of any given jurisdictional rate base is not arbitrary, it is what it is, and it is imminently relevant relative to the size of any publicly traded utilities from whose market data a common equity cost rate recommendation is derived. Therefore, there is no incentive for "large existing utilities to form subsidiaries when merging or even to split-up into subsidiaries" because it is the risk of the regulated rate base which is relevant.

Witness D'Ascendis testified that witness Hinton's corrected cost of common equity analysis results in a common equity cost rate of 10.57% for witness Hinton's comparable group of water utilities before adjustment for Aqua NC's increased risk due to size relative to the proxy group.

On cross-examination, witness D'Ascendis testified he was aware that 99% of Aqua NC's customers were residential and that Aqua NC's systems were geographically diversified across North Carolina including Ashe County, the Hendersonville area, the Charlotte area, the Greensboro and the Winston-Salem areas, the Raleigh area, the Fayetteville area, and also the Atlantic Coast from New Hanover

County to Carteret County. He testified Aqua NC has approximately 100,000 customers in North Carolina and that there is not a regulated water company in North Carolina anywhere near Aqua NC's size.

Witness D'Ascendis testified that Public Staff D'Ascendis Cross-Examination Exhibit 1 showed at the market close on September 7, 2018, as listed in the Morningstar investment publication, Aqua America's market capitalization was at $6.65 billion, which was greater than the combined market capitalizations of the next four largest water companies. He further testified that SCANA Corporation (SCANA) had a market capitalization of $5.22 billion which is less than Aqua America's $6.65 billion, and that SCANA is the parent company and owner of 100% of the common stock of South Carolina Electric and Gas (SCE&G), and Public Service Company of North Carolina, Inc. (PSNC). He also testified an investor could not buy stock in the Company, and instead would buy the stock of Aqua America.

Witness D'Ascendis testified on cross-examination that Public Staff D'Ascendis Cross-Examination Exhibit 2 was his response to a Public Staff data request showing water and wastewater utility general rate cases in which he testified recommending a return on equity range or a specific return on equity. He testified in the United Utility Services Company general rate case in South Carolina with a decision in December 2013. In that case, he recommended a return on equity range of 10.45% to 11.45% which had a mid-point of 10.95%, and the Commission approved a 9.35% return on equity which was 160 basis points below his mid-point.

Witness D'Ascendis testified that in the Carolina Water Service, Inc. general rate case in South Carolina, with a decision on December 22, 2015, he recommended a return on equity range of 10.00% to 10.50% which had a mid-point of 10.25%, and the Commission approved a return on equity of 9.34% which was 91 basis points below his mid-point. He further testified in the Aqua Illinois, Inc. general rate case in Illinois with decision on March 2, 2018. In that case, he recommended a specific return on equity of 10.85%, and the Commission approved a return on equity of 9.60%, which was 125 basis points below his recommendation.

Witness D'Ascendis testified in the Middlesex Water Company general rate case in New Jersey with decision on March 6, 2018, and recommended a specific return on equity of 10.70%. The Commission approved a return on equity of 9.60%, which was 110 basis points below his recommendation. He testified that in the current Aqua Virginia, Inc. general rate case, Aqua Virginia recently agreed in a settlement to a 9.25% return on equity, which the Hearing Examiner accepted. Witness D'Ascendis recommended a specific return on equity of 10.60%, and the Hearing Examiner accepted 9.25% return on equity which was 135 basis points below his specific recommendation.

Witness D'Ascendis testified that most of the authorized returns on equity on Public Staff D'Ascendis Direct Cross-Examination Exhibit 2 were the result of settlements which the Commission approved. He testified there were only three general rate cases with litigated returns on equity: Columbia Water Company in Pennsylvania where in

January 2014, with the Commission approved return on equity of 9.75% being 160 basis points below his recommended specific return on equity of 11.35%; Emporium Water Company in Pennsylvania where the Commission in January 2015, approved a 10.00% return on equity, which was 105 basis points below his recommended specific return on equity of 11.05%; and Carolina Water Service, Inc. in South Carolina where on May 26, 2018, the Commission approved return on equity of 10.50% which was within his range of 10.45% to 10.95%. He testified that this South Carolina decision is the most recent litigated return on equity and he considered it the most relevant.

Witness D'Ascendis testified that Public Staff Direct Cross-Examination Exhibit 3 is a RRA Water Advisory, dated July 27, 2018, which lists water utility rate case decisions in the years 2014 through 2017, and through June 30, 2018. He testified that in 2018 through June 30, 2018, the average approved return on equity was 9.41%. He testified that the four 2018 California return on equity decisions have fully forecasted test years, full decoupling, and three year rate plans. He testified that these California decisions dated March 22, 2018, were all fully litigated. The approved returns on equity were: California America Water with 9.20% approved return on equity, California Water Service with 9.20% approved return on equity, Golden State Water Co. with 8.90% approved return on equity, and San Jose Water Co. with 8.90% approved return on equity. He testified that more relevant was the recent Duke Energy Carolinas case Docket No. E-7, Sub 1146 with a settlement that approved a 9.90% return on equity.

Witness D'Ascendis further testified in 2014 where the RRA Water Advisory reported 13 Commission decisions with approved returns on equity, none were 10.00% or above. He testified in 2015 where the RRA Water Advisory reported 11 Commission decisions with approved return on equites, only two were 10.00% or above, being Maryland American Water at 10.00% and Kona Water in Hawaii with 10.10% return on equity. He testified in 2016 where the RRA Water Advisory reported nine Commission decisions with approved returns on equity, only Hawaii Water Service at 10.10% return on equity, had an approved return on equity at 10.0% or above. He testified in 2017 where the RRA Water Advisory reported nine Commission decisions with approved returns on equity, only Utilities, Inc. of Florida with a formula approved return on equity of 10.40% and a 41.92% approved common equity capital structure, had an approved return on equity at 10.00% or above.

Witness D'Ascendis further testified on cross-examination that the four California water utilities with the litigated March 22, 2018, 8.90% and 9.20% return on equity decisions, and Middlesex Water with the March 24, 2018 decision, are companies included in his Utility Proxy Group, with Golden State Water being a subsidiary of American States Water.

2. Evidence of Impact of Changing Economic Conditions on Customers

As noted above, utility rates must be set within the constitutional constraints made clear by the United States Supreme Court in Bluefield and Hope. To fix rates that do not allow a utility to recover its costs, including the cost of equity capital, would be an

unconstitutional taking. In assessing the impact of changing economic conditions on customers in setting a return on equity, the Commission must nonetheless provide the public utility with the opportunity, by sound management, to (1) produce a fair profit for its shareholders, in view of current economic conditions, (2) maintain its facilities and service, and (3) compete in the marketplace for capital. State ex rel. Utils. Comm'n v. General Telephone Co. of the Southeast, 281 N.C. 318, 370, 189 S.E.2d 705 (1972). As the Supreme Court held in that case, these factors constitute "the test of a fair rate of return" in Bluefield and Hope. Id.

a. Discussion and Conclusions Regarding Evidence Introduced During the Evidentiary Hearing

In this case, all parties had the opportunity to present the Commission with evidence concerning changing economic conditions as they affect customers. The testimony of witnesses D'Ascendis and Hinton, which the Commission finds entitled to substantial weight, addresses changing economic conditions.

As to the impact of changing economic conditions on Aqua NC's customers, Public Staff witness Hinton testified he reviewed information on the economic conditions in the areas served by Aqua NC, specifically, the 2014, 2015, and 2016 data on total personal income from the Bureau of Economic Analysis (BEA) and the Development Tier Designations published by the North Carolina Department of Commerce for the counties in which Aqua NC's systems are located. The BEA data indicates that from 2014 to 2016, total personal income weighted by the number of water customers by county grew at a compound annual growth rate (CAGR) of 3.20%, which is slightly lower than the rate of 3.40% for the whole State.

Witness Hinton testified the North Carolina Department of Commerce annually ranks the State's 100 counties based on economic well-being and assigns each a Tier designation. The most distressed counties are rated a "1" and the most prosperous counties are rated a "3". The rankings examine several economic measures such as, household income, poverty rates, unemployment rates, population growth, and per capita property tax base. For 2017, the average Tier ranking that has been weighted by the number of water customers by county is 2.6. He testified that both these economic measures indicate that there has been improvement in the economic conditions for Aqua NC's service area relative to the 2013 rate case.

Aqua NC witness D'Ascendis testified on economic conditions in North Carolina that he reviewed. He testified he reviewed: unemployment rates from the United States, North Carolina, and the counties comprising Aqua NC's service territory; the growth in Gross National Product (GDP) in both the United States and North Carolina; median household income in the United States and in North Carolina; and national income and consumption trends.

He testified that the rate of unemployment has fallen substantially in North Carolina and the U.S. since late 2009 and early 2010, when the rates peaked at 10.00% and

11.30%, respectively. He testified that by December 2017, the unemployment rate had fallen to less than one-half of those peak levels: 4.10% nationally; and 4.50% in North Carolina.

He testified that he was also able to review (seasonally unadjusted) unemployment rates in the counties served by Aqua NC. At its peak, which occurred in late 2009 into early 2010, the unemployment rate in those counties reached 12.52% (52 basis points higher than the Statewide average); by December 2017 it had fallen to 4.48% (8 basis points higher than the Statewide average).

Witness D'Ascendis testified that for real Gross Domestic Product growth, there also has been a relatively strong correlation between North Carolina and the national economy (approximately 69%). Since the financial crisis, the national rate of growth at times (during portions of 2010 and 2012) outpaced North Carolina. He testified that since the third quarter of 2015, however, North Carolina has consistently exceeded the national growth rate.

Witness D'Ascendis testified as to median household income, the correlation between North Carolina and the U.S. is relatively strong (approximately 88% from 2005 through 2015). Since 2009 (that is, the years subsequent to the financial crisis), median household income in North Carolina has grown at a faster annual rate than the national median income (3.62% vs. 2.47%).

Witness D'Ascendis noted that in the Commission's Order on Remand in Docket No. E-22, Sub 479, the Commission observed that economic conditions in North Carolina were highly correlated with national conditions, such that they were reflected in the analyses used to determine the cost of common equity. He testified that those relationships still hold: Economic conditions in North Carolina continue to improve from the recession following the 2008/2009 financial crisis, and they continue to be strongly correlated to conditions in the U.S., generally. He testified unemployment, at both the State and county level, continues to fall and remains highly correlated with national rates of unemployment; real Gross Domestic Product recently has grown faster in North Carolina than the national rate of growth, although the two remain fairly well correlated; and median household income also has grown faster in North Carolina than the rest of the country, and remains strongly correlated with national levels.

b. Evidence Introduced During Public Hearings and Further Conclusions

The Commission's review also includes consideration of the evidence presented during the public hearings by public witnesses, almost all of whom presently are customers of Aqua NC. The hearings provided 28 witnesses the opportunity to be heard regarding their respective positions on Aqua NC's Application to increase rates. The Commission held four evening hearings throughout Aqua NC's service territory to receive public testimony. The testimony presented at the hearings illustrates the difficult economic conditions facing many North Carolina citizens. The Commission accepts as credible, probative, and entitled to substantial weight, the testimony of the public witnesses.

c. Commission's Decision Setting Rate of Return and Approving Rate Increase Takes Into Account and Ameliorates the Impact of Current Economic Conditions on Customers

As noted above, the Commission's duty under N.C.G.S. § 62-133 is to set rates as low as reasonably possible without impairing the Company's ability to raise the capital needed to provide reliable water and wastewater service and recover its cost of providing service. The Commission is especially mindful of this duty in light of the evidence in this case concerning the impact of current economic conditions on customers.

Chapter 62 of the North Carolina General Statutes in general, and N.C.G.S. § 62-133 in particular, set forth an elaborate formula the Commission must employ in establishing rates. The rate of return on cost of property element of the formula in N.C.G.S. § 62-133(b)(4) is a significant, but not independent one. Each element of the formula must be analyzed to determine the utility's cost of service and revenue requirement. The Commission must make many subjective decisions with respect to each element in the formula in establishing the rates it approves in a general rate case. The Commission must approve accounting and pro forma adjustments to comply with N.C.G.S. § 62-133(b)(3). The Commission must approve depreciation rates pursuant to N.C.G.S. § 62-133(b)(1). The decisions the Commission makes in each of these subjective areas have multiple and varied impacts on the Decisions it makes elsewhere in establishing rates, such as its decision on rate of return on equity.

Economic conditions existing during the test year, at the time of the public hearings, and at the date of this Commission Order affect not only the ability of Aqua NC's consumers to pay water and wastewater utility rates, but also the ability of Aqua NC to earn the authorized rate of return during the period rates will be in effect. Pursuant to N.C.G.S. § 62-133, rates in North Carolina are set based on a modified historic test period.[54] A component of cost of service as important as return on investment is test year revenues.[55] The higher the level of test year revenues the lower the need for a rate increase, all else remaining equal. Historically, and in this case, test year revenues are established through resort to regression analysis, using historic rates of revenue growth or decline to determine end of test year revenues.

When costs and expenses grow at a faster pace than revenues during the period when rates will be in effect, the utility will experience a decline in its realized rate of return on investment to a level below its authorized rate of return. Differences exist between the authorized return and the earned, or realized, return. Components of the cost of service must be paid from the rates the utility charges before the equity investors are paid their return on equity. Operating and administrative expenses must be paid, depreciation must be funded, taxes must be paid, and the utility must pay interest on the debt it incurs. To the extent revenues are insufficient to cover the entire cost of service, the shortfall

[54] N.C.G.S. § 62-133(c).

[55] N.C.G.S. § 62-133(b)(3).

reduces the return to the equity investor, last in line to be paid. When this occurs, the utility's realized, or earned, return is less than the authorized return.

This phenomenon, caused by incurrence of higher costs prior to the implementation of new rates to recover those higher costs, is commonly referred to as regulatory lag. Just as the Commission confronts constitutional and statutory restrictions in making discrete decrements to rate of return on equity to mitigate the impact of rates on consumers, it also confronts statutory constraints on its ability to adjust test year revenues to mitigate for regulatory lag. However, the WSIC and SSIC legislation N.C.G.S. § 62-133.12 and Commission Rules R7-39 and R10-26, have mitigated the regulatory lag for Aqua NC. The Commission, in its expert experience and judgment and based on evidence in the record, is aware of the effects of regulatory lag in the existing economic environment. However, just as the Commission is constrained to address difficult economic times on customers' ability to pay for service by establishing a lower rate of return on equity in isolation from the many subjective determinations that must be made in a general rate case, it likewise does not address the effect of regulatory lag on the Company by establishing a higher rate of return on equity. Instead, in setting the rate of return, the Commission considers both of these negative impacts in its ultimate decision fixing Aqua NC's rates. The Commission keeps all factors affected by current economic conditions in mind in the many subjective decisions it makes in establishing rates. In doing so in the case at hand, the Commission approved the 9.70% rate of return on equity in the context of weighing and balancing numerous factors and making many subjective decisions. When these decisions are viewed as a whole, including the decision to establish the rate of return on equity at 9.70%, the Commission's overall decision fixing rates in this general rate case results in lower rates to consumers in the existing economic environment.

Consumers pay rates, a charge in dollars per 1,000 gallons for the water they consume and a monthly flat rate for residential wastewater customers. Investors are compensated by earning a return on the capital they invest in the business. Consumers do not pay a rate of return on equity.

All of the scores of adjustments the Commission approves reduce the revenues to be recovered from ratepayers and the return to be paid to equity investors. Some adjustments reduce the authorized rate of return on investment financed by equity investors. The adjustments are made solely to reduce rates and provide rate stability to consumers (and return to equity investors) to recognize the difficulty for consumers to pay in the current economic environment. While the equity investor's cost was calculated by resort to a rate of return on equity of 9.70% instead of 10.80%, this is only one approved adjustment that reduced ratepayer responsibility and equity investor reward. Many other adjustments reduced the dollars the investors actually have the opportunity to receive. Therefore, nearly all of these other adjustments reduce ratepayer responsibility and equity investor returns in compliance with the Commission's responsibility to establish rates as low as reasonably permissible without transgressing constitutional constraints.

For example, to the extent the Commission makes downward adjustments to rate base, or disallows test year expenses, or increases test year revenues, or reduces the equity capital structure component, the Commission reduces the rates consumers pay during the future period when rates will be in effect. Because the utility's investors' compensation for the provision of service to consumers takes the form of return on investment, downward adjustments to rate base or disallowances of test year expenses or increases to test year revenues, or reduction in the equity capital structure component, reduce investors' return on investment irrespective of its determination of rate of return on equity.

The rate base, expenses, and revenue adjustments are instances where the Commission makes decisions in each general rate case, including the present case, that influence the Commission's determination on rate of return on equity and cost of service and the revenue requirement. The Commission always endeavors to comply with the North Carolina Supreme Court's requirements that it "fix rates as low as may be reasonably consistent" with U.S. Constitutional requirements irrespective of economic conditions in which ratepayers find themselves. While compliance with these requirements may have been implicit and, the Commission reasonably assumed, self-evident as shown above, the Commission makes them explicit in this case to comply with the Supreme Court requirements of Cooper I.

Based on the changing economic conditions and their effects on Aqua NC's customers, the Commission recognizes the financial difficulty that the increase in the Company's rates will create for some of Aqua NC's customers, especially low-income customers. As shown by the evidence, relatively small changes in the rate of return on equity have a substantial impact on a utility's base rates. Therefore, the Commission has carefully considered the changing economic conditions and their effects on Aqua NC's customers in reaching its decision regarding the Company's approved rate of return on equity. The Commission also recognizes that the Company is investing significant sums in system improvements to serve its customers, thus requiring the Company to maintain its creditworthiness in order to compete for large sums of capital on reasonable terms. The Commission must weigh the impact of changing economic conditions on Aqua NC's customers against the benefits that those customers derive from the Company's ability to provide safe, adequate, and reliable water and wastewater service. Safe, adequate, and reliable water and wastewater service is essential to the well-being of Aqua NC's customers.

The Commission finds and concludes that these investments by the Company provide significant benefits to Aqua NC's customers. The Commission concludes that the return on equity approved by the Commission in this proceeding appropriately balances the benefits received by Aqua NC's customers from Aqua NC's provision of safe, adequate, and reliable water and wastewater service with the difficulties that some of Aqua NC's customers will experience in paying Aqua NC's increased rates.

The Commission in every case seeks to comply with the North Carolina Supreme Court mandate that the Commission establish rates as low as possible within

constitutional limits. The adjustments the Commission approves in this case comply with that mandate. Nearly all of them reduced the requested return on equity and benefit consumers' ability to pay their bills in this economic environment.

d. Summary and Conclusions on the Rate of Return on Equity

The Commission has carefully evaluated the return on equity testimony of Aqua NC witness D'Ascendis and Public Staff witness Hinton. The results of each of the models or methods used by these two witnesses to derive the return on equity that each witness recommends is shown below:

	D'Ascendis	Hinton
Utility Proxy Group		
DCF	8.95%	8.70%
Risk Premium	11.07%	9.69%
CAPM	10.39%	------
Non-Price Regulated Proxy Group		
Using DCF, Risk Premium, and CAPM	11.57%	
Indicated Return on Equity Before Adjustment	10.60%	9.20%
Size Adjustment	0.20%	-------
Recommended Return on Equity	10.80%	9.20%

The range of these results is 8.70% to 11.57%. Further, underlying the low result of 8.70% is a range of 8.20% to 9.20%, according to witness Hinton's testimony concerning his application of the DCF. Similarly, underlying the high result of 11.57% is a range of 10.91% (CAPM) to 13.37% (DCF), according to witness D'Ascendis' testimony concerning the cost of equity models applied to his Non-Price Regulated Proxy Group. Such a wide range of estimates by expert witnesses is not atypical in proceedings before the Commission with respect to the return on equity issue. Neither is the seemingly endless debate and habitual differences in judgment among expert witnesses on the virtues of one model or method versus another and how to best determine and measure the required inputs of each model in representing the interest of their intervening party. Nonetheless, the Commission is uniquely situated, qualified and required to use its impartial judgment to determine the return on equity based on the testimony and evidence in this proceeding in accordance with the legal guidelines discussed above.

In so doing, the Commission finds and concludes that the testimony of Company witness D'Ascendis regarding the DCF and CAPM analyses of his Utility Proxy Group and the risk premium analysis testimony of Public Staff witness Hinton are credible, probative, and are entitled to substantial weight.

Company witness D'Ascendis, noting that Aqua NC is not publicly-traded, first established a group of eight relatively comparable risk water companies that are publicly-traded (Utility Proxy Group). He testified that use of the companies of relatively comparable risk companies as proxies is consistent with principles of fair rate of return established in the Hope and Bluefield cases, which are recognized as the primary standards for the establishment of a fair return for a regulated public utility. He then applied the DCF, the CAPM, and the risk premium models to the market data of the Utility Proxy Group. The average of his DCF result of 8.95% and CAPM result of 10.39% for his Utility Proxy Group is 9.67%. The Commission approved return on equity of 9.70% is thus supported by the 9.67% average of the results of witness D'Ascendis' application of the DCF and CAPM models.

Witness Hinton applied a risk premium analysis by performing a regression analysis using the allowed returns on common equity for water utilities from various public utility commissions, as reported in a RRA Water Advisory, with the average Moody's A-rated bond yields for public utility bonds from 2006 through 2018. The results of the regression analysis were combined with recent monthly yields to provide the current cost of equity. According to witness Hinton, the use of allowed returns as the basis for the expected equity return has strengths over other (risk premium) approaches that estimate the expected equity return on equity and subtract a representative cost of debt. He testified that one strength of his approach is that authorized returns on equity are generally arrived at through lengthy investigations by various parties with opposing views on the rate of return required by investors. Thus, it is reasonable to conclude that the approved returns are good estimates for the cost of equity. Witness Hinton testified that applying the significant statistical relationship of the allowed equity returns and bond yields from the regression analysis and adding current bond cost of 4.16% resulted in a current estimate of the cost of equity of 9.69%, which again, is supportive of the Commission's approved return on equity of 9.70%.

Witness Hinton also applied the DCF model to a proxy risk group of publicly traded water utilities. To determine the expected growth rate component in his application of the DCF, witness Hinton testified that the employed both historical and forecasted growth rates of earnings per share (EPS), book value per share (BVPS), and dividends per share (DPS). He concluded that an expected growth rate of 6.10% to 7.10% should be combined with a dividend yield of 2.10% which produced his cost of equity estimate of 8.20% to 9.20% for his comparable risk group based on his DCF analysis. Witness Hinton testified that it was reasonable to expect that investors consider both historic and forecast growth rates in deriving their expectations. In contrast, witness D'Ascendis relied exclusively on analysts' forecasts of EPS growth. In rebuttal, he also testified that there is a significant body of empirical evidence supporting the superiority of using analysts' EPS growth rates in a DCF analysis. Witness D'Ascendis also testified in rebuttal that it is unclear how much weight witness Hinton gave to each of his projected and historical growth rates in arriving at his high and low growth estimates for his proxy risk group, because witness Hinton's range of growth rates bears no logical relationship to the array of growth rates that witness Hinton evaluated. The Commission notes that the higher end

of witness Hinton's DCF estimate of 9.20%, based on a growth rate of 7.10% is actually close to witness D'Ascendis DCF estimate of 8.95% and deserving of some weight. However, given the conflicting evidence concerning whether the use of historic or forecasted growth rates is more appropriate, the lack of clarity as to how the growth rate range was determined, and all the evidence in the record in this proceeding, the Commission gives little weight to the lower end of witness Hinton's DCF result.

Witness D'Ascendis also used two risk premium methods to estimate the cost of equity to Aqua NC. He testified that his first method is the PRPM and the second method is a RPM using a total market approach. In his PRPM, he employed the Eviews© statistical software applied to the historical returns on the common shares of each company in his Utility Proxy Group minus the historical monthly yields on long-term U.S. Treasury securities through December 2017 to arrive at a predicted annual equity risk premium. He then added the forecasted 30-year U.S. Treasury security to each company's PRPM derived equity risk premium. Using this approach, he calculated a cost of equity estimate of 12.23%. In his total market approach RPM, he added a prospective public utility bond yield to an average of (1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, and (2) an equity risk premium based on the S&P Utilities Index. His RPM result produced a rate of return estimate of 9.90%. Averaging his PRPM result of 12.23% and his total market approach RPM, he determined that the cost of equity is 11.07% using his risk premium methods.

The Commission gives little weight to the risk premium testimony and result of 11.07% of witness D'Ascendis. The PRPM result of 12.23% is unreasonably high. Further, the Commission is skeptical that investor expectations are influenced by a method analyzing economic time series with time-varying volatility using the statistical software employed by witness D'Ascendis. However, the Commission does note that the total market approach RPM result of 9.90% derived by witness D'Ascendis is somewhat supportive of the Commission approved return on equity of 9.70%.

In addition to estimating the cost of equity for his Utility Proxy Group of publicly-traded water utilities, witness D'Ascendis attempted to estimate the cost of equity for another proxy group consisting of 11 domestic, non-price regulated companies. In order to select a proxy group of domestic, non-price regulated companies similar in risk to the Utility Proxy Group, he testified that he relied on the beta coefficients and related statistics derived from Value Line regression analyses of weekly market prices over the last five years. After selecting the 11 unregulated companies, he applied the DCF, RPM, and CAPM in the identical manner used for his Utility Proxy Group, with certain limited expectations. The results of the DCF, RPM, and CAPM applied to the non-price regulated proxy group are 13.37%, 11.28%, and 10.91%, respectively. The Commission concludes that these results are unreasonably high. Each of these results are higher than witness D'Ascendis' estimates of the cost of equity for his own Utility Proxy Group and deserve no weight, particularly with respect to the DCF. The Commission further concludes that given the difference in these results, the risk of the two groups is not equal and the Utility Proxy Group is more reliable as a proxy for the investment risk of common equity in Aqua NC.

After determining that the indicated cost of equity from the DCF, CAPM, and risk premium methods applied to both of his proxy groups equals 10.60%, witness D'Ascendis then adjusted the indicated cost of equity upward by 0.20% to reflect Aqua NC's smaller size compared to companies in his Utility Proxy Group. He testified that the size of the company is a significant element of business risk for which investors expect to be compensated through higher returns. Witness D'Ascendis calculated his size adjustment as described in his prefiled direct testimony and stated that even though a 2.89% upward size adjustment is indicated, he applies a 0.20% size premium to Aqua NC's indicated common equity cost rate. Witness Hinton testified that he does not believe it is appropriate to add a risk premium to the cost of equity of Aqua NC due to size for several reasons. First, from a regulatory policy perspective, witness Hinton stated that ratepayers should not be required to pay higher rates because they are located in the franchise area of a utility which is arbitrarily considered to be small. Further, if such adjustments were routinely allowed, an incentive would exist for large utilities to form subsidiaries or split-up subsidiaries to obtain higher returns. In addition, he noted that Aqua NC operates in a franchise environment that insulates the Company from competition with procedures in place for rate adjustments for circumstances that impact its earnings. He noted that Aqua NC is also owned by Aqua America, Inc., the second largest publicly-traded water utility in the United States. Finally, while witness Hinton stated that while there are studies that address how the small size of a company relates to higher returns, he is aware of only one study that focuses on the size of regulated utilities and risk and that study concluded that utility stocks do not exhibit a significant size premium. In rebuttal, witness D'Ascendis maintained that a small size adjustment was necessary based on the results of studies he cited and discussed and contended that the study concerning size premiums for utilities discussed by witness Hinton was flawed. He also testified that the fact that Aqua NC is a subsidiary of Aqua America, Inc. is irrelevant for ratemaking purposes because it is the rate base of Aqua NC to which the overall rate of return set in this proceeding will be applied which is consistent with the stand-alone nature of ratemaking.

Based upon the evidence in the record in this proceeding, the Commission concludes that a size adjustment of 0.20% is not warranted and should not be approved. It is not irrelevant that Aqua NC is a subsidiary of Aqua America. The Commission determines there is insufficient evidence to authorize an adjustment to the approved rate of return on equity in this case. The record simply does not indicate the extent to which Aqua NC's size alone justifies added risk. While a small water/wastewater utility might face greater risk than a publicly traded peer group, because for example the service area was confined to a hurricane prone coastal geographic area, evidence of such factual predicates is absent from the record. The Commission notes that the witnesses also disagreed with respect to whether the studies discussed in the testimony concerning size and risk are reliable or even applicable to regulated utilities. The Commission concludes that the testimony regarding these studies is not convincing and does not support a size adjustment. In addition, while witness D'Ascendis calculates and testifies that a 2.89% upward size adjustment is indicated, he applies a size premium of 0.20% to Aqua NC's indicated cost of equity. The Commission thus concludes that the 0.20% adjustment is not supported by his testimony and is rather arbitrary.

Having determined that the appropriate rate of return on equity based upon the evidence in this proceeding is 9.70%, the Commission notes that there was considerable discussion during the hearing concerning the authorized returns on equity for water utilities in other jurisdictions. While the Commission has relied upon the record in this proceeding and is certainly aware that returns in other jurisdictions can be influenced by many factors, such as different capital market conditions during different periods of time, settlements versus full litigation, the Commission concludes that the rate of return on equity trends and decisions by other regulatory authorities deserve some weight as (1) they provide a check or additional perspective on the case-specific circumstances, and (2) the Company must compete with other regulated utilities in the capital markets, meaning that a rate of return significantly lower than that approved for other utilities of comparable risk would undermine the Company's ability to raise necessary capital, while a rate of return significantly higher than other utilities of comparable risk would result in customers paying more than necessary. Public Staff D'Ascendis Cross-Examination Exhibit 3, the RRA Water Advisory publication showing approved return on equity decisions for water utilities across the country from January 2014 through June 30, 2018, is helpful. According to this exhibit, the average rate of return on equity for water utilities is 9.59% in 2014, 9.76% in 2015, 9.71% in 2016, 9.56% in 2017, and in the only seven cases reported on for the first six months of 2018 the average is 9.41% with a range of 8.9% to 10.5%. This authorized return data is generally supportive of the Commission approved return on equity of 9.70% based upon the evidence in this proceeding. To the extent it is not, the record evidence justifies any such difference.

In its post-hearing brief, the AGO notes that the 10.80% rate of return on equity requested by Aqua NC is substantially higher than the 9.75% return on equity stipulated to accept in its last general rate case in Docket No. W-218, Sub 363. In this case, the AGO, in its role as consumer advocate, argues that the DCF model is relied upon by investors using widely available current market data and the DCF results produced by expert witnesses for Aqua NC and the Public Staff show that a 9.2% return on equity is more than sufficient to attract the investment dollars needed for adequate service. However, unlike the AGO, the Commission cannot ignore the other evidence in this proceeding. When other such evidence is considered and weighed by the Commission as discussed hereinabove, the Commission finds and concludes that the reasonable and appropriate return on equity is 9.70%.

The Commission notes further that its approval of a rate of return on equity at the level of 9.70% or for that matter at any level, is not a guarantee to the Company that it will earn a rate of return on equity at that level. Rather, as North Carolina law requires, setting the rate of return on equity at this level merely affords Aqua NC the opportunity to achieve such a return. The Commission finds and concludes, based upon all the evidence presented, that the rate of return on equity provided for herein will indeed afford the Company the opportunity to earn a reasonable and sufficient return for its shareholders while at the same time producing rates that are just and reasonable to its customers.

Capital Structure

Aqua NC witness D'Ascendis recommended the use of a ratemaking capital structure consisting of 50.00% long-term debt and 50.00% common equity. He testified this capital structure is based on a test year capital structure for Aqua NC, ending September 30, 2017. He testified that a capital structure consisting of 50.00% long-term debt and 50.00% total equity is appropriate for ratemaking purposes for Aqua NC in the current proceeding because it is comparable, but conservative, to the average capital structure ratios (based on total permanent capital) maintained by the water companies in his Utility Proxy Group on whose market data he based his recommended common equity cost rate.

Public Staff witness Hinton also testified in recommending a 50.00% long-term debt and 50.00% common equity capital structure. The Stipulation also supports a 50.00% long-term debt, 50.00% common equity capital structure. No other party presented evidence as to a different capital structure.

Accordingly, the Commission finds and concludes that the recommended capital structure of 50.00% common equity and 50.00% long-term debt is just and reasonable to all parties in light of all the evidence presented.

Cost of Debt

In its Application, the Company proposed a long-term debt cost of 4.76%. The Stipulation provides for a 4.63% cost of debt. The Commission finds for the reasons set forth herein that a 4.63% cost of debt is just and reasonable.

Public Staff witness Hinton, in his supplemental testimony, supported the embedded cost of Aqua NC's long-term debt on June 30, 2018, of 4.63%. The 4.63% debt cost of the Stipulation gives customers the benefit of reductions in Aqua NC's lower cost of debt after the end of the test year.

No intervenor offered any evidence supporting a debt cost below 4.63%. The Commission, therefore, finds and concludes that the use of a debt cost of 4.63% is just and reasonable to all parties based upon all the evidence presented.

EVIDENCE AND CONCLUSION FOR FINDINGS OF FACT NOS. 114-115

The following schedules summarize the gross revenues and rate of return that the Company should have a reasonable opportunity to achieve based on the increases and decreases in revenues approved in this Order for each rate entity. These schedules, illustrating the Company's gross revenue requirements, incorporate the adjustments found appropriate by the Commission in this Order.

SCHEDULE I

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Net Operating Income for a Return
For the Twelve Months Ended September 30, 2017
Combined Operations

	Present Rates	Increase Approved	After Approved
Operating Revenues:			
Service revenues	$55,496,957	$2,916,600	$58,413,557
Late payment fees	114,830	6,240	121,070
Miscellaneous revenues	1,355,499	0	1,355,499
Uncollectibles & abatements	(414,248)	(26,820)	(441,068)
Total operating revenues	56,553,038	2,896,020	59,449,058
Operating Revenue Deductions:			
Salaries & wages	10,242,720	0	10,242,720
Employee pensions & benefits	3,077,822	0	3,077,822
Purchased water/sewer treatment	2,316,616	0	2,316,616
Sludge removal	559,382	0	559,382
Purchased power	3,570,667	0	3,570,667
Fuel for power production	26,809	0	26,809
Chemicals	1,521,967	0	1,521,967
Materials & supplies	505,720	0	505,720
Testing fees	946,373	0	946,373
Transportation	919,149	0	919,149
Contractual services-engineering	2,750	0	2,750
Contractual services-accounting	188,101	0	188,101
Contractual services-legal	196,144	0	196,144
Contractual services-other	4,330,817	0	4,330,817
Rent	309,942	0	309,942
Insurance	650,674	0	650,674
Regulatory commission expense	201,666	0	201,666
Miscellaneous expense	1,477,705	0	1,477,705
Interest on customer deposits	32,388	0	32,388
Annualization & consumption adjustments	190,392	0	190,392
Total O&M and G&A expense	31,267,804	0	31,267,804
Depreciation & amortization expense	10,076,409	0	10,076,409
Property taxes	635,463	0	635,463
Payroll taxes	789,484	0	789,484
Other taxes	308,886	0	308,886
Section 338(h) adjustment	(20,024)	0	(20,024)
Regulatory fee	79,174	4,054	83,228
Deferred income tax	(120,648)	0	(120,648)
State income tax	272,043	84,891	356,934
Federal income tax	1,847,171	576,413	2,423,584
Total operating revenue deductions	45,135,762	665,358	45,801,120
Net operating income for return	$11,417,276	$2,230,662	$13,647,938

SCHEDULE II

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Original Cost Rate Base
For the Twelve Months Ended September 30, 2017
Combined Operations

Plant in Service	$492,295,394
Accumulated depreciation	(155,246,692)
Contributions in aid of construction	(196,384,493)
Accumulated amortization of CIAC	70,758,708
Acquisition adjustments	2,055,735
Accum. amort. of acquisition adjustments	1,040,444
Advances for construction	(4,467,841)
Net Plant in Service	210,051,255
Customer deposits	(379,445)
Unclaimed refunds & cost-free capital	(193,255)
Accumulated deferred income taxes	(24,849,085)
Materials and supplies inventory	2,405,967
Excess capacity adjustment	(1,322,276)
Working capital allowance	4,759,698
Original cost rate base	$190,472,859

Rates of return:	
Present	5.99%
Approved	7.17%

SCHEDULE III

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Statement of Capitalization and Related Costs
For the Twelve Months Ended September 30, 2017
Combined Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	50.00	$95,236,430	4.63	$4,409,447
Common Equity	50.00	95,236,429	7.36	7,007,829
Total	100.00	$190,472,859		$11,417,276
		APPROVED RATES		
Long-Term Debt	50.00	$95,236,430	4.63	$4,409,447
Common Equity	50.00	95,236,429	9.70	9,238,491
Total	100.00	$190,472,859		$13,647,938

SCHEDULE I-A

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Net Operating Income for a Return
For the Twelve Months Ended September 30, 2017
Aqua NC Water Operations

	Present Rates	Increase Approved	After Approved Increase
Operating Revenues:			
Service revenues	$34,566,184	$779,663	$35,345,847
Late payment fees	69,132	1,560	70,692
Miscellaneous revenues	766,595	0	766,595
Uncollectibles & abatements	(214,739)	(4,844)	(219,583)
Total operating revenues	35,187,172	776,379	35,963,551
Operating Revenue Deductions:			
Salaries & wages	6,880,614	0	6,880,614
Employee pensions & benefits	2,046,686	0	2,046,686
Purchased water	1,600,928	0	1,600,928
Purchased power	2,164,209	0	2,164,209
Fuel for power production	935	0	935
Chemicals	467,003	0	467,003
Materials & supplies	341,233	0	341,233
Testing fees	628,493	0	628,493
Transportation	618,442	0	618,442
Contractual services-accounting	117,906	0	117,906
Contractual services-legal	122,841	0	122,841
Contractual services-other	1,917,590	0	1,917,590
Rent	208,095	0	208,095
Insurance	435,950	0	435,950
Regulatory commission expense	126,828	0	126,828
Miscellaneous expense	931,131	0	931,131
Interest on customer deposits	25,111	0	25,111
Annualization & consumption adjustments	29,398	0	29,398
Total O&M and G&A expense	18,663,393	0	18,663,393
Depreciation & amortization expense	6,303,842	0	6,303,842
Property taxes	492,594	0	492,594
Payroll taxes	496,537	0	496,537
Other taxes	193,611	0	193,611
Section 338(h) adjustment	(10,817)	0	(10,817)
Regulatory fee	49,262	1,087	50,349
Deferred income tax	(77,166)	0	(77,166)
State income tax	190,625	23,259	213,884
Federal income tax	1,294,345	157,927	1,452,272
Total operating revenue deductions	27,596,226	182,273	27,778,499
Net operating income for return	$7,590,946	$594,106	$8,185,052

SCHEDULE II-A

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Original Cost Rate Base
For the Twelve Months Ended September 30, 2017
Aqua NC Water Operations

Plant in Service	$274,648,584
Accumulated depreciation	(93,391,113)
Contributions in aid of construction	(93,199,142)
Accumulated amortization of CIAC	33,674,909
Acquisition adjustments	6,089,670
Accum. amort. of acquisition adjustments	(1,871,736)
Advances for construction	(1,246,720)
Net Plant in Service	124,704,452
Customer deposits	(295,674)
Unclaimed refunds & cost-free capital	(46,582)
Accumulated deferred income taxes	(15,129,055)
Materials and supplies inventory	2,038,514
Excess capacity adjustment	0
Working capital allowance	2,964,922
Original cost rate base	$114,236,577
Rates of return:	
Present	6.65%
Approved	7.17%

SCHEDULE III-A

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Statement of Capitalization and Related Costs
For the Twelve Months Ended September 30, 2017
Aqua NC Water Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	50.00	$57,118,288	4.63	$2,644,577
Common Equity	50.00	57,118,289	8.66	4,946,369
Total	100.00	$114,236,577		$7,590,946
		APPROVED RATES		
Long-Term Debt	50.00	$57,118,288	4.63	$2,644,577
Common Equity	50.00	57,118,289	9.70	5,540,475
Total	100.00	$114,236,577		$8,185,052

SCHEDULE I-B

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Net Operating Income for a Return
For the Twelve Months Ended September 30, 2017
Aqua NC Sewer Operations

	Present Rates	Increase Approved	After Approved
Operating Revenues:			
Service revenues	$13,459,559	$870,679	$14,330,238
Late payment fees	21,535	1,393	22,928
Miscellaneous revenues	123,377	0	123,377
Uncollectibles & abatements	(55,272)	(3,576)	(58,848)
Total operating revenues	13,549,199	868,496	14,417,695
Operating Revenue Deductions:			
Salaries & wages	2,329,549	0	2,329,549
Employee pensions & benefits	696,294	0	696,294
Purchased sewer treatment	440,871	0	440,871
Sludge removal	470,173	0	470,173
Purchased power	1,043,919	0	1,043,919
Fuel for power production	23,053	0	23,053
Chemicals	589,467	0	589,467
Materials & supplies	116,995	0	116,995
Testing fees	251,311	0	251,311
Transportation	212,266	0	212,266
Contractual services-accounting	29,299	0	29,299
Contractual services-legal	30,364	0	30,364
Contractual services-other	1,452,170	0	1,452,170
Rent	52,743	0	52,743
Insurance	149,653	0	149,653
Advertising	555	0	555
Regulatory commission expense	31,702	0	31,702
Miscellaneous expense	316,345	0	316,345
Interest on customer deposits	1,007	0	1,007
Annualization & consumption adjustments	98,887	0	98,887
Total O&M and G&A expense	8,336,623	0	8,336,623
Depreciation & amortization expense	2,191,677	0	2,191,677
Property taxes	23,018	0	23,018
Payroll taxes	124,107	0	124,107
Other taxes	48,126	0	48,126
Section 338(h) adjustment	(5,914)	0	(5,914)
Regulatory fee	18,969	1,216	20,185
Deferred income tax	(30,751)	0	(30,751)
State income tax	54,490	26,018	80,508
Federal income tax	369,987	176,665	546,652
Total operating revenue deductions	11,130,332	203,899	11,334,231
Net operating income for return	$2,418,867	$664,597	$3,083,464

SCHEDULE II-B

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Original Cost Rate Base
For the Twelve Months Ended September 30, 2017
Aqua NC Sewer Operations

Plant in Service	$150,401,694
Accumulated depreciation	(43,120,425)
Contributions in aid of construction	(80,683,472)
Accumulated amortization of CIAC	28,072,101
Acquisition adjustments	(4,002,509)
Accum. amort. of acquisition adjustments	2,882,669
Advances for construction	(3,388,691)
Net Plant in Service	50,161,367
Customer deposits	(11,194)
Unclaimed refunds & cost-free capital	(6,342)
Accumulated deferred income taxes	(7,148,914)
Materials and supplies inventory	265,709
Excess capacity adjustment	(1,322,276)
Working capital allowance	1,096,717
Original cost rate base	$43,035,067
Rates of return:	
Present	5.62%
Approved	7.17%

SCHEDULE III-B

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Statement of Capitalization and Related Costs
For the Twelve Months Ended September 30, 2017
Aqua NC Sewer Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	50.00	$21,517,533	4.63	$996,262
Common Equity	50.00	21,517,534	6.61	1,422,604
Total	100.00	$43,035,067		$2,418,867
		APPROVED RATES		
Long-Term Debt	50.00	$21,517,533	4.63	$996,262
Common Equity	50.00	21,517,534	9.70	2,087,202
Total	100.00	$43,035,067		$3,083,464

SCHEDULE I-C

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Net Operating Income for a Return
For the Twelve Months Ended September 30, 2017
Fairways Water Operations

	Present Rates	Decrease Approved	After Approved Decrease
Operating Revenues:			
Service revenues	$1,084,684	($7,461)	$1,077,223
Late payment fees	2,386	(16)	2,370
Miscellaneous revenues	92,938	0	92,938
Uncollectibles & abatements	(5,218)	36	(5,182)
Total operating revenues	1,174,790	(7,441)	1,167,349
Operating Revenue Deductions:			
Salaries & wages	198,653	0	198,653
Employee pensions & benefits	59,291	0	59,291
Purchased water	0	0	0
Purchased power	59,453	0	59,453
Fuel for power production	1,474	0	1,474
Chemicals	20,977	0	20,977
Materials & supplies	5,133	0	5,133
Testing fees	10,165	0	10,165
Transportation	15,976	0	15,976
Contractual services-accounting	8,207	0	8,207
Contractual services-legal	8,473	0	8,473
Contractual services-other	145,938	0	145,938
Rent	13,923	0	13,923
Insurance	13,015	0	13,015
Regulatory commission expense	9,014	0	9,014
Miscellaneous expense	45,467	0	45,467
Interest on customer deposits	642	0	642
Annualization & consumption adjustments	11,993	0	11,993
Total O&M and G&A expense	627,794	0	627,794
Depreciation & amortization expense	179,796	0	179,796
Property taxes	28,236	0	28,236
Payroll taxes	35,301	0	35,301
Other taxes	13,482	0	13,482
Section 338(h) adjustment	0	0	0
Regulatory fee	1,645	(11)	1,634
Deferred income tax	(1,384)	0	(1,384)
State income tax	6,383	(223)	6,160
Federal income tax	43,341	(1,513)	41,828
Total operating revenue deductions	934,594	(1,747)	932,847
Net operating income for return	$240,196	($5,694)	$234,502

SCHEDULE II-C

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Original Cost Rate Base
For the Twelve Months Ended September 30, 2017
Fairways Water Operations

Plant in Service	$12,051,221
Accumulated depreciation	(3,301,424)
Contributions in aid of construction	(7,430,398)
Accumulated amortization of CIAC	2,071,911
Acquisition adjustments	0
Accum. amort. of acquisition adjustments	0
Advances for construction	60,570
Net Plant in Service	3,451,880
Customer deposits	(7,436)
Unclaimed refunds & cost-free capital	(7,339)
Accumulated deferred income taxes	(289,485)
Materials and supplies inventory	0
Excess capacity adjustment	0
Working capital allowance	125,273
Original cost rate base	$3,272,893

Rates of return:	
Present	7.34%
Approved	7.17%

SCHEDULE III-C

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Statement of Capitalization and Related Costs
For the Twelve Months Ended September 30, 2017
Fairways Water Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	50.00	$1,636,447	4.63	$75,767
Common Equity	50.00	1,636,446	10.05	164,429
Total	100.00	$3,272,893		$240,196
		APPROVED RATES		
Long-Term Debt	50.00	$1,636,447	4.63	$75,767
Common Equity	50.00	1,636,446	9.70	158,735
Total	100.00	$3,272,893		$234,502

SCHEDULE I-D

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Net Operating Income for a Return
For the Twelve Months Ended September 30, 2017
Fairways Sewer Operations

	Present Rates	Increase Approved	After Approved
Operating Revenues:			
Service revenues	$1,360,925	$723,854	$2,084,779
Late payment fees	2,177	1,159	3,336
Miscellaneous revenues	340	0	340
Uncollectibles & abatements	(7,633)	(4,060)	(11,693)
Total operating revenues	1,355,809	720,953	2,076,762
Operating Revenue Deductions:			
Salaries & wages	180,004	0	180,004
Employee pensions & benefits	52,529	0	52,529
Purchased sewer treatment	1,572	0	1,572
Sludge removal	89,209	0	89,209
Purchased power	88,090	0	88,090
Fuel for power production	659	0	659
Chemicals	111,193	0	111,193
Materials & supplies	8,775	0	8,775
Testing fees	14,028	0	14,028
Transportation	14,480	0	14,480
Contractual services-accounting	5,270	0	5,270
Contractual services-legal	5,468	0	5,468
Contractual services-other	113,553	0	113,553
Rent	8,750	0	8,750
Insurance	13,015	0	13,015
Regulatory commission expense	5,727	0	5,727
Miscellaneous expense	36,617	0	36,617
Interest on customer deposits	14	0	14
Annualization & consumption adjustments	21,165	0	21,165
Total O&M and G&A expense	770,118	0	770,118
Depreciation & amortization expense	370,493	0	370,493
Property taxes	2,527	0	2,527
Payroll taxes	22,391	0	22,391
Other taxes	8,659	0	8,659
Section 338(h) adjustment	0	0	0
Regulatory fee	1,898	1,009	2,907
Deferred income tax	(2,956)	0	(2,956)
State income tax	0	19,731	19,731
Federal income tax	0	133,972	133,972
Total operating revenue deductions	1,173,130	154,712	1,327,842
Net operating income for return	$182,679	$566,241	$748,920

SCHEDULE II-D

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Original Cost Rate Base
For the Twelve Months Ended September 30, 2017
Fairways Sewer Operations

Plant in Service	$18,595,484
Accumulated depreciation	(2,333,905)
Contributions in aid of construction	(7,081,614)
Accumulated amortization of CIAC	1,639,386
Acquisition adjustments	0
Accum. amort. of acquisition adjustments	0
Advances for construction	107,000
Net Plant in Service	10,926,351
Customer deposits	(172)
Unclaimed refunds & cost-free capital	(217)
Accumulated deferred income taxes	(587,890)
Materials and supplies inventory	0
Excess capacity adjustment	0
Working capital allowance	114,394
Original cost rate base	$10,452,466

Rates of return:	
Present	1.75%
Approved	7.17%

SCHEDULE III-D

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Statement of Capitalization and Related Costs
For the Twelve Months Ended September 30, 2017
Fairways Sewer Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	50.00	$5,226,233	4.63	$241,975
Common Equity	50.00	5,226,233	(1.13)	(59,296)
Total	100.00	$10,452,466		$182,679
		APPROVED RATES		
Long-Term Debt	50.00	$5,226,233	4.63	$241,975
Common Equity	50.00	5,226,233	9.70	506,945
Total	100.00	$10,452,466		$748,920

SCHEDULE I-E

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Net Operating Income for a Return
For the Twelve Months Ended September 30, 2017
Brookwood Water Operations

	Present Rates	Increase Approved	After Approved Increase
Operating Revenues:			
Service revenues	$5,025,605	$549,865	$5,575,470
Late payment fees	19,600	2,144	21,744
Miscellaneous revenues	372,249	0	372,249
Uncollectibles & abatements	(131,386)	(14,376)	(145,762)
Total operating revenues	5,286,068	537,633	5,823,701
Operating Revenue Deductions:			
Salaries & wages	653,900	0	653,900
Employee pensions & benefits	223,022	0	223,022
Purchased water	273,245	0	273,245
Purchased power	214,996	0	214,996
Fuel for power production	688	0	688
Chemicals	333,327	0	333,327
Materials & supplies	33,584	0	33,584
Testing fees	42,376	0	42,376
Transportation	57,985	0	57,985
Contractual services-engineering	2,750	0	2,750
Contractual services-accounting	27,419	0	27,419
Contractual services-legal	28,998	0	28,998
Contractual services-other	701,566	0	701,566
Rent	26,431	0	26,431
Insurance	39,041	0	39,041
Regulatory commission expense	28,395	0	28,395
Miscellaneous expense	148,145	0	148,145
Interest on customer deposits	5,614	0	5,614
Annualization & consumption adjustments	28,949	0	28,949
Total O&M and G&A expense	2,870,431	0	2,870,431
Depreciation & amortization expense	1,030,601	0	1,030,601
Property taxes	89,088	0	89,088
Payroll taxes	111,148	0	111,148
Other taxes	45,008	0	45,008
Section 338(h) adjustment	(3,293)	0	(3,293)
Regulatory fee	7,400	753	8,153
Deferred income tax	(8,391)	0	(8,391)
State income tax	20,545	16,106	36,651
Federal income tax	139,498	109,362	248,860
Total operating revenue deductions	4,302,035	126,221	4,428,256
Net operating income for return	$984,033	$411,412	$1,395,445

SCHEDULE II-E

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Original Cost Rate Base
For the Twelve Months Ended September 30, 2017
Brookwood Water Operations

Plant in Service	$36,598,411
Accumulated depreciation	(13,099,825)
Contributions in aid of construction	(7,989,867)
Accumulated amortization of CIAC	5,300,401
Acquisition adjustments	(31,426)
Accum. amort. of acquisition adjustments	29,511
Advances for construction	0
Net Plant in Service	20,807,205
Customer deposits	(64,969)
Unclaimed refunds & cost-free capital	(132,775)
Accumulated deferred income taxes	(1,693,741)
Materials and supplies inventory	101,744
Excess capacity adjustment	0
Working capital allowance	458,392
Original cost rate base	$19,475,856

Rates of return:	
Present	5.06%
Approved	7.17%

SCHEDULE III-E

Aqua North Carolina, Inc.
Docket No. W-218, Sub 497
Statement of Capitalization and Related Costs
For the Twelve Months Ended September 30, 2017
Brookwood Water Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	50.00	$9,737,928	4.63	$450,866
Common Equity	50.00	9,737,928	5.48	533,167
Total	100.00	$19,475,856		$984,033
		APPROVED RATES		
Long-Term Debt	50.00	$9,737,928	4.63	$450,866
Common Equity	50.00	9,737,928	9.70	944,579
Total	100.00	$19,475,856		$1,395,445

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 116-117

The evidence supporting these findings of fact and conclusions are contained in the Application and NCUC Form W-1 of Aqua NC, and in the testimony of Public Staff witness Junis.

In its Application, the Company proposed a company-wide rate increase of 9.19% over the total revenue level generated by the rates currently in effect. When compared to the present schedule of Commission-approved rates, the Company's proposed schedule of rates[56] indicates the Company was seeking to increase the ratio of base charges to commodity charges of the average monthly residential metered bill for the Aqua NC Water, Aqua NC Sewer, and Fairways Sewer rate divisions.

In its proposed order, the Public Staff stated that witness Junis provided multiple iterations of his billing analysis and rate design[57] as part of his direct and supplemental testimonies and late-filed exhibits requested by the Commission in this proceeding. The Public Staff asserted that in each iteration, witness Junis clearly designed rates to remain at or adjust closer to a 40% to 60% split between the base facilities charges and the metered commodity charges, respectively, balancing the promotion of conservation and sustainability of revenues, for the average monthly metered residential bill for each of the Company's rate divisions. The Public Staff pointed out that no party submitted evidence rebutting witness Junis' rate design.

In its proposed order, Aqua NC stated that the Company and the Public Staff did not negotiate rate design issues during their settlement discussions and there are no provisions governing rate design structure in the Stipulation filed by those parties. Aqua NC further stated that, to the best of its knowledge, there was no specific narrative testimony filed by either the Company or the Public Staff or cross-examination which directly addressed rate design structure issues. Aqua NC cited Exhibit JW to the Company's Application in support of its proposed rate design and requested that the Commission design new rates in this proceeding utilizing the following ratios of base facilities charges to variable consumption charges: Aqua Water – 44%/56%; Fairways Water – 50%/50%; and Brookwood Water – 44%/56%.

The Company further requested that the Commission adopt and approve the Company's proposed rate design, rather than the Public Staff's rate design reflected in the billing analysis contained in Junis Late-Filed Exhibit 11 and Table 2 (Average Monthly Residential Bill Calculations) of the late-filed exhibit, both filed on October 10, 2018. Aqua NC also asserted that its proposed metered water rate design ratios will help to minimize the Company's demonstrated risk which results from consistently declining consumption by customers.

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[56] The Company's proposed schedule of rates was entered into the record as Exhibit O to the NCUC form "Application for Rate Increase."

[57] Witness Junis' billing analyses and rate designs were entered into the record as Junis Exhibit 25, Junis Supplemental Exhibit 7, and Junis Late-Filed Exhibit 11.

The Commission concludes that due to the lack of evidence presented in this rate case proceeding pertaining to Aqua NC's request to increase the ratio of base charges to commodity charges of the average monthly residential metered bill for the Aqua NC Water, Aqua NC Sewer, and Fairways Sewer rate divisions, the Commission cannot properly evaluate such request at this time. The Commission gives substantial weight to the fact that witness Junis provided multiple iterations of his billing analysis and rate design as part of his direct and supplemental testimonies and late-filed exhibits requested by the Commission in this proceeding and Aqua NC did not file any rebuttal testimony concerning this issue. Consequently, the Commission finds and concludes that it is appropriate for the rate design of the approved rates to remain at or adjust closer to a 40% to 60% split between the base facilities charges and the metered commodity charges, respectively, as presented by the Public Staff in this proceeding. The rate design and rates, necessary and appropriate to provide Aqua NC a reasonable opportunity to recover the approved revenue requirement in this proceeding, are reflected in Appendices A-1, A-2, A-3, and A-4, attached hereto.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 118-119

The evidence supporting these findings of fact and conclusions can be found in the Application and NCUC Form W-1 of Aqua NC, and in the testimony of Aqua NC witness Becker and the testimony of Public Staff witness Junis.

In his testimony, Aqua NC witness Becker asserted that, over the last several years, the average consumption per customer has varied widely due to environmental factors, conservation, and pricing impact. Witness Becker cited the "Studies of Volumetric Wastewater Rate Structures and a Consumption Adjustment Mechanism for Water Rates of Aqua North Carolina, Inc."[58] completed by the EFC at the UNC School of Government, which provides in pertinent part that, "[t]he analysis demonstrates that average water use has declined significantly among Aqua water customers, relative to test year average water use, although it has recently stabilized close to 5,000 gallons/month average for ANC customers." Tr. Vol. 5, pp. 43-44.

Witness Becker asserted that, though the trend is one of declining consumption, it should be noted that consumption can also increase significantly during periods of warm weather. He also asserted that declining consumption can be attributed to several factors including more efficient plumbing fixtures and household appliances, governmental programs encouraging greater efficiency in water use, changes in landscaping patterns, and consumer responses to these price signals. Id. at 44.

Witness Becker further testified that persistent decline in consumption has eroded Aqua NC's opportunity to earn its authorized return and that in order to minimize the impact of significant swings in customer consumption patterns, the Company proposes the Consumption Adjustment Mechanism (CAM) for approval by the Commission. Id. at 45.

[58] The EFC Report was filed in Docket No. W-218, Sub 363A on March 31, 2016.

Witness Becker explained how the proposed CAM would operate. He detailed that an average monthly consumption per metered bill would be established based on the total metered consumption and the total metered bills of all metered residential and commercial premises included in the applicable rate division tariff. Annually, the actual average monthly consumption per metered bill would be compared to the average monthly consumption calculated for use to determine rates within the previous rate case. If the current average monthly consumption is within a range of +/- 1%, then no credit/surcharge adjustment would be required. However, if it is outside the range, then the total annual revenue excess/shortfall[59] would be computed and divided by the number of bills and then divided by 12 months to establish the monthly CAM to be applied to the monthly bills for the metered accounts. Id. at 45-46.

On cross-examination, witness Becker agreed that legislation at the North Carolina General Assembly similar to the proposed CAM had not been ratified. Id. at 58-59.

Public Staff witness Junis testified that the Public Staff believes any new rate mechanism, such as the CAM, should be authorized by the North Carolina General Assembly before being considered by the Commission for rulemaking. Tr. Vol. 12, p. 160. Witness Junis further testified that, during the 2017-2018 Session, House Bill 752 would have added language to N.C.G.S. § 62-133 authorizing customer usage tracking and rate adjustments but it was not enacted. Witness Junis concluded that the General Assembly did not authorize this mechanism though it made other changes to Chapter 62 of the Public Utilities Act specifically involving water and wastewater utilities. Thus, according to the Public Staff, the Commission should not authorize a CAM. Tr. Vol. 12, pp. 160-61.

Witness Junis further explained that, if the average monthly usage was 5,000 gallons, then the proposed 1% threshold for consumption variance would amount to 50 gallons per day of shower flow. He asserted that the trigger for the mechanism was too narrow. Id. at 161.

Witness Junis testified that the proposed mechanism as described in witness Becker's testimony utilized average usage per bill and ignored the short-term revenue gains from growth. Witness Junis cited the EFC Report which confirmed in the short-term that the revenues from growth exceed the associated costs. He explained that the proposed CAM would allow Aqua NC to increase rates for decreased average usage even if the customer growth resulted in the Company otherwise collecting its full revenue requirement. Id. at 162.

In his rebuttal testimony, Company witness Becker again cited the EFC Report, which provides in pertinent part that, "[t]hat analysis demonstrates that average water use ... has recently stabilized close to 5,000 gallons/month average for ANC customers." Tr. Vol.14, p. 49.

[59] The difference between the current monthly average and the rate case average monthly consumption multiplied by 12 months and then multiplied by the consumption tariff rate.

Upon questioning from Presiding Commissioner Brown-Bland, witness Becker contested the 2016 conclusion by the EFC that consumption had stabilized, based on his experience in Virginia and noting the price elasticity of demand. Becker asserted that the phenomenon of reduced consumption is almost universally experienced among both public and private water providers, and that one of the drivers of the instant case is reduced consumption per customer. Conversely, though the trend is one of declining consumption, witness Becker observed that consumption can also increase significantly during extended periods of warm weather; therefore, fluctuation is a factor that should also be addressed.

Further, witness Becker disagreed with the Public Staff's objections to the CAM and asserted that none of them present an impediment to Commission approval of a CAM. He even asserted that proof of the declining average consumption had been presented and was not refuted by the Public Staff, despite the purportedly contradictory finding of the EFC that average water use has stabilized and the inconsistency of the consumption factors that range from negative 1.83% to positive 2.97% across the five Aqua NC rate divisions.

In its post-hearing brief, the AGO expressed opposition to Aqua NC's request for the implementation of the CAM. The AGO maintained that the proposed mechanism is not authorized by the ratemaking provisions in Chapter 62 and Aqua NC has not justified the approval of a non-statutory rider. Further, the AGO contended that the new rider would harm consumers by increasing the frequency of changes to rates outside of a general rate proceeding, by shifting business risks from investors to users, and by discouraging water conservation efforts.

The AGO explained that legislation was introduced in the General Assembly in 2017 that, if adopted, would have authorized the creation of a rate adjustment mechanism for water and wastewater utilities based on changes in consumption – if such a mechanism were determined by the Commission to be in the public interest. However, the legislation was not enacted. See Ex. Vol. 5, pp. 12-13.

The AGO concluded that, in light of the General Assembly's decision not to authorize this rate adjustment mechanism, the Commission should reject Aqua NC's request that it approve such a mechanism as an exercise of discretion. Tr. Vol. 12, p. 161.

Further, the AGO pointed out that that North Carolina appellate courts have approved the Commission's use of non-statutory riders in very limited circumstances such as (1) highly variable and unpredictable expense or volume levels, (2) of significant magnitude, (3) that are beyond the control of the utility. State ex rel. Util. Comm. v. Edmisten, 291 N.C. 327, 230 S.E.2d 651 (1976); State ex rel. Util. Comm. v. Public Service Co., 35 N.C. App. 156, 241 S.E.2d 79 (1978); See Order Approving Partial Rate Increase, p. 11, Docket No. G-5, Sub 356 (N.C.U.C. Sept. 25, 1996) (holding that absent extraordinary circumstances, current law does not allow riders).

The AGO contended that 2016 EFC report, upon which Aqua NC relies to establish a decline in consumption, found there was initially a significant decline relative to test year consumption but that usage stabilized more recently. Tr. Vol. 5, p. 44. The AGO argued that the variations in usage are considered "a hindrance" by Aqua NC to its ability to earn its allowed return on equity, but that such variations are not of a sufficient magnitude to justify an extraordinary rate mechanism. Tr. Vol. 5, p. 62.

Moreover, the AGO maintained that the mechanism is designed to make rate adjustments for changes in per customer consumption without consideration of other factors that tend to offset the impact, such as growth in the number of customers that Aqua NC serves. Tr. Vol. 5, pp. 45-46, 57. Aqua NC is a growing company, and as it increases its customer count, its revenues collected in usage rates taking into account growth, may fully offset any reduction in per-customer consumption. Tr. Vol. 12, p. 162.

The AGO noted that Aqua NC's CAM proposal would trigger a rate adjustment based on a collar: i.e., if the actual average monthly consumption per bill is higher than plus 1% or lower than minus 1% of the average monthly consumption established in the last rate case. The AGO further noted that Aqua NC contends that having the collar means that the mechanism would address only "significant" changes in per-customer consumption. However, the AGO pointed out that Public Staff witness Junis questioned the significance of a 1% variation in average consumption, as a 1% change could occur from a relatively small departure from normal habits, such as by shortening a daily shower by less than a minute. Tr. Vol. 12, p. 161.

Furthermore, the AGO argued that the proposed rider harms consumers by increasing the frequency of changes to rates outside of general rate proceedings. In a general rate case, Aqua NC would be required to "net" all costs and benefits of operation at the time rates are set, taking into consideration offsetting cost decreases as well as other offsetting factors. Instead, by authorizing changes in rates targeted to variations in per-customer consumption, the AGO opined that the Commission would be allowing Aqua NC to shift normal business risk associated with a single factor from its investors to ratepayers. Aqua NC's incentives to actively manage costs and to operate efficiently in order to maximize the Company's return would be reduced if risks are shifted in that manner. Finally, the AGO maintained that consumers will tend to be discouraged from investing in water conservation measures if their efforts are met with an offsetting rate increase.

In sum, the AGO concluded that the new rate adjustment mechanism proposed by Aqua NC in this proceeding should be rejected because it is not authorized by statute, is not justified, and would be harmful to consumers.

The Commission has carefully evaluated the evidence presented in this proceeding concerning Aqua NC's request to implement a CAM. The Commission finds persuasive the evidence presented by the Public Staff and agrees with the arguments of the AGO that the proposed CAM is not appropriately structured. More specifically, the Commission agrees with Public Staff witness Junis that the 1% threshold is too narrow,

and would inappropriately trigger a rate change based on relatively small departures from normal consumption habits, such as shortening a daily shower by less than one minute. The Commission, therefore, finds that Aqua NC has not demonstrated that a consumption adjustment mechanism is reasonable or justified in this case.

In making this finding, the Commission gives substantial weight to the arguments of the Public Staff and the AGO that the mechanism was designed to make rate adjustments for changes in per customer consumption without consideration of other factors that tend to offset the impact, such as growth in the number of customers that the Company serves and periods of warm weather. The Commission concludes that these factors are relevant in determining whether circumstances establish that a decline in consumption denies the Company a reasonable opportunity to earn its authorized rate of return and whether the CAM is reasonable or justified based on the evidence in this case.

The Commission also gives significant weight to the EFC Report which demonstrates that the average water use by Aqua NC customers has recently stabilized close to 5,000 gallons per month average for Aqua NC customers. The Commission accepts the undisputed evidence that average consumption for Aqua NC Water Operations for the purposes of this proceeding, is approximately 5,000 gallons per month on average, as calculated by witness Junis, and agreed to by the Company. The Commission finds unpersuasive the testimony of Company witness Becker that he expects consumption to decrease further given consumption patterns he observed while working at another Aqua America company in Virginia.

Based upon the foregoing and the entire record herein, the Commission finds that Aqua NC has failed to demonstrate that its proposed CAM is reasonable or justified for the purposes of this case. The Commission, therefore, concludes that Aqua NC's request for approval to implement its proposed CAM should be denied.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 120-121

The evidence supporting these findings of fact is contained in the testimony of Public Staff witness Henry.

Witness Henry testified that consistent with Commission Rules R7-39(k) and R10-36(k), Aqua NC WSIC and SSIC surcharges will reset to zero as of the effective date of the approved rates in this proceeding. Additionally, witness Henry stated that by law, the cumulative maximum charges that the Company can recover between rate cases cannot exceed 5% of the total service revenues approved by the Commission in this rate case.

The Commission's previously approved WSIC/SSIC improvement charge rate adjustment mechanisms continue in effect, although these surcharges have been reset to zero in this rate case. Further, the Company's Commission-authorized WSIC mechanism will, on a going-forward basis, apply to Aqua NC's customers receiving water utility service from (1) Timberlake and Thornton Ridge water systems in Alamance

County; (2) Wimbledon, Glennburn, and Knollwood water systems in Gaston County; and (3) Clear Meadow water system in Mecklenburg County, which have been incorporated into Aqua NC Water Operations uniform rates in this proceeding. The WSIC/SSIC mechanisms are designed to recover, between rate case proceedings, the costs associated with investment in certain completed, eligible projects for water or sewer improvements. The WSIC/SSIC surcharges are subject to Commission approval and to audit and refund provisions. Any cumulative system improvement charge recovered pursuant to the WSIC/SSIC mechanisms may not exceed 5% of the total annual service revenues approved by the Commission in this rate case proceeding.

Based on the service revenues set forth and approved in this Order, the maximum WSIC/SSIC charges as of the effective date of this Order are:

	Service Revenues		**WSIC & SSIC Cap**
Aqua NC Water	$35,345,847	x 5% =	$1,767,292
Aqua NC Sewer	$14,330,238	x 5% =	$ 716,512
Fairways Water	$ 1,077,223	x 5% =	$ 53,861
Fairways Sewer	$ 2,084,779	x 5% =	$ 104,239
Brookwood Water	$ 5,575,470	x 5% =	$ 278,774

IT IS, THEREFORE, ORDERED as follows:

1. That the Stipulation between Aqua NC and the Public Staff, is hereby approved.

2. That the Schedule of Rates, attached hereto as Appendices A-1, A-2, A-3, and A-4, are hereby approved and deemed filed with the Commission pursuant to N.C.G.S. § 62-138.

3. That the attached Schedule of Rates is hereby authorized to become effective for service rendered on and after the issuance date of this Order.

4. That a copy of the Notice to Customers, attached hereto as Appendices B-1, B-2, and B-3, shall be mailed with sufficient postage or hand delivered to all affected customers in each relevant rate division, respectively, by Aqua NC in conjunction with the next regularly scheduled billing process.

5. That the Company shall file the attached Certificate of Service, properly signed and notarized, not later than 45 days after the issuance of this Order.

6. That neither the Stipulation entered and filed on September 17, 2018, nor the parts of this Order pertaining to the contents of that agreement shall be cited or treated as precedent in future proceedings.

7. That the 2017 water and wastewater depreciation studies and rates filed by Aqua NC in this docket are reasonable and appropriate for use in setting water and sewer rates in this proceeding and are proper for the Company to use in booking depreciation expenses going forward. The 2017 water and wastewater depreciation rate studies are hereby approved as filed.

8. That the Chief Clerk shall establish Docket No. W-218, Sub 497A as the reporting requirement docket for Commission-required reports as ordered herein and also for WSIC/SSIC filings.

9. That Aqua NC shall continue to file bi-monthly reports addressing water quality concerns raised by customers at the public hearings in W-218 Sub 363, in situations where the iron/manganese concerns remain, and in this proceeding, including but not limited to customers served within the Bayleaf Master System. Such reports shall describe measures taken by Aqua NC to address water quality issues and shall include summaries of customer concerns raised, results of water laboratory analyses (including soluble and insoluble concentration levels of iron and manganese) to measure baseline concentration levels and the effectiveness of chemical sequestration treatment, flushing regimens, and cost estimates to install filtration systems (greensand or other filtration options deemed appropriate) or to procure alternate water sources. The first of the bi-monthly reports, which shall cover the time period of November-December 2018, shall be due on January 31, 2019, and shall continue to be filed until further Order of the Commission.

10. That the Public Staff and Aqua NC shall continue to work together to develop and implement plans to identify and respond to water quality concerns that occur in significant numbers in individual subdivision service areas. At a minimum, the Public Staff and Aqua NC are required to file a written report with the Commission, on February 1 and August 1 each year in which the WSIC is in effect, on secondary quality concerns that are affecting its customers. If a particular secondary water quality concern has affected or is affecting 10% of the customers in an individual subdivision service area or 25 billing customers in an individual service area, whichever is less, the customers affected and the estimated expenditures that are necessary to eradicate to the extent practicable water quality issues related to iron and manganese through the use of projects that are eligible for recovery through the WSIC shall be detailed in the written report. The written report shall also contain a recommendation as to whether the Commission should order Aqua NC to pursue such corrective action and/or an underlying reason why the action should or should not be undertaken. If there are no secondary water issues or if the secondary water quality issues are below the 10%/25 threshold previously set forth, Aqua NC and the Public Staff shall so inform the Commission, but they need not report secondary water quality issues resolved by Aqua NC without the assistance or expectation of assistance of the WSIC; Aqua NC shall develop a process that allows it to capture all water quality-related complaints for compliance with this Ordering Paragraph, regardless of the time of day they are received; and Aqua NC and the Public Staff shall supplement the Seventh and Eighth Semi-Annual Reports

Concerning Secondary Water Quality Concerns with any after-hours call data that was not included when the reports were first filed with the Commission.

11. That Aqua NC shall also continue to file its annual Three-Year WSIC and SSIC Plan, as well as its Quarterly Earnings, WSIC/SSIC Revenues, and Construction Status reports, its Annual Heater Acquisition Incentive Account Report, the DEQ Quarterly Notice of Deficiency filings, and the DEQ Secondary Water Quality Filtration Request Executive Summary.

12. That the Public Staff shall file quarterly reports beginning April 30, 2019 for the first quarter of 2019 detailing the number of water quality complaints against Aqua NC received by Public Staff (including by its Consumer Services Division), the nature of those complaints, and the final resolution.

13. That at any time after a year from the issuance of this Order, Aqua NC may request that the Commission revise or eliminate the regular and periodic reporting requirements ordered herein due to demonstrated and significant progress in customer satisfaction with improvements made in water quality related to levels of iron and manganese.

14. That Aqua NC shall promptly provide to and share with the Public Staff information concerning all meetings and conversations (in summary note form) with, reports to, and the recommendations of DEQ regarding the water quality concerns being evaluated and addressed in Aqua NC's systems. Such communication to the Public Staff shall not be considered or treated as a formal report authored by Aqua NC, but rather as notification of the occurrence of communications between the Company and DEQ and notification of salient topic and content points, shall be in a written format and shall be provided, at a minimum, on a bi-monthly basis until otherwise ordered by the Commission. Without limitation on the foregoing, Aqua NC shall provide the Public Staff copies of: (a) Aqua NC's reports and letters to DEQ concerning water quality concerns in its systems; (b) responses from DEQ concerning reports, letters, or other oral or written communication received from Aqua NC; (c) DEQ's specific recommendations to Aqua NC, by system, concerning each of the water quality concerns being evaluated by DEQ; and (d) communications from DEQ to Aqua NC indicating DEQ's dissatisfaction with Aqua NC's response to DEQ's concerns, directions or recommendations concerning water quality affected by iron and manganese.

15. That Aqua NC shall file copies of its North Carolina Water Quality Plan and Customer Communication Plan, including, without limitation in its Water Quality plan, Aqua NC's methods to identify and address the presence of iron and manganese at levels reasonably known by Aqua to damage pipes and appliances and to be objectionable to customers for drinking and to identify and address other potential contaminants in the Company's water systems; and detailing in its Customer Communication plan (a) the Company's plans to provide timely and accurate notice to its customers of any water quality problems requiring health alerts and to communicate the steps the Company plans to address the problems; (b) the Company's plans to

provide better targeted and timely notice of flushing events to customers most likely to be impacted; (c) the Company's plan to establish a dedicated contact or a special call routing protocol for customers encountering sudden or worsening water quality issues; and (d) the Company's plan to invite customers, at least as it pertains to Bayleaf customers, to participate in focus groups to improve customer understanding of issues affecting water quality. See Tr. Vol. 5, pp. 151-55. Such information shall be filed with the Commission within 90 days after issuance of this Order.

16. That as part of its Communication Plan, Aqua NC shall recommend the appropriate and most effective type of individual filtration systems for those customers served by systems affected by iron and manganese.

17. That given the number of customers and systems affected by iron and manganese, Aqua NC shall investigate and evaluate the possibility of entering into agreements with vendors of home water filtration systems and replacement filters for such systems for a discount for Aqua NC customers and shall file a report with the Commission on the status of this evaluation within 90 days after issuance of this Order and every 90 days thereafter until such investigation and evaluation is complete.

18. That Aqua NC shall work with the Public Staff to develop an appropriate robust general flushing plan for each of its North Carolina systems affected by iron and manganese (or identified as a Group 1 site in the Three-Year WSIC/SSIC Plan Update dated April 20, 2018 (or the most recent version thereof)) and submit the plans for filing with the Commission within 180 days of the issuance of this Order.

19. That Aqua NC's general flushing plan filed pursuant to Ordering Paragraph 11 shall be subordinate to the manufacturer's recommended flushing schedule whenever a sequestering agent, including SeaQuest® is introduced into a Company water system. Aqua NC shall follow the manufacturer's recommended flushing schedule, and any time Aqua NC does not follow the manufacturer's recommendation, the Company shall make a filing with the Commission if the recommended flushing does not occur within 60 days of the recommended time for flushing; such filing shall be made within 60 days of departing from the original recommended schedule, explaining the reasons the flushing schedule could not be followed.

20. That Aqua NC shall work with the Public Staff to develop a policy and procedure for providing customers a bill credit when Aqua NC recommends that a customer flush his/her individual line to address a water quality issue. Within 90 days from the issuance of this Order, Aqua NC and the Public Staff shall submit to the Commission for approval their proposed policy and procedure for determining to whom, how and when bill credits will be given as well as how much the flushing bill credit will be.

21. That Aqua NC and the Public Staff shall give full consideration to evaluation and pursuit of a permanent alternate source of water for the Bayleaf Master System or for those points of entry in the Bayleaf Master System for which Aqua NC has no

reasonable belief that the water from such points of entry will be suitable consistently for domestic use after reasonable corrective action.

22. That all future reports filed with the Commission related to the two annual reporting requirements established in Docket No. 218, Sub 274 by Ordering Paragraph Nos. 7 and 19, as modified in Docket No. W-218, Sub 319 by lOrdering Paragraph Nos. 7 and 8, regarding Aqua NC's analysis of the terms of its debt issues and the Heater Acquisition Incentive Account, respectively, shall be filed in Docket No. W-218, Sub 497A, until further order of the Commission.

23. That Aqua NC shall file and request approval of all future contracts with developers/secondary developers within 30 days after signing said contracts, and, in the case of informal agreements or contracts that are effective without signing, Aqua NC shall file a detailed written description of the terms of those agreements within 30 days after entering into such agreements. The requirements of this ordering paragraph shall apply to all future contracts, including those covering contiguous expansions. If the contracts have provisions which allow for charges in excess of what is being collected as CIAC, the referenced charges or fees shall be specifically brought to the attention of the Commission for its approval or disapproval.

24. That Aqua NC shall prepare amendments to its tariffs detailing its connection/capacity fee practices and procedures on a subdivision-by-subdivision basis. Within 30 days following issuance of this Order, Aqua NC shall propose for Commission approval a proposed schedule in which it will include in its tariffs all connection fees included in its rates, as ordered by this ordering paragraph.

25. That Aqua NC shall, within 30 days following issuance of this Order, make a compliance filing to show its present and future accounting treatment, in a manner consistent with the findings and conclusions of the Commission herein, of the capacity purchased from, and transmission expenses paid to, Johnston County. Such filing shall include the net rate base adjustment and total revenue requirement effect to the Company as a result of the Commission's determinations of these issues herein.

26. That Aqua NC shall take the appropriate measures to share the 40-day read history collected by the Company's AMR technology with the AMR-metered customers and shall notify the Commission when such information is being shared, including how such information is being provided to customers.

27. That within six months following the issuance date of this Order, Aqua NC shall file a report informing the Commission regarding the specific nature of the expected benefits to be achieved on a consolidated basis for the Aqua America subsidiaries, including Aqua NC, once full deployment of AMR technology is completed in all Aqua America operating states. Such report shall also indicate the planned timing of such expected benefits.

28. That the amount of tax expense that was overcollected in rates from January 1, 2018 until the new rates approved herein take effect shall be returned by Aqua NC to ratepayers as a bill credit over a period of one year.

29. That the excess accumulated deferred income taxes associated with the change in the North Carolina corporate income tax rate under HB 998 shall be returned by Aqua NC to ratepayers in a rider to rates over a three-year period.

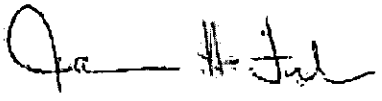
30. That the unprotected excess accumulated deferred income taxes associated with the reduction in the federal corporate income tax rate shall be returned by Aqua NC to ratepayers in a rider to rates over a three-year period.

31. That the Chief Clerk shall close Docket No. W-218, Sub 363A and Docket No. W-218, Sub 319A.

ISSUED BY ORDER OF THE COMMISSION.

This the 18th day of December, 2018.

NORTH CAROLINA UTILITIES COMMISSION



Janice H. Fulmore, Deputy Clerk

Commissioner Daniel G. Clodfelter concurring in part and dissenting in part.

DOCKET NO. W-218, SUB 497

Commissioner Daniel G. Clodfelter, concurring in part and dissenting in part:

I join in all of the Commission's findings and conclusions and in its Order, except for Findings of Fact 64, 65, 66, 81, and 82. To the extent, but only to the extent, the Commission's determination of the Company's revenue requirement and, ultimately, the approved schedule of rates depend on those five findings I dissent. The Commission's Order fully canvasses the evidence pertinent to these five findings. On this record I find the analysis and position taken by the Public Staff with respect to the matters addressed by those five findings to be more persuasive as a general matter of fact and policy, but in this case especially so in light of the ongoing work the Company needs to undertake to address and resolve customer issues relating to iron and manganese levels in the water from a number of its wells.

/s/ Daniel G. Clodfelter
Commissioner Daniel G. Clodfelter

SCHEDULE OF RATES

for

AQUA NORTH CAROLINA, INC.

for providing water and sewer utility service in

ALL ITS SERVICE AREAS IN NORTH CAROLINA AND THE EMERGENCY OPERATION OF MOBILE HILL ESTATES

WATER UTILITY SERVICE

► *All Aqua NC systems except as noted below*

Monthly Metered Service (residential and commercial customers):

Base facility charge (zero usage, based on meter size)

<1" meter	$ 19.25
1" meter	$ 48.13
1½" meter	$ 96.25
2" meter	$ 154.00
3" meter	$ 288.75
4" meter	$ 481.25
6" meter	$ 962.50

Usage charge, per 1,000 gallons $ 5.83

For bulk purchased water system usage charges see attached Appendix A-2

Monthly Unmetered Service (flat rate): 1/

Residential customers	$ 39.66
Commercial customers, per residential equivalent unit (REU)	$ 67.42

▶ *Brookwood and LaGrange Service Areas*
Cumberland and Hoke Counties

Monthly Metered Service (residential and commercial customers):

Base facility charge (zero usage, based on meter size)

<1" meter	$ 14.03
1" meter	$ 35.08
1½" meter	$ 70.15
2" meter	$ 112.24
3" meter	$ 210.45
4" meter	$ 350.75
6" meter	$ 701.50

Usage charge, per 1,000 gallons $ 3.76

For bulk purchased water system usage charges see attached Appendix A-2

Monthly Unmetered Service (flat rate): 1/

Residential customers	$ 33.17
Commercial customers (per REU)	$ 56.39

▶ *Fairways and Beau Rivage Service Area – New Hanover County*

Monthly Metered Service (residential and commercial customers):

Base facility charge (zero usage, based on meter size)

<1" meter	$ 8.36
1" meter	$ 20.90
1½" meter	$ 41.80
2" meter	$ 66.88
3" meter	$ 125.40
4" meter	$ 209.00
6" meter	$ 418.00

Usage charge, per 1,000 gallons $ 1.53

OTHER MATTERS

Specific Service Area Connection Charges and Capacity Fees: [2]
(see attached Appendix A-3)

Connection in All Other Service Areas: [2]

<1" meter	
For taps made to existing mains installed inside franchised service area	$800.00
For individual connections installed outside franchised service area[3]	Actual cost of installation [4]
1" meter or larger	120% of actual cost of making tap, including setting meter and box

Meter Installation Fee: $70.00

(The fee will be charged only where cost of meter installation is not otherwise recovered through connection charges.)

Production and Storage Contribution in Aid of Construction Fee: [3]

For individual connections outside franchised service areas where lot owner has made no contribution in aid of construction toward production and storage facilities	$1,700 per residential equivalent unit (REU)

Reconnection Charges: [5]

If water service cut off by utility for good cause	$35.00
If water service discontinued at customer's request	$15.00

Billing Service Charge: [6] $2.00 per month per bill

New Customer Account Fee: $20.00

SEWER UTILITY SERVICE

▶ *All Aqua systems except as noted below*

Monthly Unmetered Service (flat rate):

Residential customers	$ 72.04
Commercial customers (per REU)	$ 100.86

STEP system flat rate (Monticello, Holly Brook, Saddleridge) $ 32.00

Monthly Metered Service (commercial customers):

Base facility charge (zero usage, based on meter size)

<1" meter	$ 26.11
1" meter	$ 65.28
1½" meter	$ 130.55
2" meter	$ 208.88
3" meter	$ 391.65
4" meter	$ 652.75
6" meter	$1,305.50

Commercial usage charge, per 1,000 gallons $ 8.92

For bulk purchased sewer system charges see attached Appendix A-2

▶ *Fairways and Beau Rivage Service Area – New Hanover County*

Monthly Unmetered Service (flat rate):

Residential customers	$ 58.56
Commercial customers (per REU)	$ 81.98

Monthly Metered Service (commercial customers):

Base facility charge (zero usage, based on meter size)

<1" meter	$ 20.72
1" meter	$ 51.80
1½" meter	$ 103.60
2" meter	$ 165.76
3" meter	$ 310.80
4" meter	$ 518.00
6" meter	$1,036.00

Commercial usage charge, per 1,000 gallons $ 9.46

OTHER MATTERS

Specific Service Area Connection Charges and Capacity Fees: [2/]
(See attached Appendix A-3)

Connection in All Other Service Areas:

None when tap and service line installed by developer.

Actual Cost if Aqua NC makes tap or installs service line.

Sewer Plant Capacity Fee per GPD (DEQ Design Requirements) – River Park Development:

Sewer Plant Capacity Fee per GPD $ 10.00
(See Docket No. W-218, Sub 143)

Sewer Plant Capacity Fee per GPD – Flowers Plantation Development (Buffalo Creek):
(See Docket No. W-218, Sub 497)

Sewer plant capacity fee per GPD	$ 5.34
Transmission fees per GPD	3.14
Total fees per GPD	$ 8.48

These are the actual rates per GPD paid by Aqua NC to Johnston County on June 21, 2018. Such rates per GPD are subject to change based on future negotiations between Aqua NC and Johnston County.

Developer Contribution to Aqua NC – 50% Aqua NC's Cost of Buffalo Creek Pump Station and Force Main – Flowers Plantation Development (Buffalo Creek):

Pursuant to Amended Purchase Agreement dated May 14, 2002, between River Dell Utilities, Inc., Rebecca Flowers Finch (d/b/a River Dell Company), and Heater Utilities, Inc. (See Docket No. W-274, Sub 538 and Docket No. W-218, Sub 497)

$440,816 divided equally among the first 2,000 single-family residential equivalents (SFREs) or $220.41 per SFRE

Reconnection Charges: [5/]

If sewer service cut off by utility for good cause Actual Cost

Grease Traps:

The Utility may require installation and/or proper operation of grease traps on grease producing commercial facilities. Failure to properly operate grease traps will result in disconnection of service pursuant to Commission Rule R10-16.

New Customer Account Fee: $ 20.00

(If customer receives both water and sewer utility service from Aqua NC, then the customer shall only be charged a new account fee for water.)

Grinder Pump Installation Fee – Governors Club Subdivision: Actual Cost
(See Docket No. W-218, Sub 277)

The homeowner or house builder shall be required to prepay in full to the outside contractor installing the grinder pump the entire cost of the installation, including the applicable engineering inspection fee, as specified in Aqua NC's Grinder Pump Installation In-house Procedures, a copy of which is filed with the Commission.

Once the grinder pump is initially installed, it will be the responsibility of Aqua NC to maintain, repair, and replace the grinder pump. However, if damage to a grinder pump is shown to be due to homeowner negligence, the homeowner will be liable for the cost of the repair or replacement of the grinder pump.

Returned Check Charge:	$25.00
Bills Due:	On billing date
Billing Frequency:	Monthly for service in arrears
Bills Past Due:	15 days after billing date
Finance Charges for Late Payment:	1% per month will be applied to the unpaid balance of all bills still past due 25 days after billing date

Availability Rates:

Woodlake Subdivision:

Water	$5.00 per month
Sewer	$3.75 per month

Governors Village Subdivision, Governors Forest Subdivision, Governors Village Townhomes:

Sewer only	$150.00 per year per residential lot

Governors Club:

Sewer only	$20.00 per month

Notes:

1/ The Utility, at its expense, may install a meter and charge the metered rate.

2/ In most areas, connection charges do not apply pursuant to contract and only the $70.00 meter installation fee will be charged to the first person requesting service (generally the builder). Where Aqua NC must make a tap to an existing main, the charge will be $800.00, and where main extension is required, the charge will be 120% of the actual cost.

3/ Individual connections outside franchised service areas may be made pursuant to this tariff in the following circumstances: (1) upon request of a bona fide customer as that term is defined in Commission Rule R7-16(a)(1); (2) the customer shall be located either within 100 ft. of a Franchised Service Area or located within 100 ft. of an existing Aqua NC main; and (3) the request may come from no more than two customers located in the same area (requests for more than two connections require an application for a new franchise or a request for approval of a contiguous extension). To connect such a customer, Aqua NC shall file a notice with the Commission in Docket No. W-218, Sub 177, at least 30 days before it intends to make the tap. This notice shall include an explanation of the circumstances requiring the tap and an 8.5" x 11" map showing the location of the tap in relation to Aqua NC's existing main. If the Public Staff does not object to the tap within the 30-day period, or upon written notice within that period from the Public Staff that it will not object, Aqua NC may proceed with the connection.

4/ Actual cost for such a connection shall include installation of a 6" or smaller main extension (if necessary), tap of the main, service line, road bore (if necessary), meter box, meter, backflow preventer (if necessary), and Aqua NC's direct labor costs. Aqua NC shall give a written cost quote to the customer(s) applying for connection before actually beginning the installation work.

5/ When service is disconnected and reconnected by the same unit owner within a period of less than nine months, the entire flat rate and/or base charge rate will be due and payable before the service will be reconnected.

If sewer disconnection is required, after all reasonable efforts by the Utility to encourage the customer to comply with the provisions of the tariff have been made, the Utility may install a valve or other device appropriate to cut off or block the customer sewer line.

Prior to disconnection, the Utility shall give the customer written notice at least seven days prior to disconnection. Said notice shall include, at the minimum, a copy of this reconnect provision and the estimated cost to make the cut off and install the valve or other device.

In the event that an emergency or dangerous condition is found or fraudulent use is detected, sewer service may be cut off without notice. In such an event, notice as described above, will be given as soon as possible.

Upon payment of outstanding balance, actual cost of termination and reconnection and other fees (for example, deposit if required by the Utility), the Utility shall restore the service no later than the next business day.

6/ Aqua NC is authorized to include on its monthly water bill the charges resulting from sewer service provided by the Town of Cary, the Town of Fuquay-Varina, Wake County, and various Commission appointed emergency operators where specifically approved by the Commission. Aqua NC will bill the Town of Cary, the Town of Fuquay-Varina, Wake County, or emergency operator $2.00 per month per bill for providing this service.

AQUA NORTH CAROLINA, INC.
BULK PURCHASED WATER SYSTEM USAGE RATES

Usage charge, per 1,000 gallons where water purchased for resale

Service Area	Water Provider	Usage Charge/ 1,000 gallons
Aqua North Carolina Service Areas		
Twin Creeks	City of Asheville	$ 4.26
Heather Glen and Highland	City of Belmont	$14.40
Southpoint Landing	City of Belmont	$14.40
Park South	City of Charlotte	$ 1.81
Parkway Crossing	City of Charlotte	$ 1.81
Springhill / Springdale	City of Concord	$ 5.11
Hoopers Valley	City of Hendersonville	$ 3.06
Crystal Creek	City of Hendersonville	$ 3.06
Rambling Ridge	City of Hendersonville	$ 3.06
Brookwood	City of Hickory (outside city)	$ 5.04
Heritage Farms	City of Hickory (inside city)	$ 2.83
Cedarwood Estates	City of Hickory (inside city)	$ 2.83
Hill-N-Dale	City of Lincolnton	$ 7.70
East Shores	City of Morganton	$ 2.52
Greenfield	City of Mount Airy	$ 7.15
Bett's Brook	City of Newton	$ 2.85
Crestwood	Davidson Water, Inc.	$ 5.30
Lancer Acres	Davidson Water, Inc.	$ 5.30
Beard Acres	Davidson Water, Inc.	$ 5.30
Woodlake Development	Harnett County	$ 2.77
Beechwood Cove	Chatham County	$ 7.04
Chatham	Chatham County	$ 7.04
Cole Park Plaza Shopping Center	Chatham County	$10.01
Hidden Valley	Chatham County	$ 7.04
Polks Landing	Chatham County	$ 7.04
Chapel Ridge	Town of Pittsboro	$13.69
Laurel Ridge	Town of Pittsboro	$13.69
The Parks at Meadowview	Town of Pittsboro	$13.69
River Hill Heights	Iredell Water Corp.	$ 2.72

Service Area	Water Provider	Usage Charge/ 1,000 gallons
Bedford at Flowers Plantation	Johnston County	$ 2.45
Bennett Place	Johnston County	$ 2.45
Chatham	Johnston County	$ 2.45
Cottages at Evergreen	Johnston County	$ 2.45
Cottonfield Village	Johnston County	$ 2.45
Creekside Place	Johnston County	$ 2.45
Eastlake at Flowers Plantation	Johnston County	$ 2.45
Evergreen	Johnston County	$ 2.45
Flowers Crest	Johnston County	$ 2.45
Flowers Shopping Center	Johnston County	$ 2.45
Forge Creek	Johnston County	$ 2.45
Longleaf	Johnston County	$ 2.45
Magnolia	Johnston County	$ 2.45
Magnolia Place/Village	Johnston County	$ 2.45
Mill Creek North	Johnston County	$ 2.45
Mill Creek West	Johnston County	$ 2.45
Neuse Colony	Johnston County	$ 2.45
North Farm	Johnston County	$ 2.45
North Farm Cottages	Johnston County	$ 2.45
North Village	Johnston County	$ 2.45
Parkway Center/Village	Johnston County	$ 2.45
Peachtree	Johnston County	$ 2.45
Pineville Club	Johnston County	$ 2.45
Pineville East	Johnston County	$ 2.45
Pineville East Cottages/Palmetto Pl.	Johnston County	$ 2.45
Pineville East Estates	Johnston County	$ 2.45
Pineville West	Johnston County	$ 2.45
Plantation Park	Johnston County	$ 2.45
Plantation Pointe	Johnston County	$ 2.45
Poplar Woods	Johnston County	$ 2.45
River Dell East	Johnston County	$ 2.45
River Dell Townes	Johnston County	$ 2.45
Riverdell Elementary School	Johnston County	$ 2.45
South Plantation	Johnston County	$ 2.45

Service Area	Water Provider	Usage Charge/ 1,000 gallons
South Quarter	Johnston County	$ 2.45
Southgate	Johnston County	$ 2.45
Summerset Place	Johnston County	$ 2.45
Sun Ridge Farms	Johnston County	$ 2.45
Sweetgrass	Johnston County	$ 2.45
The Gardens at Flowers Plantation	Johnston County	$ 2.45
The Meadows	Johnston County	$ 2.45
The Nine	Johnston County	$ 2.45
The Woodlands	Johnston County	$ 2.45
Trillium	Johnston County	$ 2.45
Village at Flowers Plantation	Johnston County	$ 2.45
Walker Woods	Johnston County	$ 2.45
Watson's Mill	Johnston County	$ 2.45
West Ashley	Johnston County	$ 2.45
Whitfield at Flowers Plantation	Johnston County	$ 2.45
Wilders Woods and Extension	Johnston County	$ 2.45
Holly Hills	Town of Forest City	$ 5.95
Pear Meadows	Town of Fuquay-Varina	$ 4.35
Swiss Pine Lake	Town of Spruce Pine	$ 4.93
Brookwood/Lagrange Service Areas		
Kelly Hills	Fayetteville PWC	$ 2.92
Bretton Woods	Fayetteville PWC	$ 2.92
Raintree	Fayetteville PWC	$ 2.92
Colony Village	Fayetteville PWC	$ 2.92
Windsong	Fayetteville PWC	$ 2.92
Porter Place	Fayetteville PWC	$ 2.92
Thornwood	Fayetteville PWC	$ 2.92
County Walk	Fayetteville PWC	$ 2.92
Lands Down West	Fayetteville PWC	$ 2.92
S & L Estates	Fayetteville PWC	$ 2.92
Tarleton Plantation	Fayetteville PWC	$ 2.92
Springdale	Fayetteville PWC	$ 2.92
Ridge Manor	Fayetteville PWC	$ 2.92
Forest Lake	Fayetteville PWC	$ 2.92

Service Area	Water Provider	Usage Charge/ 1,000 gallons
Arden Forest	Fayetteville PWC	$ 2.92
Wendemere	Fayetteville PWC	$ 2.92
Jena-Shane	Fayetteville PWC	$ 2.92
Stoney Point	Fayetteville PWC	$ 2.92
Woodland Run	Town of Linden	$ 4.98

AQUA NORTH CAROLINA, INC.
PURCHASED SEWER RATES

Aqua North Carolina Service Areas

Monthly Metered Service where bulk service purchased from Charlotte (Park South Station and Parkway Crossing residential and commercial):

Base facility charge, zero usage (based on meter size)	Same as commercial charges listed on Appendix A-1 p 4
Residential and Commercial usage charge	$ 6.45, per 1,000 gallons

Hawthorne at the Greene Apartments and Beaver Farms Subdivision – Mecklenburg County: (See Docket No. W-899, Sub 37 and Docket No. W-218, Sub 357)

Base facilities charge (to be collected and delivered to Carolina Water Service, Inc. of North Carolina[1] for treatment of the wastewater), per month	$ 40.40 per REU[2]
Collection service/commodity charge (based on City of Charlotte's master meter reading), per 1,000 gallons	$ 6.11

[1] On August 17, 2016, in Docket No. W-1044, Sub 24, et al., the North Carolina Utilities Commission issued an Order Approving Merger. In accordance with the Order, and pursuant to the Articles of Merger filed with the North Carolina Department of the Secretary of State on August 30, 2016, Bradfield Farms Water Company was merged into Carolina Water Service, Inc. of North Carolina effective August 30, 2016.

[2] Residential Equivalent Unit.

AQUA NORTH CAROLINA, INC.
SCHEDULE OF CONNECTION FEES

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Alan Acres	$ 800.00	
Allendale	$ 500.00	
Altice Estates	$ 800.00	
Amy Acres	$ 500.00	
Apple Grove	$ 500.00	
Applegate	$ 500.00	
Arbor Run	$ 500.00	
Armfield, Phases 1A, 1B, 2, 3, 4, 5	$ 500.00	
Ashe Plantation	$ 725.00	
Ashebrook Woods	$ 500.00	
Ashton Park	$ 500.00	
Auburndale	$ 500.00	
Autumn Acres	$ 800.00	
Avocet, Phases1A, 1B, 1C, 1D, 1E, 2, 3,4, 5	$ 500.00	$ 500.00
Bakersfield	$ 500.00	
Ballard Farm	$ 500.00	
Balls Creek	$ 800.00	
Barkwood Lane	$1,200.00	
Bayberry	$ 800.00	
Beacon Hill	$ 500.00	
Beacon Hills	$ 800.00	
Beau Rivage	$ 969.00	$ 822.00
Beau Rivage Market Place Shopping Center	$1,000.00	
Beechwood Cove	$ 500.00	
Belews Landing	$ 500.00	
Bella Port		$2,500.00
Bells Crossing, Phases 1 ,2, 3, 4	$1,000.00	
Bennett Place		$1,000.00
Berklee Reserve	$ 500.00	
Bethel Forest	$ 500.00	
Betts Brook	$ 500.00	
Beverly Acres	$ 800.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Bexley Place	$ 500.00	
Birkhaven	$ 500.00	
Blue Water Cove	$ 500.00	
Bogue Watch		$2,500.00
Bonaire	$ 500.00	
Brafford Farms	$ 800.00	
Briar Creek	$ 500.00	
Brickfield	$ 400.00	
Bridgeport	$ 800.00	
Bridle Wood	$ 500.00	
Brights Creek	$ 500.00	$ 500.00
Brinley's Cove	$ 500.00	
Brook Forest	$ 800.00	
Buck Springs Plantation	$1,000.00	
Cameron Point	$ 500.00	
Candy Creek	$ 500.00	
Cane Bay	$ 500.00	$ 500.00
Cannonsgate		$2,500.00
Canterbury Trails	$ 500.00	
Capeside Village	$ 750.00	$1,000.00
Carmel Hills	$ 800.00	
Carmel Park	$ 800.00	
Cassimir Commons	$ 750.00	$1,000.00
Castle Bay	$ 500.00	$ 500.00
Castlewood	$ 800.00	
Catawba Shores	$ 800.00	
Cedar Chase	$ 500.00	
Cedar Creek	$ 500.00	
Cedar Grove	$ 800.00	
Cedar Valley	$ 800.00	
Chapelwood Acres	$ 800.00	
Charles Place at Arbor Run	$ 500.00	
Chatham	$ 500.00	
Clarendon Gardens (includes main extension)	$1,125.00	
Cliftwood West	$ 800.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Clear Meadow	$ 175.00	
Clubview Estates 1	$ 800.00	
Collybrooke, Phases 1, 1A, 2	$ 500.00	
Colvard Farms, Phase 9		$ 500.00
Copperfield	$ 800.00	
Coral Ridge	$1,000.00	$2,500.00
Country Acres	$ 800.00	
Country Acres MHP	$ 800.00	
Country Crossing, Phases I, II, and III	$ 750.00	
Country Crossing, Phases IV and V	$ 670.50	
Country Knolls	$ 800.00	
Country Meadows	$ 800.00	
Country Valley Ext (Lots 7G, 8G, 9G, 12E, 13E, 14E, 15E, 16E, 17F)	$2,500.00	
Country Woods	$ 800.00	
Countryside	$ 500.00	
Crabtree II	$ 500.00	
Craig Gardens	$ 800.00	
Creedmoor Village Shopping Center	$ 500.00	
Creekside	$ 500.00	
Creekside Shores	$1,000.00	
Crestview (Rowan County)	$ 500.00	
Crestview (Cabarrus County)	$ 800.00	
Cross Creek	$ 500.00	
Crutchfield Farms	$ 500.00	
Dalewood/Monteray	$ 800.00	
Deer Path	$ 500.00	
Deerwood	$ 500.00	
Dolphin Bay		$1,000.00
Dorsett Downs	$ 500.00	
Eagle Landing	$ 500.00	
East Bank	$ 750.00	$1,000.00
East Chestnut	$ 800.00	
East Gaston MHP	$ 500.00	
Eastlake	$ 850.00	$1,000.00
Edgewood Acres I & II	$ 800.00	
El Camino	$ 800.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Emerald Plantation		Actual Cost
Enoch Turner	$ 500.00	
Epes Trucking	$ 500.00	
Estates at Meadow Ridge	$ 500.00	
Ethan's Gate	$ 500.00	
Ethan's Glen	$ 500.00	
Fairfax	$ 800.00	
Fairview Park	$ 800.00	
Fairview Wooded Acres	$ 800.00	
Falls Creek	$ 500.00	
Fallscrest	$ 800.00	
Farmwood	$ 800.00	
Ferguson Village	$ 500.00	
Fleetwood Acres I	$ 800.00	
Fleetwood Falls and Fleetwood Falls, Sect 15	$ 500.00	
Fontain Village	$ 800.00	
Forest Acres	$ 800.00	
Forest Cove	$ 800.00	
Forest Pines	$ 500.00	
Forest Ridge	$ 500.00	
Fountain Trace	$ 800.00	
Fox Fire	$ 800.00	
Fox Ridge	$ 800.00	
Fox Run	$ 800.00	
Foxbury	$ 500.00	
Foxbury Meadows	$ 500.00	
Freemont Park	$ 500.00	
Gallagher Trails	$ 800.00	
Gates at Ethan's Glen	$ 500.00	
Glennburn (Sub 385)	$1,500.00	
Glencroft	$ 500.00	
Governors Club		$4,500.00
Governors Forest		$4,500.00
Governors Village		$4,500.00
Grayson Park	$ 500.00	
Graystone Forest	$ 500.00	$ 350.00

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Green Acres MHP	$ 800.00	
Green Meadows	$ 800.00	
Greenwood	$ 500.00	
Hanover Downs	$ 800.00	
Happy Valley	$ 500.00	
Hartman Farms	$ 500.00	
Hasentree, Phases 1-3, 4A, 4B, 4C, 5, 6A, 6B, 6C, 7, 8, 9, 10, 11, 15A, 15B, 15E		$2,500.00
Heartwood	$ 500.00	
Heather Acres	$ 800.00	
Heather Glen	$ 200.00	
Heritage Farms	$ 500.00	
Heritage West	$ 500.00	
Herman Acres	$ 800.00	
Hickory Creek (Houses on Basswood Way Only)	$ 500.00	
Hickory Ridge	$ 500.00	
Hidden Creek	$ 500.00	
Hidden Hills	$ 500.00	
Hidden Valley (Chatham County)	$ 500.00	
Hidden Valley (Catawba County)	$ 800.00	
High Grove, Phase 3	$ 500.00	
High Meadows	$ 725.00	
Hillsboro	$ 500.00	
Hilltop	$ 500.00	
Holiday Hills	$ 500.00	
Hollywood Acres	$ 800.00	
Homestead-Catawba	$ 500.00	
Hoyles Creek	$ 500.00	
Huntcliff	$ 500.00	
Hunters Mark	$ 500.00	
Hunters Ridge	$ 500.00	
Hunting Ridge	$ 500.00	
Huntley Glen Townhomes, Phase 2	$ 700.00	
Huntwood	$ 500.00	
Idlewild Park	$ 800.00	
Ingram Estates	$ 500.00	
Inlet Point Harbor	$ 750.00	$1,000.00

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Inlet Point Harbor Extension	$1,000.00	
Inlet Watch	$ 750.00	$1,000.00
Inlet Watch-irrigation meters	$ 300.00	
Interlaken	$ 500.00	
Island Bridge Way	$ 750.00	$1,000.00
Jack's Landing	$1,000.00	
Jamestowne	$ 500.00	
Keltic Meadows	$ 800.00	
Kendale Woods	$ 940.00	
Kimberly Courts	$ 500.00	
Kings Acres	$ 500.00	
Knob Creek	$ 500.00	
Knolls Phases I and II only	$ 500.00	
Knollview	$ 500.00	
Knollwood	$1,500.00	
Knoxhaven	$ 500.00	
Kynwood	$ 500.00	
Lakeridge	$ 500.00	
Lakewood	$ 800.00	
Lamar Acres	$ 800.00	
Lancer Acres	$ 500.00	
Laurel Acres	$ 500.00	
Laurel Woods	$ 500.00	
Lea Landing	$1,000.00	$2,500.00
Lennox Woods	$ 500.00	
Lighthouse Village	$ 750.00	$1,000.00
Linville Oaks	$ 500.00	
Little River Run	$ 800.00	
Long Shoals	$ 800.00	
Love Point	$ 500.00	
Lynmore	$ 800.00	
MacGregor Downs	$ 800.00	
Magnolia Place	$ 850.00	$1,000.00
Magnolia Springs	$ 800.00	
Mallard Crossing	$ 500.00	
Mallardhead	$ 500.00	
Maplecrest	$ 800.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Mariners Pointe, Phase 1	$ 450.00	
Mar-Lyn Forest	$ 500.00	
Meadow Creek	$ 500.00	
Meadow Ridge	$ 500.00	
Meadow Run	$ 500.00	
Meadowbrook	$ 500.00	
Mill Creek Landing	$1,000.00	
Mineral Springs	$ 500.00	
Monticello Estates	$ 500.00	
Moratuck Manor	$1,000.00	
Morningside Park	$ 800.00	
Morris Grove	$ 500.00	
Morristown	$1,000.00	
Moss Haven	$ 800.00	
Mount Vernon Crossing, Phase 3	$ 500.00	
Mountain Creek	$ 500.00	
Mountain Point	$ 350.00	
Mountainbrook	$ 800.00	
Murray Hills	$ 800.00	
Myrtlewood	$ 800.00	
Nantucket Village	$ 500.00	
Nautical Green	$ 750.00	$1,000.00
Neuse Colony	$2,000.00	$1,000.00
Neuse River Village	$ 500.00	$ 500.00
New Chartwell	$ 500.00	
Normandy Glen	$ 500.00	
Oak Harbor (excludes Knox Realty)	$1,750.00	
Oak Hill	$ 800.00	
Oakley Park	$ 800.00	
Old Cape Cod	$ 750.00	$1,000.00
Old Providence	$ 800.00	
Paradise Point	$ 800.00	
Park South Station	$ 700.00	
Parkway Crossing	$ 700.00	
Parkwood	$ 500.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Peabody Forest	$ 500.00	
Pearman Estates	$ 500.00	
Pepper Ridge	$ 500.00	
Pheasant Ridge	$ 500.00	
Phillips Landing	$ 800.00	
Piedmont Estates	$ 500.00	
Pilot's Ridge, Lots 22 through 29	$1,000.00	
Pine Knolls	$ 500.00	
Pine Meadows	$ 500.00	
Pineview	$ 500.00	
Pinewood Acres	$ 800.00	
Pleasant Gardens	$ 500.00	
Polk's Landing	$ 500.00	
Polk's Trail	$ 500.00	
Ponderosa	$ 500.00	
Providence Acres	$ 800.00	
Providence North	$ 500.00	
Quail Meadows	$ 500.00	
Quail Oaks	$ 500.00	
Quail's Nest	$ 500.00	
Raintree	$ 800.00	
Red Mountain	$ 500.00	
Regency Village	$ 500.00	
Richwood Acres	$ 500.00	
Ridgecrest	$ 500.00	
Ridgeview Park	$ 800.00	
Ridgeway Courts	$ 500.00	
Ridgewood	$ 500.00	
River Oaks (Guilford County)	$ 500.00	
River Oaks (New Hanover County)	$ 750.00	
River Oaks, Phase 8 (New Hanover County)	$1,000.00	$2,500.00
River Park	$1,500.00	$10.00 / gpd of capacity
River Point at Beau Rivage	$ 969.00	$ 822.00
River Ridge Run	$ 500.00	
River Run	$ 500.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Riverside at Oak Ridge	$ 500.00	
Riverton Place	$ 800.00	
Riverview	$ 500.00	
Riverwoods	$ 800.00	
Robinfield	$ 800.00	
Roland Place	$ 750.00	$1,000.00
Roland Place extension	$1,000.00	
Rolling Hills	$ 500.00	
Rolling Meadows	$ 800.00	
Round Tree Ridge		$2,500.00
Rustic Trials	$ 800.00	
Saddlewood	$ 800.00	
Sailors Lair	$1,000.00	$2,500.00
Sanford's Creek	$ 500.00	
Seabreeze	$ 750.00	$1,000.00
Seabreeze Sound Extension	$1,000.00	$2,500.00
Seagate I	$ 500.00	
Seagate IV	$ 500.00	
Sedgley Abby	$ 750.00	$1,000.00
Shade Tree	$ 500.00	
Shadow Oaks	$ 500.00	
Shangri-la	$ 800.00	
Shaw Hill Estates	$ 500.00	
Sherwood Forest (Catawba County)	$ 500.00	
Shiloh	$ 500.00	
Shipwatch	$ 750.00	$1,000.00
Silverstone	$ 800.00	
Skyland Drive	$ 800.00	
Smoke Ridge	$ 500.00	
Smokerise	$ 500.00	
Snow Creek	$ 500.00	
Sopanos Point	$ 750.00	$1,000.00
South Bourne	$ 500.00	
South Forest	$ 800.00	
South Fork (Catawba)	$ 500.00	
South Fork (Gaston)	$ 800.00	
South Hill	$ 800.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
South Hill Estates	$ 800.00	
South Point Landing	$ 800.00	
Southampton	$ 800.00	
Southgate	$ 800.00	
Southwood	$ 800.00	
Spencer Road Acres	$ 800.00	
Spinnaker Bay	$ 800.00	
Spinnaker Pointe	$1,000.00	
Spring Hill/Springdale	$ 800.00	
Spring Shores	$ 800.00	
Spring Valley	$ 800.00	
Springdale	$ 500.00	
Springfield Estates	$ 500.00	
Springhaven	$ 800.00	
Sprinkle	$ 500.00	
Stanleystone Estates	$1,000.00	
Starland Park	$ 800.00	
Sterlingshire	$ 500.00	
Stonehouse Acres	$1,000.00	
Stoneridge	$ 500.00	
Stoney Brook	$ 800.00	
Sturbridge Village	$ 500.00	
Summerfield Farms	$ 500.00	
Summerwind	$ 500.00	
Sunset Bay (3 digit lot #s on Roundstone Road)	$2,500.00	
Sunset Hills	$ 800.00	
Sunset Park	$ 800.00	
Swiss Pine Lake	$ 800.00	
Tablerock	$ 800.00	
Telfair Forrest	$ 750.00	$1,000.00
The Cape, Section A	$ 750.00	$1,000.00
The Cape, Section B	$ 750.00	$1,000.00
The Gardens at Flowers	$ 850.00	$1,000.00
The Reserve at Falls Lake, Phase I	$ 500.00	
The Sanctuary	$ 750.00	$1,000.00
The Village at Motts Landing	$1,000.00	
The Vineyards	$ 500.00	

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Thornton Ridge	$ 400.00	
Tidelands on the River	$1,000.00	
Timberlake	$ 400.00	
Timberline	$ 500.00	
Timberline Shores	$1,000.00	
Tralee Place	$1,000.00	
Triple Lakes	$ 500.00	
Tuxedo	$ 800.00	
Twelve Oaks	$ 500.00	
Twelve Oaks Cadet Drive Extension	$1,700.00	
Twin Creek	$3,000.00	
Twin Oaks	$ 500.00	
Valley Acres	$ 500.00	
Valley Dale	$ 500.00	
Village Woods	$ 500.00	
Walker Estates	$ 500.00	
Waterford		$2,500.00
Watts	$ 800.00	
Weatherstone	$ 350.00	
Wellington	$ 500.00	
Wesley Acres	$ 800.00	
West View at River Oaks	$1,000.00	$2,500.00
Westfall – 100 foot wide lots (47 lots)		$2,750.00
Westfall – 80 foot wide lots (60 lots)		$2,565.00
Westfall – 60 foot wide lots (69 lots)		$2,250.00
Westfall – Estate Lots (64 lots)		$3,150.00
Westfall – Amenities		$2,000.00
Westside Hills	$ 500.00	
Willard Run/San Siro	$ 500.00	
Willow Creek		$ 500.00
Willow Glen at Beau Rivage	$ 500.00	$ 500.00
Willow Oaks	$ 800.00	
Wilson Farm	$ 500.00	
Wimbledon	$1,500.00	
Winding Forest	$ 500.00	
Windspray	$ 750.00	$1,000.00
Windswept, Phase 1	$ 750.00	$1,000.00

SYSTEM NAME	CONNECTION FEE - WATER	CONNECTION FEE - SEWER
Windswept, Phase 2 & 3		$ 500.00
Windwood Acres	$ 800.00	
Woodbridge	$ 500.00	
Woodford (Hawks Ridge)	$ 500.00	
Woodlake	$ 800.00	$ 800.00
Woodlake – Irrigation Meter	$ 300.00	
Woodland Hills	$ 500.00	
Woodland Shores	$1,000.00	
Woodlawn	$ 800.00	
Woodleigh	$ 800.00	
Wright Beaver	$ 500.00	
Yorkwood Park	$ 800.00	

AQUA NORTH CAROLINA, INC.
WATER AND SEWER SYSTEM IMPROVEMENT CHARGES

WATER SYSTEM IMPROVEMENT CHARGE

All Aqua NC water systems except as noted below	0.00% 1/ and 2/
Water systems in Brookwood and LaGrange service areas	0.00% 1/ and 2/
Water systems in Fairways and Beau Rivage service areas	0.00% 1/ and 2/

SEWER SYSTEM IMPROVEMENT CHARGE

All Aqua NC sewer systems except as noted below	0.00% 1/ and 3/
Sewer systems in Fairways and Beau Rivage service areas	0.00% 1/ and 3/

1/ Reset to zero pursuant to the Commission's Order in Docket No. W-218, Sub 497.

2/ Upon approval by further order of the Commission, the Water System Improvement Charge will be applied to the total water utility bill of each customer under the Company's applicable rates and charges.

3/ Upon approval by further order of the Commission, the Sewer System Improvement Charge will be applied to the total sewer utility bill of each customer under the Company's applicable rates and charges.

Issued in Accordance with Authority Granted by the North Carolina Utilities Commission in Docket No. W-218, Sub 497, on this the 18th day of December, 2018.

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	
Application by Aqua North Carolina, Inc.,	) NOTICE TO
202 MacKenan Court, Cary, North Carolina 27511,	) CUSTOMERS IN AQUA
for Authority to Increase Rates for Water and Sewer	) NORTH CAROLINA
Utility Service in All of Its Service Areas in North	) SERVICE AREAS
Carolina	)

NOTICE IS HEREBY GIVEN that the North Carolina Utilities Commission has issued an Order authorizing Aqua North Carolina, Inc. (Aqua NC), to increase its rates for water and sewer service in its service areas in North Carolina. The new approved water and sewer rates for Aqua NC customers, excluding the Brookwood / LaGrange service areas in Cumberland and Hoke Counties and the Fairways / Beau Rivage service areas in New Hanover County, are as follows:

WATER UTILITY SERVICE

Monthly Metered Service (Residential and Commercial customers)

Base charge (zero usage, based on meter size)

<1" meter	$ 19.25
1" meter	$ 48.13
1-1/2" meter	$ 96.25
2" meter	$154.00
3" meter	$288.75
4" meter	$481.25
6" meter	$962.50

Usage charge, per 1,000 gallons $ 5.83

Bulk Purchased Water Systems
Base monthly charge same as above

Usage charge per 1,000 gallons, where water purchased for resale as shown below:

Service Area	Water Provider	Usage Charge
Twin Creeks	City of Asheville	$ 4.26
Heather Glen and Highland	City of Belmont	$14.40
Southpoint Landing	City of Belmont	$14.40
Park South	City of Charlotte	$ 1.81
Parkway Crossing	City of Charlotte	$ 1.81
Springhill / Springdale	City of Concord	$ 5.11
Hoopers Valley	City of Hendersonville	$ 3.06
Crystal Creek	City of Hendersonville	$ 3.06
Rambling Ridge	City of Hendersonville	$ 3.06
Brookwood	City of Hickory (outside city)	$ 5.04
Heritage Farms	City of Hickory (inside city)	$ 2.83
Cedarwood Estates	City of Hickory (inside city)	$ 2.83
Hill-N-Dale	City of Lincolnton	$ 7.70
East Shores	City of Morganton	$ 2.52
Greenfield	City of Mount Airy	$ 7.15
Bett's Brook	City of Newton	$ 2.85
Crestwood	Davidson Water, Inc.	$ 5.30
Lancer Acres	Davidson Water, Inc.	$ 5.30
Beard Acres	Davidson Water, Inc.	$ 5.30
Woodlake Development	Harnett County	$ 2.77
Beechwood Cove	Chatham County	$ 7.04
Chatham	Chatham County	$ 7.04
Cole Park Plaza Shopping Center	Chatham County	$10.01
Hidden Valley	Chatham County	$ 7.04
Polks Landing	Chatham County	$ 7.04
Chapel Ridge	Town of Pittsboro	$13.69
Laurel Ridge	Town of Pittsboro	$13.69
The Parks at Meadowview	Town of Pittsboro	$13.69
River Hill Heights	Iredell Water Corp.	$ 2.72

Service Area	Water Provider	Usage Charge
Bedford at Flowers Plantation	Johnston County	$ 2.45
Bennett Place	Johnston County	$ 2.45
Chatham	Johnston County	$ 2.45
Cottages at Evergreen	Johnston County	$ 2.45
Cottonfield Village	Johnston County	$ 2.45
Creekside Place	Johnston County	$ 2.45
Eastlake at Flowers Plantation	Johnston County	$ 2.45
Evergreen	Johnston County	$ 2.45
Flowers Crest	Johnston County	$ 2.45
Flowers Shopping Center	Johnston County	$ 2.45
Forge Creek	Johnston County	$ 2.45
Longleaf	Johnston County	$ 2.45
Magnolia	Johnston County	$ 2.45
Magnolia Place/Village	Johnston County	$ 2.45
Mill Creek North	Johnston County	$ 2.45
Mill Creek West	Johnston County	$ 2.45
Neuse Colony	Johnston County	$ 2.45
North Farm	Johnston County	$ 2.45
North Farm Cottages	Johnston County	$ 2.45
North Village	Johnston County	$ 2.45
Parkway Center/Village	Johnston County	$ 2.45
Peachtree	Johnston County	$ 2.45
Pineville Club	Johnston County	$ 2.45
Pineville East	Johnston County	$ 2.45
Pineville East Cottages/Palmetto Pl.	Johnston County	$ 2.45
Pineville East Estates	Johnston County	$ 2.45
Pineville West	Johnston County	$ 2.45
Plantation Park	Johnston County	$ 2.45
Plantation Pointe	Johnston County	$ 2.45
Poplar Woods	Johnston County	$ 2.45
River Dell East	Johnston County	$ 2.45
River Dell Townes	Johnston County	$ 2.45
Riverdell Elementary School	Johnston County	$ 2.45
South Plantation	Johnston County	$ 2.45
South Quarter	Johnston County	$ 2.45
Southgate	Johnston County	$ 2.45
Summerset Place	Johnston County	$ 2.45
Sun Ridge Farms	Johnston County	$ 2.45
Sweetgrass	Johnston County	$ 2.45
The Gardens at Flowers Plantation	Johnston County	$ 2.45

Service Area	Water Provider	Usage Charge
The Meadows	Johnston County	$ 2.45
The Nine	Johnston County	$ 2.45
The Woodlands	Johnston County	$ 2.45
Trillium	Johnston County	$ 2.45
Village at Flowers Plantation	Johnston County	$ 2.45
Walker Woods	Johnston County	$ 2.45
Watson's Mill	Johnston County	$ 2.45
West Ashley	Johnston County	$ 2.45
Whitfield at Flowers Plantation	Johnston County	$ 2.45
Wilders Woods and Extension	Johnston County	$ 2.45
Holly Hills	Town of Forest City	$ 5.95
Pear Meadows	Town of Fuquay-Varina	$ 4.35
Swiss Pine Lake	Town of Spruce Pine	$ 4.93

Monthly Unmetered service (flat rate)	
Residential customers	$ 39.66
Commercial customers (per *REU)	$ 67.42

*(REU = Residential Equivalent Unit)

SEWER UTILITY SERVICE

Monthly Unmetered Service (flat rate)
All service areas unless noted differently below

Residential customers	$ 72.04
Commercial customers (per *REU)	$ 100.86
*(REU = Residential Equivalent Unit)	
STEP system flat rate (Monticello, Holly Brook, Saddleridge)	$ 32.00

Commercial Monthly Metered Service and all the Park South Station and Parkway Crossing Service Areas (based on metered water usage)

Base facility charge (zero usage, based on water meter size)
All service areas unless noted differently below

<1" meter	$ 26.11
1" meter	$ 65.28
1½" meter	$ 130.55
2" meter	$ 208.88
3" meter	$ 391.65
4" meter	$ 652.75
6" meter	$1,305.50

Usage charge, per 1,000 gallons	$ 8.92
All service areas unless noted differently below	

Park South Station and Parkway Crossing Service Areas

Base facility charge:	As shown above
Usage charge/1,000 gallons	$ 6.45

Hawthorne Green (formerly Vista Park Apartments)

Base facility charge/REU	$ 40.40
Usage charge, per 1,000 gallons	$ 6.11

IMPACT ON AVERAGE RESIDENTIAL BILL

The impact on the average monthly residential bill including the reset of the water and sewer system improvement charge (WSIC and SSIC) is as follows:

	Water	Sewer
Average bill under prior rates	$47.05	$65.57
Average bill under approved rates	$48.23	$72.04

The average monthly residential bills are based on the uniform rates for non-purchased water and sewer systems based on an average usage of 4,971 gallons per month. The average residential bills for the bulk purchased water and sewer systems will vary.

RATE ADJUSTMENT MECHANISM:

The Commission-authorized WSIC and SSIC rate adjustment mechanisms continue in effect. These charges have been reset to zero in the Docket No. W-218, Sub 497 rate case, but Aqua NC may, under the Rules and Regulations of the Commission, apply for a rate surcharge on May 1, 2019, to become effective July 1, 2019. The WSIC/SSIC mechanisms are designed to recover, between rate case proceedings, the costs associated with investment in certain completed, eligible projects for water and sewer system improvements. The WSIC/SSIC mechanisms are subject to Commission approval and to audit and refund provisions. Any cumulative system improvement charge recovered pursuant to the WSIC/SSIC mechanisms may not exceed 5% of the total annual service revenues approved by the Commission in this general rate case proceeding. Additional information regarding the WSIC/SSIC mechanisms is contained in the Commission's Order and can be accessed from the Commission's website at www.ncuc.net, under Docket Information, using the Docket Search feature for docket number "W-218 Sub 497" or W-218 Sub 497A".

CREDIT/REFUNDS DUE TO REDUCTIONS IN CORPORATE FEDERAL AND STATE INCOME TAX RATES:

On December 22, 2017, President Donald J. Trump signed into law the Tax Cuts and Jobs Act (The Tax Act), which among other things, reduced the federal corporate income tax rate from 35% to 21%, effective for taxable years beginning after December 31, 2017. In the present rate case proceeding, the Commission reduced Aqua NC's revenue requirement to reflect the reduction in the federal corporate income tax rate from 35% to 21%, on the Company's ongoing federal

income tax expense. Further, the Commission is requiring that Aqua NC refund to its customers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest, through a surcharge credit for a one-year period beginning with the effective date of the new rates.

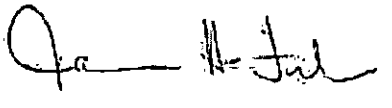
With respect to excess deferred income taxes (EDIT) resulting from reductions in the corporate federal and state income tax rates, the Commission is requiring that: (a) Aqua NC's Protected Federal EDIT shall be flowed back to customers following the tax normalization rules utilizing the average rate assumption method (ARAM) as required by the rules of the Internal Revenue Service; (b) Aqua NC's Unprotected Federal EDIT shall be returned to ratepayers through a levelized rider over a period of three years; and (c) Aqua NC's State EDIT shall be returned to customers through a levelized rider that will expire at the end of a three-year period.

Aqua NC will provide the applicable dollar amounts concerning (1) the one-year surcharge credit and (2) the federal and state EDIT riders (refunds) shown as separate line items on individual customers' monthly bills, along with explanatory information.

ISSUED BY ORDER OF THE COMMISSION.

This the 18th day of December, 2018.

NORTH CAROLINA UTILITIES COMMISSION



Janice H. Fulmore, Deputy Clerk

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	
Application by Aqua North Carolina, Inc.,	) NOTICE TO
202 MacKenan Court, Cary, North Carolina	) CUSTOMERS IN
27511, for Authority to Increase Rates for Water	) BROOKWOOD /
and Sewer Utility Service in All of Its Service	) LAGRANGE
Areas in North Carolina	) SERVICE AREAS

NOTICE IS HEREBY GIVEN that the North Carolina Utilities Commission has issued an Order authorizing Aqua North Carolina, Inc. (Aqua NC), to increase its rates for water service in its Brookwood and LaGrange service areas in Cumberland and Hoke Counties. The new approved water rates are as follows:

Monthly Metered Service (Residential and Commercial customers)

Base charge, per month (zero usage, based on meter size)

<1" meter	$ 14.03
1" meter	$ 35.08
1½" meter	$ 70.15
2" meter	$ 112.24
3" meter	$ 210.45
4" meter	$ 350.75
6" meter	$ 701.50

Usage charge, per 1,000 gallons $ 3.76
All service areas unless noted differently below

Bulk Purchased Water Systems

Base monthly charge same as above

Usage charge per 1,000 gallons, where water purchased for resale as shown below

Service Area	Water Provider	Usage Charge
Kelly Hills	Fayetteville PWC	$ 2.92
Bretton Woods	Fayetteville PWC	$ 2.92
Raintree	Fayetteville PWC	$ 2.92
Colony Village	Fayetteville PWC	$ 2.92
Windsong	Fayetteville PWC	$ 2.92
Porter Place	Fayetteville PWC	$ 2.92
Thornwood	Fayetteville PWC	$ 2.92
County Walk	Fayetteville PWC	$ 2.92
Lands Down West	Fayetteville PWC	$ 2.92
S & L Estates	Fayetteville PWC	$ 2.92
Tarleton Plantation	Fayetteville PWC	$ 2.92
Springdale	Fayetteville PWC	$ 2.92
Ridge Manor	Fayetteville PWC	$ 2.92
Forest Lake	Fayetteville PWC	$ 2.92
Arden Forest	Fayetteville PWC	$ 2.92
Wendemere	Fayetteville PWC	$ 2.92
Jena-Shane	Fayetteville PWC	$ 2.92
Stoney Point	Fayetteville PWC	$ 2.92
Woodland Run	Town of Linden	$ 4.98

Monthly Unmetered Service/REU (flat rate)	
Residential Rate	$ 33.17
Commercial customers (per *REU)	$ 56.39

*(REU = Residential Equivalent Unit)

IMPACT ON AVERAGE RESIDENTIAL BILL

The impact on the average monthly residential bill including the reset of the WSIC is as follows:

	Water
Average bill under prior rates	$30.17
Average bill under approved rates	$33.98

The average monthly residential bills are based on the rates for non-purchased water systems based on an average usage of 5,306 gallons per month. The average residential bills for the bulk purchased water systems will vary.

RATE ADJUSTMENT MECHANISM:

The Commission-authorized WSIC rate adjustment mechanism continues in effect. This surcharge has been reset to zero in the Docket No. W-218, Sub 497 rate case, but Aqua NC may, under the Rules and Regulations of the Commission, apply for a rate surcharge on May 1, 2019, to become effective July 1, 2019. The WSIC mechanism is designed to recover, between rate case proceedings, the costs associated with investment in certain completed, eligible projects for water and sewer system improvements. The WSIC mechanism is subject to Commission approval and to audit and refund provisions. Any cumulative system improvement charge recovered pursuant to the WSIC mechanism may not exceed 5% of the total annual service revenues approved by the Commission in this general rate case proceeding. Additional information regarding the WSIC mechanism is contained in the Commission's Order and can be accessed from the Commission's website at www.ncuc.net, under Docket Information, using the Docket Search feature for docket number "W-218 Sub 497" or W-218 Sub 497A".

CREDIT/REFUNDS DUE TO REDUCTIONS IN CORPORATE FEDERAL AND STATE INCOME TAX RATES:

On December 22, 2017, President Donald J. Trump signed into law the Tax Cuts and Jobs Act (The Tax Act), which among other things, reduced the federal corporate income tax rate from 35% to 21%, effective for taxable years beginning after December 31, 2017. In the present rate case proceeding, the Commission reduced Aqua NC's revenue requirement to reflect the reduction in the federal corporate income tax rate from 35% to 21%, on the Company's ongoing federal income tax expense. Further, the Commission is requiring that Aqua NC refund to its customers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest, through a surcharge credit for a one-year period beginning with the effective date of the new rates.

With respect to excess deferred income taxes (EDIT) resulting from reductions in the corporate federal and state income tax rates, the Commission is requiring that: (a) Aqua NC's Protected Federal EDIT shall be flowed back to customers following the tax normalization rules utilizing the average rate assumption method (ARAM) as required by the rules of the Internal Revenue Service; (b) Aqua NC's Unprotected Federal EDIT shall be returned to ratepayers through a levelized rider over a period of three years; and (c) Aqua NC's State EDIT shall be returned to customers through a levelized rider that will expire at the end of a three-year period.

Aqua NC will provide the applicable dollar amounts concerning (1) the one-year surcharge credit and (2) the federal and state EDIT riders (refunds) shown as separate line items on individual customers' monthly bills, along with explanatory information.

ISSUED BY ORDER OF THE COMMISSION.

This the 18th day of December, 2018.

NORTH CAROLINA UTILITIES COMMISSION

Janice H. Fulmore, Deputy Clerk

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-218, SUB 497

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of	
Application by Aqua North Carolina, Inc.,	) NOTICE TO
202 MacKenan Court, Cary, North Carolina	) CUSTOMERS IN
27511, for Authority to Increase Rates for Water	) FAIRWAYS AND
and Sewer Utility Service in All of Its Service	) BEAU RIVAGE
Areas in North Carolina	) SERVICE AREAS

NOTICE IS HEREBY GIVEN that the North Carolina Utilities Commission has issued an Order authorizing Aqua North Carolina, Inc. (Aqua NC), to decrease its rates for water service and increase its rates for sewer service in its Fairways and Beau Rivage service areas in New Hanover County. The new approved water and sewer rates are as follows:

WATER UTILITY SERVICE

Monthly Metered Service (Residential and Commercial customers)

Base charge, per month (zero usage, based on meter size)	
<1" meter	$ 8.36
1" meter	$ 20.90
1½" meter	$ 41.80
2" meter	$ 66.88
3" meter	$ 125.40
4" meter	$ 209.00
6" meter	$ 418.00
Usage charge, per 1,000 gallons	$ 1.53

SEWER UTILITY SERVICE

Monthly Unmetered Service (flat rate)

Residential customers	$ 58.56
Commercial customers (per *REU)	$ 81.98

*(REU = Residential Equivalent Unit)

Commercial Monthly Metered Service (based on metered water usage)

Base facility charge (zero usage, based on water meter size)

<1" meter	$ 20.72
1" meter	$ 51.80
1 1/2" meter	$ 103.60
2" meter	$ 165.76
3" meter	$ 310.80
4" meter	$ 518.00
6" meter	$ 1,036.00

Usage charge, per 1,000 gallons $ 9.46

IMPACT ON AVERAGE RESIDENTIAL BILL

The impact on the average monthly residential bill including the reset of the WSIC and SSIC is as follows:

	Water	Flat Rate Sewer
Average bill under prior rates	$19.26	$38.09
Average bill under approved rates	$19.13	$58.56

The average monthly residential bills listed above are based on an average usage of 7,042 gallons per month.

RATE ADJUSTMENT MECHANISM:

The Commission-authorized WSIC and SSIC rate adjustment mechanisms continue in effect. These charges have been reset to zero in the Docket No. W-218, Sub 497 rate case, but Aqua NC may, under the Rules and Regulations of the Commission, apply for a rate surcharge on May 1, 2019, to become effective July 1, 2019. The WSIC/SSIC mechanisms are designed to recover, between rate case proceedings, the costs associated with investment in certain completed, eligible projects for water and sewer system improvements. The WSIC/SSIC mechanisms are subject to Commission approval and to audit and refund provisions. Any cumulative system improvement charge recovered pursuant to the WSIC/SSIC mechanisms may not exceed 5% of the total annual service revenues approved by the Commission in this general rate case proceeding. Additional information regarding the WSIC/SSIC mechanisms is contained in the Commission's Order and can be accessed from the Commission's website at www.ncuc.net, under Docket Information, using the Docket Search feature for docket number "W-218 Sub 497" or W-218 Sub 497A".

CREDIT/REFUNDS DUE TO REDUCTIONS IN CORPORATE FEDERAL AND STATE INCOME TAX RATES:

On December 22, 2017, President Donald J. Trump signed into law the Tax Cuts and Jobs Act (The Tax Act), which among other things, reduced the federal corporate income tax rate from 35% to 21%, effective for taxable years beginning after December 31, 2017. In the present rate case proceeding, the Commission reduced Aqua NC's revenue requirement to reflect the reduction in the federal corporate income tax rate from 35% to 21%, on the Company's ongoing federal income tax expense. Further, the Commission is requiring that Aqua NC refund to its customers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest, through a surcharge credit for a one-year period beginning with the effective date of the new rates.

With respect to excess deferred income taxes (EDIT) resulting from reductions in the corporate federal and state income tax rates, the Commission is requiring that: (a) Aqua NC's Protected Federal EDIT shall be flowed back to customers following the tax normalization rules utilizing the average rate assumption method (ARAM) as required by the rules of the Internal Revenue Service; (b) Aqua NC's Unprotected Federal EDIT shall be returned to ratepayers through a levelized rider over a period of three years; and (c) Aqua NC's State EDIT shall be returned to customers through a levelized rider that will expire at the end of a three-year period.

Aqua NC will provide the applicable dollar amounts concerning (1) the one-year surcharge credit and (2) the federal and state EDIT riders (refunds) shown as separate line items on individual customers' monthly bills, along with explanatory information.

ISSUED BY ORDER OF THE COMMISSION.

This the 18th day of December, 2018.

NORTH CAROLINA UTILITIES COMMISSION

Janice H. Fulmore, Deputy Clerk

CERTIFICATE OF SERVICE

I,_____, mailed with sufficient postage or hand delivered to all affected customers the attached Notices to Customers issued by the North Carolina Utilities Commission in Docket No. W-218, Sub 497, and the Notices were mailed or hand delivered by the date specified in the Order.

This the____day of_____, 20___.

By: _____
Signature

_____
Name of Utility Company

The above named Applicant,_____, personally appeared before me this day and, being first duly sworn, says that the required Notices to Customers were mailed or hand delivered to all affected customers, as required by the Commission Order dated _____ in Docket No. W-218, Sub 497.

Witness my hand and notarial seal, this the _____ day of _____, 20____.

_____
Notary Public

_____
Printed or Typed Name

(SEAL) My Commission Expires: _____
Date

Attorney General's Office - Backley Cross Exhibit 2
I/A

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-354, SUB 360

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application by Carolina Water Service, Inc., of North Carolina, 4944 Parkway Plaza Boulevard, Suite 375, Charlotte, North Carolina 28217, for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All of its Service Areas in North Carolina, Except Corolla Light and Monteray Shores Service Area	) ORDER APPROVING JOINT) PARTIAL SETTLEMENT) AGREEMENT AND STIPULATION,) GRANTING PARTIAL RATE) INCREASE, AND REQUIRING) CUSTOMER NOTICE)

HEARD: Tuesday, August 28, 2018, at 7:00 p.m., in the Craven County Courthouse, Courthouse Annex, Courtroom #4, 302 Broad Street, New Bern, North Carolina

Wednesday, August 29, 2018, at 7:00 p.m., in Courtroom 317, New Hanover County Courthouse, 316 Princess Street, Wilmington, North Carolina

Wednesday, September 19, 2018, at 7:00 p.m., in the Mecklenburg County Courthouse, Courtroom 5350, 832 East 4th Street, Charlotte, North Carolina

Tuesday, September 25, 2018, at 7:00 p.m., in the Watauga County Courthouse, Courtroom #1, 842 W. King Street, Boone, North Carolina

Wednesday, September 26, 2018, at 7:00 p.m., in the Buncombe County Courthouse, Courtroom 1A, 60 Court Plaza, Asheville, North Carolina

Monday, October 8, 2018, at 7:00 p.m., and Tuesday, October 16, 2018, at 10:00 a.m., in Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina

BEFORE: Chairman Edward S. Finley, Jr., Presiding, and Commissioners ToNola D. Brown-Bland, Jerry C. Dockham, James G. Patterson, Lyons Gray, Daniel G. Clodfelter, and Charlotte A. Mitchell

APPEARANCES:

For Carolina Water Service, Inc. of North Carolina:

Jo Anne Sanford, Sanford Law Office, PLLC, Post Office Box 28085, Raleigh, North Carolina 27611

Robert H. Bennink, Jr., Bennink Law Office, 130 Murphy Drive, Cary, North Carolina 27513

For Corolla Light Community Association, Inc.:

Brady W. Allen, Allen Law Offices, PLLC, 1514 Glenwood Ave., Suite 200, Raleigh, North Carolina 27608

For the Using and Consuming Public:

Gina C. Holt, William E. Grantmyre, and John Little, Staff Attorneys, Public Staff – North Carolina Utilities Commission, 4326 Mail Service Center, Raleigh, North Carolina 27699

Margaret A. Force, Assistant Attorney General, North Carolina Department of Justice, Post Office Box 629, Raleigh, North Carolina 27602

BY THE COMMISSION: On March 23, 2018, in the above-captioned proceeding, pursuant to Commission Rule R1-17(a), Carolina Water Service, Inc., of North Carolina (CWSNC or Company) submitted notice of its intent to file a general rate case application.

On April 6, 2018, CWSNC filed a procedural request proposing that the impact of the Federal Tax Cuts and Jobs Act (the Tax Act) on the Company's rates be addressed and resolved in this docket, rather than in the Commission's generic tax docket (Docket No. M-100, Sub 148).

On April 27, 2018, CWSNC filed its verified application for a general rate increase (Application), seeking authority to: (1) increase and adjust its rates for water and sewer utility service in all of its service areas in North Carolina, except for the Company's Corolla Light/Monteray Shores service area (CLMS); and (2) pass through any increases in purchased bulk water rates, subject to CWSNC providing sufficient proof of the increases, as well as any increased costs of wastewater treatment performed by third parties and billed to CWSNC. Included with this filing were certain information and data required by NCUC Form W-1. The Company stated in its Application that it presently has approximately 34,871 water customers and 21,531 sewer customers in North Carolina

(including water and sewer availability customers).[1] The present rates for water and sewer service have been in effect since November 8, 2017, pursuant to the Commission's Order Approving Stipulations, Granting Partial Rate Increase and Requiring Customer Notice in CWSNC's last general rate case in Docket No. W-354, Sub 356 (Sub 356 Order).[2]

On May 16, 2018, the Company filed an Amendment to its Application, revising Page 4 of 7 to Appendix A-1.

On May 22, 2018, the Commission issued an Order Establishing General Rate Case, Suspending Rates, Scheduling Hearings, and Requiring Customer Notice. By that Order, the Commission declared this matter to be a general rate case pursuant to N.C.G.S. § 62-137, suspended the effect of the proposed new rates for up to 270 days pursuant to N.C.G.S. § 62-134, and required the parties to prefile testimony and exhibits. That Order also scheduled customer hearings in New Bern, Wilmington, Charlotte, Boone, Asheville, and Raleigh, North Carolina, set the evidentiary hearing in Raleigh, North Carolina, and required notice to all affected customers. On May 30, 2018, CWSNC filed its Ongoing Three-Year Water and Sewer Improvement Charges (WSIC/SSIC) Plan.

On July 27, 2018, CWSNC filed a certificate of service demonstrating that the Applicant sent the notices to customers as required by the Commission's Order issued in this proceeding on May 22, 2018.

Public hearings were held as scheduled. The following public witnesses testified at the public hearings in this proceeding:

August 28, 2018	New Bern	Ted Warnock, Simon Lock, Diana Viglianese, Jim Brown, Mike Shannon, Ralph Tridico, Irving Joffee, Michael Kaplan, John Gumbel, and Benny Thompson
August 29, 2018	Wilmington	David Holsinger
September 19, 2018	Charlotte	Patricia Marquardt, William Colyer, Nicoline Howell, Griffin Rice, Margaret Quan, Deborah Atkinson, Nicholas Stephen Kirkley, Tom Moody, Karen Cynowa, and Michael Tepedino

[1] The Company did not indicate the specific date related to its present number of customers stated in the Application. The number of customers presented in Finding of Fact No. 13 herein is based on the final revised detailed billing analysis prepared by Public Staff witness Casselberry for the 12-month period ended December 31, 2017, and is not disputed by the Company.

[2] The Elk River Development was excluded from the general rate increase application filed in Docket No. W-354, Sub 356, as the rates for those customers had increased effective September 20, 2016, pursuant to a rate increase application approved in Docket No. W-1058, Sub 7, for Elk River Utilities, Inc.

September 25, 2018	Boone	Harvey Bauman, Sid E. Von Ropeunt, George Hall, and Tim Presnell
September 26, 2018	Asheville	Jack Zinselmeir, Phil Reitano, Gerard Worster, Chuck Van Rens, and Connie Brown
October 8, 2018	Raleigh	William Stanley Glance, Vincent Roy, Judith Bassett, Vicki Smith, and Benjamin Farmer

CWSNC responded to public witness testimony by its filings of September 18, October 4, October 15, October 17, and October 25, 2018.

On September 4, 2018, CWSNC filed the direct testimony and exhibits of Company witnesses Richard Linneman, Financial Planning and Analysis Manager, CWSNC;[3] Dylan W. D'Ascendis, Director, ScottMadden, Inc.; and Deborah Clark, Communications Coordinator, CWSNC.

On September 24, 2018, the Corolla Light Community Association, Inc. (Corolla Light HOA) filed a Petition to Intervene, which the Commission granted by Order issued on October 11, 2018.

On September 25, 2018, the Public Staff filed a motion for an extension of time for the parties to file testimony and exhibits, which was granted by Commission Order issued September 26, 2018.

On September 26, 2018, the North Carolina Attorney General's Office (AGO) filed a Notice of Intervention in this proceeding. The Commission recognizes the AGO's intervention pursuant to N.C.G.S. § 62-20.

The Public Staff's participation in this proceeding is recognized pursuant to N.C.G.S. § 62-15(d) and Commission Rule R1-19.

On October 3, 2018, the Public Staff filed the direct testimony and exhibits of Public Staff witnesses Gina Y. Casselberry, Advanced Utilities Engineer, Public Staff Water, Sewer, and Telephone Division; John R. Hinton, Director, Public Staff Economic Research Division; Lynn Feasel, Staff Accountant, Public Staff Accounting Division[4]; and Sonja R. Johnson, Staff Accountant, Public Staff Accounting Division.

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[3] CWSNC witness Dante DeStefano, Financial Planning and Analysis Manager, CWSNC, adopted the direct testimony initially submitted by CWSNC witness Richard Linneman. Hereafter, for convenience, the Commission will refer only to the testimony of witness DeStefano in this Order.

[4] Public Staff witness Henry adopted the direct testimony initially submitted by Public Staff witness Feasel. Hereafter, for convenience, the Commission will refer only to the testimony of witness Henry in this Order.

On October 4, 2018, the Public Staff filed the direct testimony of Michelle M. Boswell, Staff Accountant, Public Staff Accounting Division.

On October 5, 2018, the Public Staff filed the supplemental testimony of witness Johnson.

On October 11 and 12, 2018, the Public Staff filed the supplemental testimony and exhibits of witnesses Casselberry; Boswell; Windley E. Henry, Accounting Manager, Water/Communications Section, Public Staff Accounting Division; Hinton; and the second supplemental testimony of witness Johnson.

Also on October 12, 2018, CWSNC filed the rebuttal testimony and exhibits of witnesses J. Bryce Mendenhall, Vice President of Operations, CWSNC; D'Ascendis; and DeStefano.

The evidentiary hearing began as scheduled at 10:00 a.m. on October 16, 2018, in Commission Hearing Room 2115, Dobbs Building, 430 North Salisbury Street, Raleigh, North Carolina, and concluded that same day.

On October 19, 2018, CWSNC and the Public Staff filed a Partial Joint Settlement Agreement and Stipulation (Stipulation). On October 23, 2018, CWSNC filed a response to Commissioner Clodfelter's request for a late-filed exhibit addressing the Company's post-test year plant additions.

On October 30, 2018, the Public Staff filed the late-filed exhibits of witnesses Johnson and Casselberry.

On November 19, 2018, the Public Staff filed a motion for extension of time for all parties to file proposed orders or briefs, which was granted by Commission Order issued the same day.

On November 20 and 21, 2018, the Public Staff filed the late-filed exhibits of witness Casselberry and the Revised Supplemental Exhibits I and II of witness Henry.

On November 27, 2018, the Public Staff filed the Revised Late-Filed Exhibits 4, 7, and 9 of witness Casselberry.

Also on November 27, 2018, CWSNC, the Public Staff, and the AGO filed their respective proposed orders or briefs. In conjunction with its proposed order, CWSNC filed the affidavit of Anthony Gray regarding CWSNC's rate case expense and DeStefano Supplemental Exhibits I (Billing Analysis by Service Areas) and II (Calculation of Gross Revenue Impact of Company Adjustments).

Based upon the foregoing, including the verified Application and accompanying NCUC Form W-1, the testimony and exhibits of the public witnesses appearing at the

hearings, the testimony and exhibits of the expert witnesses received into evidence, the Stipulation, and the entire record herein, the Commission makes the following:

FINDINGS OF FACT

General Matters

1. CWSNC is a corporation duly organized under the law and is authorized to do business in the State of North Carolina. CWSNC is a franchised public utility providing water and/or sewer utility service to customers in 38 counties in North Carolina. CWSNC is a wholly-owned subsidiary of Utilities, Inc. (UI).[5]

2. CWSNC is properly before the Commission pursuant to Chapter 62 of the North Carolina General Statutes seeking a determination of the justness and reasonableness of its proposed rates and charges for the water and sewer utility service CWSNC provides to customers in North Carolina, with the exception of the Corolla Light and Monterey Shores Service Area.

3. The appropriate test period for use in this proceeding is the 12-month period ending December 31, 2017, updated for known and measurable changes through the close of the hearing.

4. The present rates for water and sewer service have been in effect since November 8, 2017, pursuant to the Commission's Sub 356 Order, except for the Elk River Development, which rates have been in effect since September 20, 2016, pursuant to a rate general rate increase approved in Docket No. W-1058, Sub 7 for Elk River Utilities, Inc.

The Stipulation

5. On October 19, 2018, CWSNC and the Public Staff (Stipulating Parties) filed the Stipulation, resolving some of the issues between those two parties in this docket. Those issues that were not resolved by the Stipulation are referred to herein as the "Unsettled Issues."

6. The Stipulation is the product of the give-and-take in negotiations between the Stipulating Parties, is material evidence in this proceeding, and is entitled to be given appropriate weight in this case, along with the other evidence of record, including that submitted by the Company, the Public Staff, and the public witnesses that testified at the hearing.

[5] Utilities, Inc. owns regulated utilities in 16 states, with primary service areas in Florida, North Carolina, South Carolina, Louisiana, and Nevada, which provide water and sewer utility service to approximately 197,732 customers.

7. The Stipulation is a nonunanimous settlement of matters in controversy in this proceeding and was not joined by the other parties.

8. The Stipulation resolves only some of the disputed issues between CWSNC and the Public Staff.

9. The Unsettled Issues, which were not resolved in the Stipulation, include the following:

1) Return on equity;

2) Public Staff adjustments to ADIT and EDIT;

3) Public Staff proposal that CWSNC refund to ratepayers the overcollection of federal taxes related to the decrease in the federal corporate tax rate since January 1, 2018;

4) Reduction of executive compensation and benefits, and related payroll taxes, by 50%;

5) Reallocation of insurance premium expenses, passed to CWSNC from its parent, UI;

6) Public Staff use of composite utility plant depreciation rates for calculating CIAC and PAA amortization expense;

7) Removal of purchased water and purchased sewer treatment expense from the cash working capital calculation;

8) Implementation of the proposed Consumption Adjustment Mechanism (CAM); and

9) Tariff rate design.

The Unsettled Issues are resolved by the Commission and are addressed later in this Order.

Acceptance of Stipulation

10. The Stipulation will provide CWSNC and its ratepayers just and reasonable rates when combined with the rate effects of the Commission's decisions regarding the Unsettled Issues in this proceeding.

11. The provisions of the Stipulation are just and reasonable to all parties to this proceeding and serve the public interest.

12. It is appropriate to approve the Stipulation in its entirety.

Customer Concerns and Service

13. As of the 12-month period ended December 31, 2017, CWSNC served approximately 30,437 water customers and 20,118 wastewater customers, including Elk River Development and CLMS.[6] There are also 3,774 water availability customers in Carolina Forest, Woodrun, Linville Ridge, Sapphire Valley, Connestee Falls, and Fairfield Harbour and 1,401 sewer availability customers in Sapphire Valley, Connestee Falls, and Fairfield Harbour. CWSNC operates 92 water utility systems and 39 sewer utility systems.

14. A total of 35 witnesses testified at the six public hearings held for the purpose of receiving customer testimony. In general, public testimony at those hearings primarily dealt with objections to the rate increase but some customers did express quality of service concerns, including but not limited to, hardness of the water, staining in sinks and toilet bowls, staining of clothing due to flushing, delay in patching asphalt, and frequently pumping out a lift station.

15. As of October 10, 2018, the Public Staff had received approximately 64 written customer statements of position from CWSNC customers, a petition with 27 signatures from Amber Acres North, a petition with approximately 263 signatures from Bradfield Farms, including a resolution expressing objection to the rate increase, and a petition from Yachtmans (Queens Harbour) with approximately 100 signatures. All of the customers objected to the magnitude of the rate increase. Their primary concerns included the high rate of return requested, the increase in rates compared to inflation, the impact of recent federal corporate income tax reductions, the increasing base facility charge, hardness of the water and discolored water. In addition, the Commission received approximately 12 written customer statements via electronic mail, primarily expressing opposition to CWSNC's proposed rate increase.

16. CWSNC filed five verified reports with the Commission addressing the service-related concerns and other comments expressed by the witnesses who testified at the hearings held for the purpose of receiving public witness testimony. Such reports described each of the witnesses' specific service-related concerns and comments, the Company's response, and how each concern and comment was addressed, if applicable.

17. CWSNC has increased its attention to the communications component of service to customers since the last rate case, with an emphasis on more proactive communications and the launching of several social media platforms.

18. The Public Staff's description of the quality of service provided by CWSNC as "good" is supported by the record in this case.

19. The overall quality of service provided by CWSNC is adequate.

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[6] As of December 31, 2017, there were 321 water and 125 sewer customers in Elk River Development and 963 sewer-only customers in the CLMS service area.

Rate Base

20. The appropriate level of rate base used and useful in providing service is $115,139,509 for CWSNC's combined operations, itemized as follows:

Item	Amount
Plant in service	$213,005,526
Accumulated depreciation	(52,955,117)
Net plant in service	160,050,409
Cash working capital	2,079,155
Contributions in aid of construction	(42,183,408)
Advances in aid of construction	(32,940)
Accumulated deferred income taxes	(3,972,592)
Customer deposits	(342,640)
Gain on sale and flow back taxes	(289,628)
Plant acquisition adjustment	(1,052,168)
Excess book value	(456)
Cost-free capital	(261,499)
Average tax accruals	(125,909)
Regulatory liability for excess deferred taxes	(251,770)
Deferred charges	1,522,955
Pro forma plant	0
Original cost rate base	$115,139,509

21. It is appropriate to exclude purchased water and sewer expense from the calculation of cash working capital.

22. It is appropriate to update ADIT to include the deferred tax related to the unamortized balance of rate case expense.

23. It is appropriate to adjust ADIT to reflect the deferred tax related to the unamortized balance of deferred maintenance charges.

Operating Revenues

24. It is appropriate to include in miscellaneous revenues allocated proceeds from the sale of utility property.

25. Miscellaneous revenues should be adjusted to correct the allocation of other water/sewer revenues between water and sewer operations for the Company's four rate divisions: (1) CWSNC Uniform Water; (2) CWSNC Uniform Sewer; (3) Bradfield Farms/Fairfield Harbour/Treasure Cove (BF/FH/TC) Water; and (4) Bradfield Farms/Fairfield Harbour (BF/FH) Sewer.

26. It is appropriate to adjust forfeited discounts and uncollectibles using the percentages calculated by the Public Staff based on test year service revenues and the respective test year forfeited discounts and uncollectibles balances.

27. The appropriate level of operating revenues under present rates for use in this proceeding is $32,575,467, consisting of service revenues of $32,429,699 and miscellaneous revenues of $360,163, reduced by uncollectibles of $214,395.

Maintenance and General Expenses

28. It is appropriate for CWSNC to recover total rate case expenses of $395,479 related to the current proceeding and $434,060 of unamortized rate case costs related to the prior proceeding in Docket No. W-354, Sub 356 (Sub 356 Proceeding). It is appropriate to amortize the total rate case costs for the current and prior proceedings over five years resulting in an annual level of rate case expense of $165,908.

29. It is inappropriate to reduce CWSNC's revenue requirement to reflect the Public Staff's recommendation to allocate to shareholders 50% of the compensation of three UI executive officers in the amount of $92,359.

30. It is appropriate to allocate automobile insurance based on the number of vehicles utilized for CWSNC's water and sewer operations as a percentage to the total number of UI automobiles.

31. It is appropriate to allocate workers compensation insurance based on the adjusted level of payroll.

32. It is appropriate to allocate property insurance based on the value of CWSNC's property covered by the current insurance policies.

Depreciation and Amortization Expense

33. It is appropriate to calculate CWSNC's ongoing annual level of depreciation expense based on the adjusted amount of plant in service and the depreciation lives for each plant account.

34. It is appropriate to reduce CWSNC's depreciation expense by the annual amortization of excess book value.

35. In calculating CWSNC's amortization expense–CIAC, it is appropriate to use a composite overall CIAC rate based on the actual amortization rates and balances at June 30, 2018, for each applicable account within the CIAC group of accounts.

36. In calculating CWSNC's amortization expense–PAA, it is appropriate to use the actual amortization rate of 2.47% for water operations and 3.53% for sewer operations.

37. The appropriate level of depreciation and amortization expense for combined operations for use in this proceeding is $4,073,516.

Franchise, Property, Payroll, and Other Taxes

38. The appropriate level of franchise and other taxes for use in this proceeding is ($49,702) for combined operations.

39. It is appropriate to calculate payroll taxes based on the adjusted level of salaries and wages and the current payroll tax rates.

40. It is inappropriate to reduce CWSNC's revenue requirement to reflect the Public Staff's recommendation to remove 50% of payroll taxes in the amount of $2,920 to match the adjustment to salaries and wages related to executive compensation.

41. The appropriate level of payroll taxes for use in this proceeding is $529,195 for combined operations.

42. The appropriate level of franchise, property, payroll, and other taxes for use in this proceeding is $713,068 for combined operations, consisting of ($49,702) for franchise and other taxes, $233,575 for property taxes, and $529,195 for payroll taxes.

Regulatory Fee and Income Taxes

43. It is appropriate to use the current statutory regulatory fee rate of 0.14% to calculate CWSNC's revenue requirement. The appropriate level of regulatory fee expense for use in this proceeding is $45,606.

44. It is appropriate to calculate income taxes for ratemaking purposes based on the adjusted level of revenues and expenses and the corporate tax rates for utility operations.

45. The appropriate level of state income taxes for use in this proceeding is $177,812.

46. The appropriate level of federal income taxes for use in this proceeding is $1,207,341.

The Federal Tax Cuts and Jobs Act

47. As proposed by the Company in its Application, agreed to by the Public Staff, and not opposed by any other party, CWSNC's revenue requirement shall reflect the reduction in the federal corporate income tax rate from 35% to 21% as enacted in the Tax Act, for the Company's ongoing income tax expense.

48. As outlined in the Stipulation between CWSNC and the Public Staff, the Company's federal protected EDIT should be amortized over a period of time equal to the expected lifespan of the plant, property, and equipment with which they are associated, in accordance with the normalization rules of the United States Internal Revenue Service (IRS).

49. The Company's federal unprotected EDIT should be returned to ratepayers through a levelized rider over a period of four years.

50. The Company's state EDIT recorded pursuant to the Commission's Order Addressing the Impacts of HB 998 on North Carolina Public Utilities issued on May 13, 2014, in Docket No. M-100, Sub 138 (Sub 138 Order) should continue to be amortized in accordance with the Sub 356 Order.

51. The Company's overcollection of federal income taxes in rates related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest, based on the overall weighted cost of capital, should be refunded to ratepayers as a credit for a one-year period beginning when the new base rates become effective in the present docket.

Capital Structure, Cost of Capital, and Overall Rate of Return

52. The cost of capital and revenue increase approved in this Order is intended to provide CWSNC, through sound management, the opportunity to earn an overall rate of return of 7.75%. This overall rate of return is derived from applying an embedded cost of debt of 5.68%, and a rate of return on equity of 9.75%, to a capital structure consisting of 49.09% long-term debt and 50.91% common equity.

53. A 9.75% rate of return on equity for CWSNC is just and reasonable in this general rate case.

54. A 50.91% common equity and 49.09% long-term debt ratio is a reasonable capital structure for CWSNC in this case.

55. A 5.68% embedded cost of debt for CWSNC is reasonable for the purpose of this case.

56. The rate increase approved in this case, which includes the approved rate of return on equity and capital structure, will be difficult for some of CWSNC's customers to pay, in particular CWSNC's low-income customers.

57. Continuous safe, adequate, and reliable water and wastewater utility service by CWSNC is essential to CWSNC's customers.

58. The rate of return on equity and capital structure approved by the Commission appropriately balances the benefits received by CWSNC's customers from

CWSNC's provision of safe, adequate, and reliable water and wastewater utility service with the difficulties that some of CWSNC's customers will experience in paying the Company's increased rates.

59. The 9.75% rate of return on equity and the 50.91% equity capital structure approved by the Commission in this case result in a cost of capital that is as low as reasonably possible. They appropriately balance CWSNC's need to obtain equity and debt financing with its customers' need to pay the lowest possible rates.

60. The authorized levels of overall rate of return and rate of return on equity set forth above are supported by competent, material, and substantial record evidence, are consistent with the requirements of N.C.G.S. § 62-133, and are fair to CWSNC's customers generally and in light of the impact of changing economic conditions.

Revenue Requirement

61. CWSNC's rates and charges should be changed by amounts which, after pro forma adjustments, will produce the following increases in revenues:

Item	Amount
CWSNC Uniform Water	$489,336
CWSNC Uniform Sewer	290,260
BF/FH Water	270,044
BF/FH Sewer	374,448
Total CWSNC	$1,424,088

These increases will allow CWSNC the opportunity to earn a 7.75% overall rate of return, which the Commission has found to be just and reasonable in this case.

Consumption Adjustment Mechanism

62. In its Application, CWSNC requested Commission approval of a rate adjustment mechanism to account for variability in average monthly consumption per customer, which directly affects revenues.

63. CWSNC failed to demonstrate that its proposed consumption adjustment mechanism is reasonable or justified.

Rate Design

64. It is appropriate to charge customers in Sapphire Valley CWSNC's uniform metered sewer rates and to charge customers in Bradfield Farms and Fairfield Harbour CWSNC's flat sewer rate, as recommended by the Public Staff, agreed to by CWSNC, and not opposed by any party.

65. It is appropriate to charge customers in Linville Ridge and The Ridges at Mountain Harbour CWSNC's uniform metered water rates, as recommended by the Public Staff, agreed to by CWSNC, and not opposed by any party.

66. It is appropriate to charge customers in The Ridges at Mountain Harbour CWSNC's purchased sewer rates, as recommended by the Public Staff, agreed to by CWSNC, and not opposed by any party.

67. It is appropriate for CWSNC's rate design for water utility service for purposes of this proceeding to be a ratio of 52%/48% base charge to usage charge.

68. The rates and charges included in Appendices A-1, A-2, A-3, B-1, and B-2 are just and reasonable and should be approved.

Water and Sewer System Improvement Charges

69. Consistent with Commission Rules R7-39(k) and R10-36(k), CWSNC's WSIC and SSIC surcharges will reset to zero as of the effective date of the approved rates in this proceeding.

70. Pursuant to N.C.G.S. § 62-133.12, the cumulative maximum charges that the Company can recover between rate cases cannot exceed 5% of the total service revenues approved by the Commission in this rate case.

Housekeeping on Bonds

71. It is appropriate that the $20,000 bond and certificate of deposit from Branch Banking and Trust Company (BB&T) posted for Amherst Subdivision in Wake County, North Carolina and the $20,000 bond and certificate of deposit surety from BB&T posted for the Carolina Pines Service Area in Craven County, North Carolina be released to UI pursuant to the Commission's Order in Docket Nos. W-354, Sub 326; W-1152, Sub 8; and W-1151, Sub 7.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 1 – 4

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1, the testimony and exhibits of the witnesses, and the entire record in this proceeding. These findings are informational, procedural, and jurisdictional in nature and are not contested by any party.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 5 – 12

The evidence supporting these findings of fact is found in the Stipulation and in the testimony of both CWSNC and the Public Staff's witnesses.

On October 19, 2018, CWSNC and the Public Staff jointly filed the Stipulation, which memorializes these parties' agreements on some of the issues in this proceeding. Attached to the Stipulation is Settlement Exhibit 1, which demonstrates the impact of the parties' agreements on the calculation of CWSNC's gross revenue for the test year ended December 31, 2017. Thus, the Stipulation is based on the same test period as CWSNC's Application, adjusted for certain changes in plant, revenues, and costs that were not known at the time the case was filed, but are based upon circumstances occurring or becoming known through the close of the evidentiary hearing. In addition to the parties' agreements on some of the issues in this proceeding, the Stipulation provides that CWSNC and the Public Staff agree that the Stipulation reflects a give-and-take partial settlement of contested issues, that the provisions of the Stipulation do not reflect any position asserted by either CWSNC or the Public Staff, but instead reflect compromise and settlement between them. The Stipulation is binding as between CWSNC and the Public Staff, conditioned upon the Commission's acceptance of the Stipulation in its entirety. No party filed a formal statement or presented testimony indicating opposition to the Stipulation. However, neither have the AGO or Corolla Light HOA indicated their assent to the Stipulation. There are no other parties to this proceeding.

The key provisions of the Stipulation are as follows:

Capital Structure

The Stipulating Parties agreed that the capital structure appropriate for use in this proceeding is a capital structure consisting of 50.91% common equity and 49.09% long-term debt at a cost of 5.68%.

ADIT

The Company agreed to the Public Staff's proposed adjustments to ADIT regarding unamortized rate case expense. The Stipulating Parties agreed to revise ADIT for any updates made to regulatory commission expense.

Deferred Maintenance

The Company has agreed to the amount of unamortized deferred maintenance and annual deferred maintenance and repair expense as calculated by the Public Staff. The Stipulating Parties disagree as to how these amounts should be recovered from ratepayers and this issue will be addressed in the Evidence and Conclusions for Findings of Fact Nos. 47 - 51.

Regulatory Commission Expense

The Stipulating Parties agreed to a methodology for calculating regulatory commission expense, also known as rate case expense, and agreed to update the number in Settlement Exhibit 1, Line 46, for actual and estimated costs once supporting

documentation is provided by the Company. The Stipulating Parties further agreed to amortize regulatory commission expense for a five-year period.

Federal Protected EDIT

The Stipulating Parties agreed that the protected EDIT will be flowed back over a 45-year period using the Reverse South Georgia method, in accordance with tax normalization rules required by Internal Revenue Code (IRC) Section 203(e).

Deferral Accounting Treatment

The Company agreed to withdraw its request that deferral accounting treatment of costs related to Hurricane Florence be authorized by the Commission in this case and that amortization of such prudently-incurred costs be addressed in the Company's next general rate case.[7]

A stipulation entered into by less than all parties in a contested proceeding under Chapter 62 "should be accorded full consideration and weighted by the Commission with all other evidence presented by any of the parties in the proceeding." State ex rel. Utilities Commission v. Carolina Utility Customers Association, Inc., 348 N.C. 452, 466, 500 S.E. 2d 690, 700 (1998). Further, "[t]he Commission may even adopt the recommendations or provisions of the nonunanimous stipulation as long as the Commission sets forth its reasoning and makes 'its own independent conclusion' supported by substantial evidence on the record that the proposal is just and reasonable to all parties in light of all the evidence presented." Id.

Based upon the foregoing and the entire record herein, the Commission finds that the Stipulation was entered into by the Stipulating Parties after full discovery and extensive negotiations, that the Stipulation is the product of the "give-and-take" of the settlement negotiations between CWSNC and the Public Staff, and that the Stipulation represents a reasonable and appropriate resolution of certain specific matters in dispute in this proceeding. In making this finding, the Commission gives substantial weight to the testimony of CWSNC witness DeStefano and Public Staff witnesses Henry and Casselberry which support the Stipulation, and notes that no party expressed opposition to the provisions of the Stipulation. In addition, when the provisions of the Stipulation are compared to CWSNC's Application and the recommendations included in the testimony of the Public Staff's witnesses, the Stipulation results in a number of downward adjustments to the expenses sought to be recovered by CWSNC, and resolves issues that were more important to CWSNC, and, likewise, issues that were more important to the Public Staff. Therefore, the Commission further finds that the Stipulation is material evidence to be given appropriate weight in this proceeding, along with all other evidence

[7] On January 17, 2019, in Docket No. W-354, Sub 363, CWSNC filed a Petition for an Accounting Order to Defer Incremental Hurricane Florence Storm Damage Expenses, Capital Investments, and Revenue Loss. That matter is presently pending before the Commission.

of record, including that submitted by CWSNC, the Public Staff, and the public witnesses that testified at the hearings.

In addition, the Commission finds that the Stipulation is a nonunanmious settlement of matters in controversy in this proceeding and that the Stipulation resolves only some of the disputed issues between CWSNC and the Public Staff. The Stipulation leaves the following Unsettled Issues to be resolved by the Commission: (1) return on equity; (2) the Public Staff's proposed adjustments to ADIT and to EDIT, including how the amount of unamortized deferred maintenance expense should be recovered from ratepayers; (3) the Public Staff's proposal to require CWSNC to refund the overcollection of federal taxes related to the January 1, 2018, decrease in the federal corporate income tax rate; (4) the Public Staff's proposed 50% reduction in the Company's recovery of executive compensation, benefits, and payroll taxes; (5) the Public Staff's proposed re-allocation of insurance premiums passed-on to CWSNC by UI; (6) the Public Staff's proposed use of composite utility plant depreciation rates for calculating CIAC and PAA; (7) the Public Staff's proposed removal of purchased water and purchased sewer treatment expense from the calculation of cash working capital; (8) CWSNC's proposed implementation of a consumption adjustment mechanism (CAM); and (9) CWSNC's proposed tariff rate design.

After careful consideration, the Commission finds that when combined with the rate effects of the Commission's decisions regarding the foregoing Unsettled Issues, the Stipulation strikes a fair balance between the interests of CWSNC to maintain its financial strength at a level that enables it to attract sufficient capital, on the one hand, and its customers to receive safe, adequate, and reliable water and sewer service at the lowest reasonably possible rates, on the other. The Commission finds that the resulting rates are just and reasonable to both CWSNC and its ratepayers. In addition, the Commission finds that the provisions of the Stipulation are just and reasonable to all parties to this proceeding and serve the public interest, and that it is appropriate to approve the Stipulation in its entirety.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 13 – 19

The evidence supporting these findings of fact is found in the testimony of the public witnesses appearing at the hearings, in the testimony of Public Staff witness Casselberry, in the testimony and exhibits of CWSNC witnesses DeStefano, Mendenhall, and Clark, and in the verified reports filed by CWSNC in response to the concerns expressed by the public witnesses that testified at the hearings.

On April 27, 2018, CWSNC filed an application for a general rate increase, which was verified by CWSNC's Financial Planning and Analysis Manager. The Application stated that CWSNC presently serves approximately 34,871 water customers and 21,531 sewer customers in North Carolina. The Company's service territory spans 38 counties in North Carolina, from Corolla in Currituck County to Bear Paw in Cherokee County.

The Commission held hearings throughout CWSNC's service territory for the purpose of receiving testimony from members of the public, and particularly from CWSNC's water and wastewater customers, as follows:

Hearing Date	Location	Public Witnesses
August 28, 2018	New Bern	Ted Warnock, Simon Lock, Diana Viglianese, Jim Brown, Mike Shannon, Ralph Tridico, Irving Joffee, Michael Kaplan, John Gumbel, and Benny Thompson
August 29, 2018	Wilmington	David Holsinger
September 19, 2018	Charlotte	Patricia Marquardt, William Colyer, Nicoline Howell, Griffin Rice, Margaret Quan, Deborah Atkinson, Nicholas Stephen Kirkley, Tom Moody, Karen Cynowa, and Michael Tepedino
September 25, 2018	Boone	Harvey Bauman, Sid E. Von Ropeunt, George Hall, and Tim Presnell
September 26, 2018	Asheville	Jack Zinselmeir, Phil Reitano, Gerrard Worster, Chuck Van Rens, and Connie Brown
October 8, 2018	Raleigh	William Stanley Glance, Vincent Roy, Judith Bassett, Vicki Smith, and Benjamin Farmer

Of the 10 witnesses who testified in New Bern, eight were CWSNC customers from the Fairfield Harbour service area, and one each were CWSNC customers from the Brandywine Bay and Carolina Pines service areas. Each witness expressed concern about the rate increase, and others addressed water quality issues such as hardness and discoloration.

At the Wilmington hearing, one witness, who is a CWSNC customer in the Belvedere-system service area testified. He objected to the rate increase, particularly so soon after the last one, and he complained of stains on his clothes caused by the water.

Ten CWSNC customers testified at the hearing in Charlotte, including seven from the Bradfield Farms service area, one from the Hemby Acres service area, and two from the Yachtsman, or Queens Harbor, service area. Generally, customers who testified expressed concerns about the proposed percentage increase in rates and about water quality with regard to the presence of particulates and hardness issues. Some witnesses objected to the rate design and others compared CWSNC's rates unfavorably to those in other jurisdictions, including publicly-owned water/wastewater systems, such as that owned by Union County.

Four witnesses testified at the hearing in Boone, including one witness from the Ski Mountain Acres community, two from the Elk River service area, and one from the

Hound Ears service area. These witnesses focused their testimony on the proposed percentage increase in rates, water quality issues, and questions regarding the investments supporting CWSNC's requested rate increase.

At the hearing in Asheville, five witnesses testified, including two witnesses from the Fairfield Mountain of Lake Lure community, two from the Mt. Carmel service area and one from the Woodhaven service area. These witnesses all expressed concern about the proposed percentage increase in rates. In addition, Ms. Connie Brown, a CWSNC customer in the Mt. Carmel service territory, testified regarding the Company's sewer service, stating that a sewer line near her house requires weekly pumping by a septic truck, and that CWSNC has failed to perform needed repairs or upgrades to that sewer line.

At the hearing in Raleigh, five witnesses testified, including two from the Carolina Trace service area, two from the Amber Acres service area, and one from the Jordan Woods service area. Each of these witnesses objected to CWSNC's proposed rate increase. One of the witnesses from the Amber Acres service territory testified she had seen no improvement in service that would warrant a rate increase, that the Company could be more efficient, and that she opposed the flat rate sewer service charge. The witness from the Jordan Woods service territory testified that his bill was 70% higher after the last rate increase. One of the witnesses appearing at the hearing in Raleigh who is a utilities representative of Carolina Trace testified regarding a good working relationship with CWSNC's local employees, concerns about communications with "headquarters" and about the incidence of boil water notices, criticisms of the Company's practice of adjusting charges for wastewater with respect to commercial pools, but not for residential pool owners, anticipation of completion of the Global Positioning System (GPS) mapping project so that all manholes are located, and criticism of the "uniform rate system." The witness recommended that the uniform rate communities be reorganized into smaller, more similar groups, and expressed difficulty understanding CWSNC's proposed CAM, and criticism of the higher base rates as a component of rate design, indicating that this "guarantees" the Company a net profit regardless of performance. This witness requested that the Commission reject CWSNC's request for a rate increase, noting that it is the second request within a year.

After conclusion of each of the public hearings, CWSNC filed verified reports responding to the testimony provided by the public witnesses. In summary, these reports addressed the public witnesses' concerns related to water hardness by stating that hardness is a function of the level of calcium ions in the source water and that it is not a matter subject to regulation. Further, CWSNC observed that many customers either have already made, or wish to make, their own arrangements for water softening, and that CWSNC leaves that matter to its customers' discretion. CWSNC stated its observation that some customers are not inclined to pay for water softening services for other customers, and CWSNC described its flushing protocol, which is designed to address discoloration and particulates in the water. CWSNC also indicated that it seeks to improve its flushing program to address water quality concerns.

Included in the Company's report on the Asheville hearing was a response to the testimony of Ms. Connie Brown in which CWSNC states that it is preparing a capital project to resolve the issue she identified.

With regard to the public witnesses' concerns regarding the magnitude of the rate increase requested, CWSNC expressed its view of the imperative for rate increases, when the need is demonstrated after a comprehensive audit by the consumer advocate, focusing on the capital-intensive nature of the regulated water and wastewater industry, and on the obligation to maintain safe and reliable service. CWSNC also quoted from published reports that indicate a need for billions of dollars of investment in water and wastewater infrastructure within North Carolina. Finally, CWSNC expressed its view that it is fallacy to compare rates among different kinds of providers, noting that the actual costs to serve customers vary by provider and system, and that companies regulated by the Commission are required to prove their actual cost of service, in the face of skilled examination and audits by the Public Staff and a rigorous review by the Commission.

In these reports, CWSNC also responded to the concerns expressed by the public witnesses who complained about specific issues or questions in the Ski Mountain Acres Property Owners' Association, the Elk River system, the Hound Ears Club and Fox Club communities, the Fairfield Mountain system, the Amber Acres community, the Jordan Woods community, and the Carolina Trace community. In some instances, CWSNC responded to concerns by stating that it would revisit the issues or questions raised by contacting the customers involved. The Commission encourages CWSNC to complete the customer outreach contemplated in these reports.

The Commission also recognizes the efforts of the public witnesses and appreciates their participation in this proceeding. The Commission has carefully considered the testimony provided at the hearings in reaching its conclusions in this Order.

Public Staff witness Casselberry testified that her investigation included review of the customer complaints filed in this proceeding, contacts with the North Carolina Department of Environmental Quality (DEQ), including the Water Quality and Public Water Supply Sections of the Division of Water Resources (DWR), review of CWSNC's records, and analysis of revenues at existing and proposed rates. Witness Casselberry testified that she had contacted representatives of all DEQ regional offices regarding the operation of the CWSNC water and sewer systems. Tr. Vol. 7, p. 301. She testified that none of the regional office personnel she contacted expressed any major concerns with the water and sewer systems serving CWSNC customers or identified any major water quality concerns. Id.

In addition, witness Casselberry testified that she had reviewed approximately 64 customer statements received from CWSNC's customers in connection with this proceeding. Witness Casselberry testified that the consumer statements received are from customers in the following service territories with the corresponding number of statements in parentheses:

Abington (1), Amber Acres North (1) and petition with 27 signatures; Bradfield Farms (3) including a resolution objecting to the rate increase from the Bradfield Farms Homeowners Association, Board of Directors, and petition with approximately 263 signatures; Brandywine Bay (9); Carolina Pines (1); Carolina Trace (13); Connestee Falls (3); Elk River (1); Fairfield Harbour (12); Fairfield Mountain (2); Linville Ridge (1); Nags Head (1); Queens Harbor (1) including a petition with approximately 100 signatures; The Ridges at Mountain Harbor (4); The Villages at Sugar Mountain (1); Wood Haven/Pleasant Hill (2); and unspecified service areas (8). Tr. Vol. 7, p. 318.

Witness Casselberry summarized the customer statements by testifying that all customers objected to the magnitude of the rate increase, and expressed concern with CWSNC's proposed rate of return, the magnitude of the rates compared to inflation, the rates compared to rates of local municipalities, and the treatment of CWSNC's reduced federal corporate income tax rate. Tr. Vol. 7, pp. 318-334. Witness Casselberry provided a more detailed response to customer concerns in her supplemental testimony.

Witness Casselberry also testified with regard to the service and water quality complaints registered by customers at each of the six public hearings. Tr. Vol. 7, pp. 324-334. She testified that she had read each of the reports CWSNC filed after the hearings, and that there were a few isolated service issues, which the Company addressed or was in the process of resolving. She further testified that she had no additional comments or recommendations. Tr. Vol. 7, p. 333. Witness Casselberry concluded that CWSNC's quality of service had improved since its last general rate case, that, overall, CWSNC's service was good, and that the quality of water meets the standards set forth by the Safe Drinking Water Act and is satisfactory. Tr. Vol. 7, p. 333-334.

CWSNC witness Clark also testified in response to the public witness testimony and the consumer statements. She testified that CWSNC has increased its efforts to engage with and improve customers' overall interaction and experience with the Company. She further testified that the Company implemented multiple new social media and other types of communication, including the use of Facebook, Twitter, Instagram, "Carolina Water Drop" podcasts, bill inserts, phone calls, and face-to-face meetings. She also described a program of CWSNC personnel attending homeowners' association and property-owners' association meetings and the Company's design of a series of free Word Press sites with information about service, personnel, projects, and usage tips.

Based upon the foregoing and the entire record herein, the Commission finds that CWSNC's level of service has improved since its last rate case, and that, overall, the quality of service provided by CWSNC to its North Carolina customers is adequate. In reaching this conclusion, the Commission gives substantial weight to the testimony of Public Staff witness Casselberry, who testified that none of the North Carolina environmental agency regional office personnel she contacted expressed any major concerns with the water and sewer systems serving CWSNC customers or identified any

major water quality concerns. In addition, after having carefully weighed the comments and concerns expressed by the public witnesses appearing at the hearing and the verified reports filed by the Company, the Commission determines that CWSNC has adequately addressed these comments and concerns, or has appropriately committed to do so outside of the formal proceeding. Finally, while the Commission has determined that CWSNC has met its quality of service obligations to its customers for the purpose of this case, the Commission further determines that these efforts should continue and should be considered again in CWSNC's next general rate case through similar investigative efforts by the Public Staff, testimony from the Company and the Public Staff, and reports in response to the public witnesses' concerns. In particular, the Commission is interested in obtaining information about the resolution of the concerns expressed by Ms. Brown at the hearing in Asheville. Therefore, the Commission will require CWSNC to report to the Commission on the progress of the capital project that is intended to resolve the issue identified by Ms. Brown.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 20 – 23

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1, the testimony of Company witness DeStefano, and of Public Staff witness Henry, and the Stipulation.

The following table summarizes the differences between the Company's level of rate base from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Plant in service	$206,614,909	$ 213,005,526	$6,390,617
Accumulated depreciation	(51,498,888)	(52,955,117)	(1,456,229)
Net plant in service	155,116,021	160,050,409	4,934,388
Cash working capital	2,222,369	2,067,611	(154,758)
Contributions in aid of construct.	(42,813,916)	(41,895,670)	918,246
Advances in aid of construction	(32,940)	(32,940)	0
Accum. deferred income taxes	(5,167,701)	(3,972,592)	1,195,109
Customer deposits	(306,974)	(342,640)	(35,666)
Gain on sale and flow back taxes	(425,537)	(289,628)	135,909
Plant acquisition adjustment	(1,062,767)	(1,029,202)	33,565
Excess book value	(448)	(456)	(8)
Cost-free capital	(261,499)	(261,499)	0
Average tax accruals	112,327	(125,909)	(238,236)
Regulatory liability for EDIT	(251,770)	(251,770)	0
Deferred charges	2,538,827	1,522,955	(1,015,872)
Pro forma plant	5,149,664	0	(5,149,664)
Original cost rate base	$114,815,656	$115,438,669	$623,013

On the basis of the Stipulation and revisions made by the Public Staff in its supplemental testimony, Henry Supplemental Exhibit I, and Henry Revised Supplemental Exhibits I and II, the Company does not dispute adjustments recommended by the Public Staff to plant in service, accumulated depreciation, contributions in aid of construction, customer deposits, gain on sale and flow back taxes, plant acquisition adjustment, excess book value, average tax accruals, deferred charges, and pro forma plant. Therefore, the Commission finds that the adjustments recommended by the Public Staff to plant in service, accumulated depreciation, contributions in aid of construction, customer deposits, gain on sale and flow back taxes, plant acquisition adjustment, excess book value, average tax accruals, deferred charges, and pro forma plant, which are not contested, are appropriate adjustments to be made to rate base in this proceeding.

Based on the testimony of Company witness DeStefano, CWSNC disagrees with Public Staff adjustments to cash working capital and ADIT.

Cash Working Capital

Public Staff witness Henry testified that cash working capital provides the Company with the funds necessary to carry on the day-to-day operations of the Company. He testified that his calculation of cash working capital, included 1/8th of total adjusted operating and maintenance (O&M) and general and administrative (G&A) expenses, less purchased water and sewer expenses. Public Staff witness Henry testified that the calculation implemented by the Public Staff is defined as the "formula method" of calculating cash working capital. Tr. Vol. 8, p. 109. Witness Henry also explained the Public Staff's rationale for excluding purchased water and sewer expenses from cash working capital is that in general there is no lag time between the time the service is being provided and the time the Company pays for the cost of its purchased water and sewer expenses. Tr. Vol. 8, pp. 110-111.

On cross-examination, witness Henry testified that based on his research, the formula method had been used by the Commission for years to set rates in the water, electric, and natural gas industries before lead lag studies were used to calculate cash working capital. Witness Henry noted that in its filed rate case application, CWSNC also excluded purchased water and sewer expenses from its cash working capital calculation. Tr. Vol. 8, p. 110.

On re-direct, witness Henry testified that the Public Staff has been consistent on how it calculates cash working capital from rate case to rate case during the period of time he has been employed by the Public Staff.

Company witness DeStefano accepted the commonly used formula method of applying a 1/8th factor to O&M expenses as a measure of cash working capital; however, he argued that it is improper to remove purchased water and sewer expenses from the calculation, as they are cash expenses and are no different in nature from the remaining O&M expenses. As such, he requested that the purchased water and sewer expenses be included in cash working capital in this proceeding.

Witness DeStefano testified that it may be likely that purchased water and sewer expenses are excluded from the cash working capital calculation because there is currently a means (pursuant to N.C.G.S. § 62-133.11) to prospectively update recovery levels between base rate cases. He contended that this is only true for a portion of such expenses incurred by the Company; that is, only those systems that are supplied 100% by third-party suppliers. Further, he contended that this process only allows a change in rate recovery after the increase in expense has been experienced by the Company. Therefore, witness DeStefano requested that purchased water and sewer expenses be included in the cash working capital calculation in this proceeding.

During cross-examination, witness Henry was questioned concerning the pass-through application process allowed by N.C.G.S. § 62-133.11, in which water and sewer utilities may seek to adjust their rates, outside a general rate case proceeding, to reflect changes in costs based solely upon changes in rates imposed by third-party suppliers. In particular, witness Henry was asked whether there was still a lag in such pass-through application process. Witness Henry responded that there is a lag; however, the Company could prepare its schedules and calculations ahead of time in anticipation of an increase from a third-party supplier and also noted that the Public Staff processes these pass-through applications "pretty quickly." Tr. Vol. 8, p. 113.

When asked on cross-examination whether the Company can file for pass-through recovery of purchased water costs if the system is not 100% purchased water, witness Henry stated that he did not know, and that there was no evidence provided to explain how many CWSNC systems are not 100% purchased water versus how many would be able to file a pass-through and recover costs.

The Commission has carefully reviewed the evidence in this docket and concludes that it is appropriate to exclude purchased water and sewer expenses from the calculation of cash working capital. This treatment is consistent with Commission practice in other cases,[8] and recognizes the fact that there is no lag between the time a Company collects revenues from its customers for the provision of water and sewer utility service purchased from others and the time the Company pays for the purchased water and sewer expenses, since purchased water and sewer expenses are not due until after the service is provided, the meter has been read, and the Company has been billed by its supplier for the service. The Public Staff provided persuasive evidence supporting its use of the formula method for calculating cash working capital. The Public Staff testified and the Company confirmed that the Company's as-filed case used the formula method.

Further, the Commission finds that it is clear from the evidence that, notwithstanding the existence of a lag between the time the Company incurs a change in rates imposed by third-party suppliers of purchased water or sewer and receives authorization to pass through the increase in costs to its customers, the time lag is shorter than obtaining recovery through a general rate case proceeding. Additionally, the

[8] See Recommended Order issued on February 10, 2006, in Docket No. W-176, Sub 32, et al. (and Order Overruling Exceptions and Affirming Recommended Order issued on April 17, 2006), a general rate case proceeding for Scientific Water and Sewerage Corporation.

Commission determines that it is incumbent upon the Company to take measures to anticipate increases when possible and to take the time and effort to prepare pass-through applications and file them as quickly as possible. The Commission determines that the testimony of company witnesses regarding purchased water systems that did not purchase 100% of their water was of no import, as there was no evidence of how many systems were prevented from filing pass-through applications due to this situation and the amount of purchased water expense that was not recoverable via the pass-through process. The Commission therefore finds, for the reasons stated above, that it is inappropriate to include purchased water and sewer expenses in the calculation of cash working capital.

ADIT

The difference in the level of ADIT is due to the differing levels of unamortized rate case expense, unamortized deferred maintenance, and EDIT recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in this Order regarding the levels of rate case expense, deferred maintenance, and EDIT, the Commission concludes that the appropriate level of ADIT for use in this proceeding is $3,972,592.

Summary Conclusion

Based on the foregoing, the Commission concludes that the appropriate level of rate base for combined operations for use in this proceeding is as follows:

Item	Amount
Plant in service	$ 213,005,526
Accumulated depreciation	(52,955,117)
Net plant in service	160,050,409
Cash working capital	2,079,155
Contributions in aid of construction	(42,183,408)
Advances in aid of construction	(32,940)
Accumulated deferred income taxes	(3,972,592)
Customer deposits	(342,640)
Gain on sale and flow back taxes	(289,628)
Plant acquisition adjustment	(1,052,168)
Excess book value	(456)
Cost-free capital	(261,499)
Average tax accruals	(125,909)
Regulatory liability for excess deferred taxes	(251,770)
Deferred charges	1,522,955
Pro forma plant	0
Original cost rate base	$115,139,509

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 24 – 27

The evidence supporting these findings of fact is found in the testimony of Public Staff witnesses Henry and Casselberry, and Company witness DeStefano. The following table summarizes the differences between the Company's level of operating revenues under present rates from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Service revenues	$32,435,554	$32,429,699	($5,855)
Miscellaneous revenues	351,867	360,163	8,296
Uncollectible accounts	(193,143)	(214,395)	(21,252)
Total	$32,594,278	$32,575,467	($18,811)

On the basis of the Stipulation and the revisions made by the Public Staff in its supplemental testimony and Henry Supplemental Exhibit I, and Henry Revised Supplemental Exhibits I and II, the Company does not dispute the following Public Staff adjustments to operating revenues under present rates:

Item	Amount
Reflect pro forma level of service revenues	($5,855)
Adjustment to forfeited discounts	7,387
Adjustment to other water/sewer revenues	(2)
Adjustment to sale of utility property	911
Adjustment to uncollectible accounts	(21,252)
Total	($18,811)

For reasons discussed elsewhere in this Order, the Commission has found that the adjustments listed above, which are not contested, are appropriate adjustments to be made to operating revenues under present rates in this proceeding.

Summary Conclusion

Based on the foregoing, the Commission concludes that the appropriate level of operating revenues under present rates for combined operations for use in this proceeding is as follows:

Item	Amount
Service revenues	$32,429,699
Miscellaneous revenues	360,163
Uncollectible accounts	(214,395)
Total operating revenues	$32,575,467

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 28 – 32

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1; the testimony of Public Staff witnesses Henry, Johnson, Boswell, and Casselberry; and Company witnesses DeStefano, Mendenhall, and Clark; the Public Staff's exhibit filed on October 30, 2018.

The following table summarizes the differences between the Company's requested level of maintenance and general expenses and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Maintenance Expenses:			
Salaries and wages	$4,908,936	$4,765,636	($143,300)
Purchased power	1,934,268	1,932,358	(1,910)
Purchased water and sewer	2,059,238	1,972,527	(86,711)
Maintenance and repair	3,129,187	2,749,845	(379,342)
Maintenance testing	470,830	544,360	73,530
Meter reading	225,963	225,867	(96)
Chemicals	628,209	632,415	4,206
Transportation	449,313	447,271	(2,042)
Oper. expenses charged to plant	(707,831)	(673,065)	34,766
Outside services – other	482,562	455,369	(27,193)
Total	$13,580,675	$13,052,583	($528,092)
General Expenses:			
Salaries and wages	$2,112,000	$1,972,000	($140,000)
Off. supplies & other office exp.	563,875	560,363	(3,512)
Regulatory commission expense	436,013	165,908	(270,105)
Pension and other benefits	1,379,548	1,340,118	(39,430)
Rent	233,928	227,339	(6,589)
Insurance	572,345	429,335	(143,010)
Office utilities	744,196	742,300	(1,896)
Miscellaneous	215,612	23,469	(192,143)
Total	$6,257,517	$5,460,832	($796,685)

On the basis of the Stipulation and revisions made by the Public Staff in its supplemental testimony and Henry Supplemental Exhibit I, and Henry Revised Supplemental Exhibits I and II, the Company does not dispute adjustments recommended by the Public Staff to maintenance salaries and wages, purchased power, maintenance and repair, maintenance testing, meter reading, chemicals, transportation, operating expenses charged to plant, outside services – other, office supplies and other office expenses, rent, office utilities, and miscellaneous. For reasons detailed elsewhere in this Order, the Commission finds that the adjustments recommended by the Public Staff to

maintenance salaries and wages, purchased power, maintenance and repair, maintenance testing, meter reading, chemicals, transportation, operating expenses charged to plant, outside services – other, office supplies and other office expenses, rent, office utilities, and miscellaneous expense, which are not contested, are appropriate adjustments to be made to maintenance and general expenses in this proceeding.

Based on the testimony of Company witnesses Clark, Mendenhall, and DeStefano, which was filed prior to the Stipulation and prior to the filing of Henry Revised Supplemental Exhibits I and II by the Public Staff, the Company disagreed with the Public Staff adjustments to (1) regulatory commission expense, (2) general salaries and wages/pensions and benefits, and (3) insurance.

Regulatory Commission Expense

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Henry Revised Supplemental Exhibit I, the Parties have agreed to total rate case costs of $395,479 for this current proceeding and $434,060 of unamortized rate case costs from the Sub 356 Proceeding. Amortization of the total rate case costs for the current and prior proceedings over five years results in an annual expense amount of $165,908.

The Commission now addresses the contested issues that have an impact on maintenance and general expenses.

Based on the foregoing the Commission finds that the regulatory commission expenses, agreed to by the Stipulating Parties and reflected in Henry Revised Supplemental Exhibit I, are just and reasonable and should be approved.

General Salaries and Wages/Pensions and Benefits

Public Staff witness Johnson testified that the Public Staff has proposed an adjustment to CWSNC's revenue requirement reflecting the removal of 50% of the compensation, including pension and benefits, of the top three executive officers of Utilities, Inc. Witness Johnson testified that the three UI executive officers whose compensation and benefits are the subject of the Public Staff's proposed adjustment are the Vice President & General Counsel, the President and Chief Executive Officer (CEO), and the President of Shared Services (Company Executives). She asserted that the Public Staff's recommendation is not based on the premise that the compensation of the Company Executives the Public Staff selected are excessive or should be reduced. Instead, witness Johnson testified that the Public Staff's recommendation is based on the Public Staff's belief that it is reasonable and appropriate for the shareholders of the large water and wastewater utilities to bear some of the cost of compensating those individuals who are most closely linked to furthering shareholder interests, which are not always the same as those of the ratepayers.

Witness Johnson testified that the Company Executives have fiduciary duties of care and loyalty to the shareholder, but not to customers. Consequently, witness Johnson maintained that the Company Executives are obligated to direct their efforts not only to minimizing the costs and maximizing the reliability of CWSNC's service to customers, but also to maximizing the Company's earnings and the value of its shares. Further, witness Johnson testified that it is reasonable to expect that management will serve the shareholder as well as the ratepayers; therefore, she argued that a portion of management compensation and pension and benefits should be borne by the shareholder.

On cross-examination, witness Johnson conceded that she: (1) had not specifically looked at the duties and responsibilities of the UI executive team, outside of an informal phone call; (2) could not say which of the named executives' specific duties were solely for the benefit of the shareholder and completely not for the benefit of the ratepayer; (3) was not sure whether any of the named executives provided communications or information for evaluation of investment by shareholders, though she noted that this sounded like a CEO function; (4) agreed that because the shareholders provide the capital necessary to operate the company, the management was required to be advertent to the interest of shareholders to provide service to customers; (5) agreed that such an adjustment had not been made by the Public Staff for CWSNC previously; and (6) agreed that a range of Corix[9] corporate costs, such as directors' fees, tax, and corporate legal costs, were not included for recovery in this case.

Witness Johnson testified that the compensation of the Company Executives allocated to CWSNC totaled $185,196, of which the Public Staff recommends 50%, totaling $92,598, be removed as shareholder expense. Tr. Vol. 8, p. 75. As shown In Johnson Late-Filed Exhibit I, Schedule 1, filed on October 30, 2018, witness Johnson updated her adjustment to remove 50% of the Company Executives' compensation to an amount totaling $92,359. She also recommended decreasing CWSNC's revenue requirement by $2,920 to remove 50% of payroll taxes to match the adjustment to salaries and wages related to executive compensation. Witness Johnson clarified in the cover letter to her late-filed exhibit that "[t]here was no adjustments made to pensions and incentive plans of the three executives, as these costs were not included by CWSNC for recovery."

On redirect examination, witness Johnson testified that in each of the respective recent general rate cases, both Duke Energy Progress LLC, (DEP) in Docket No. E-2, Sub 1142, and Duke Energy Carolinas LLC (DEC) in Docket No. E-7, Sub 1146, excluded in their E-1 filings 50% of the compensation of their top four executive officers. Tr. Vol. 8, p. 137. She testified that DEP and the Public Staff (in the DEP case) and DEC and the Public Staff (in the DEC case) stipulated to removing 50% of the compensation and benefits of five top officers in recognition of the work done on behalf of shareholders.

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[9] Corix Utilities (Illinois) LLC (Corix), acquired 100% of the membership interest of Hydro Star, LLC, which through its wholly owned subsidiary, Hydro Star Holdings Corporation, owned 100% of the issued and outstanding stock of UI, CWSNC's parent company. See Order Approving Acquisition of Stock and Requiring Customer Notice, N.C.U.C. Docket No. W-1000, Sub 14 (2012).

Witness Johnson maintained that it is the Public Staff's principled position that work and loyalties are divided between shareholders and customers, which was the basis for her adjustment. Tr. Vol. 8, p. 130. Additionally, when questioned by the Commission, witness Johnson testified that the Company Executives received bonuses as a direct result of increasing the earnings per share, which directly benefitted shareholders. Tr. Vol. 8, p. 132.

CWSNC witness DeStefano testified that the function of the Company Executives is not the equivalent of publicly-traded parent company corporate executives whose job focus may be much more focused on benefits to the shareholders. Witness DeStefano stated UI is more of an operating company, as demonstrated by the roles of the three individuals at issue. Additionally, he stated that since UI is not a publicly-traded company, time spent on shareholder related activities is limited to that which is required to make sure risks are mitigated and capital is secured. Witness DeStefano testified that UI has only one shareholder and argued that dealing with that single investor requires comparable effort as working with the Company's debt holders.

With respect to the role of the Vice President & General Counsel, witness DeStefano testified that this position provides legal support to the regulated companies such as CWSNC, including, for example, on issues involving human resources matters, health, safety and environmental issues, contract review, litigation support, and review of various legal issues. He stated that such legal support includes regulatory and transactional matters, including rate filings, easement and right-of-way issues, and mandatory regulatory and legal policies such as record retention, privacy, and cybersecurity. He maintained that these are the basic legal functions of any regulated utility, which are discharged to the direct benefit of CWSNC's customers.

With regard to the role of the President of Shared Services, witness DeStefano stated that this position focuses on the delivery of services essential to local operations and customers, including: customer service; human resources; health, safety and environmental compliance; information technology; billing; insurance; accounting; and facilities management. Witness DeStefano rejected the Public Staff's assertion that any of the President of Shared Services' role supports the shareholder in any other manner than simply facilitating a well-run utility. On cross-examination, he reiterated his view that this officer oversees these local operations functions as his primary and key duty.

Witness DeStefano described the role of the CEO as having close interaction with local CWSNC leadership in evaluating capital investment plans and operating budgets, as well as providing expertise on and leadership with addressing customer concerns, industry "best practices," setting short- and long-term operating strategies, and generating company initiatives and policies such as safety, environmental, and business transformation programs. He maintained that the CEO assesses risks so that risks are addressed and mitigated to ensure that the Company provides safe, reliable, and cost-effective service. In addition, witness DeStefano testified that the CEO works closely with the single shareholder and lenders to secure capital and debt for improvements that directly address customer needs.

Witness DeStefano testified that a regulated utility exists solely to provide service to its customers and that it cannot exist without debt and equity funding. In summary, he argued that the functions of the Company Executives differ from those of publicly-traded parent company corporate executives whose job focus may very well be much more on benefits to the shareholders. He explained that UI is more of an operating company, as demonstrated by the roles of the three individuals at issue. Witness DeStefano asserted that since UI is not a publicly-traded company, time spent on shareholder-related activities is limited to that which is required to make sure risks are mitigated and capital is secured.

Witness DeStefano rejected as unfair Public Staff witness Johnson's representation that the Company Executives did not have fiduciary duties of care and loyalty to customers, but only to shareholders. Witness DeStefano observed that when the fundamental focus of the shareholder is ensuring customer satisfaction and welfare by providing the best service at the most reasonable possible price — which the management of these regulated utilities is required by statute to do — then the interests of the shareholder and the Company's ratepayers are understood to be exactly aligned. He maintained that this alignment becomes clearer when one considers the necessity, for the customers' benefit, for a utility to attract both high-quality human resources for management and leadership purposes, and to attract financial capital to support the capital-intensive industry.

Witness DeStefano explained that attracting capital from investors is vital to fund needed improvements in aging systems and, as other regulators have recognized, one of the great benefits to a local utility being part of a larger utility company is access to capital that the parent is able to provide. He contended that the ability to maintain and support proper service to customers at a reasonable cost is inextricably linked to the Company Executives' ability to meet shareholder expectations. Witness DeStefano opined that without the Company Executives' support and services, the Company would neither be positioned to meet the needs of its customers nor be eligible to achieve financial returns that attract debt and equity capital needed for the financial welfare of the utility. Therefore, in his view executive base compensation is an integral and necessary part of the Company's overall cost of service to meet the needs of its customers.

Witness DeStefano further contended that the Public Staff's recommendation to exclude from the cost of service 50% of CWSNC's share of the costs of compensation for the Company Executives is arbitrary and lacks support either in the facts or the reality of the functions of this executive team, whose contributions should be fully supported in rates as they focus on direct benefits to customers.

Moreover, witness DeStefano testified that Corix, a corporate level above UI, has provided beneficial services and support to UI and its affiliates, including CWSNC, since its acquisition of UI. Witness DeStefano pointed out that those Corix corporate costs (such as director fees, tax and corporate legal costs) have not been included for recovery in CWSNC's rates even though they are part of the overall costs to support the services provided to the Company.

After considering all of the evidence of record, and for the reasons discussed below, the Commission finds that the Public Staff's proposed adjustment to CWSNC's revenue requirement, representing the removal of 50% or $92,359, of the Company Executives' compensation is inappropriate. Consequently, the Commission concludes that the Public Staff's proposed adjustment should be rejected. In reaching this conclusion, the Commission gives great weight to the testimony of witness DeStefano that, because UI is not a publicly-traded company, time spent on shareholder-related activities is limited to that which is required to ensure risks are mitigated and capital is secured. The Commission is also persuaded by witness DeStefano's assertion that because UI has only one shareholder, dealing with that single investor requires comparable effort as working with debt holders. Moreover, the Commission gives significant weight to the testimony of witness DeStefano that Corix's corporate costs (such as director fees, tax and corporate legal costs) have not been included for recovery in CWSNC's rates. The Commission notes that Public Staff witness Johnson confirmed that Corix's corporate costs have not been included for recovery in this proceeding.

The Commission also gives substantial weight to the testimony of witness DeStefano in which he described the roles of the three Company Executives at issue. In particular, witness DeStefano pointed out that the Company Executives focus on local operations and have close interaction with local CWSNC leadership for the direct benefit of customers. Based upon the evidence in this proceeding, the Commission agrees with witness DeStefano that the functions of the Company Executives differ from those functions of similar corporate officers within a publicly-traded parent company in that the functions of corporate executives in a publicly-traded parent company may tend to focus more on benefitting the shareholders rather than focusing on interacting with local subsidiary operations for the benefit of customers.

The Commission is not persuaded by the Public Staff's observation that the Commission approved 50% adjustments for executive compensation for DEP in its Order Accepting Stipulation, Deciding Contested Issues and Granting Partial Rate Increase issued on February 23, 2018, in Docket No. E-2, Sub 1142, and for DEC in its Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction issued on June 22, 2018, in Docket No. E-7, Sub 1146. Both DEC and DEP originally filed their rate cases reflecting removal of 50% of the executive compensation of the top four executive officers and, later in the proceedings, the Company and the Public Staff reached a stipulation to remove 50% of the executive compensation for the top five executive officers. Thus, the Commission did not resolve the issue through litigation in either case.

The Commission acknowledges that in its recent Order Approving Partial Settlement Agreement and Stipulation, Granting Partial Rate Increase, and Requiring Customer Notice issued on December 18, 2018, in Docket No. W-218, Sub 497 (December 18, 2018 Order), for Aqua North Carolina, Inc. (Aqua NC), the Commission determined that it was appropriate to allocate 25% of the executive compensation, including pensions and incentive plans of the top five Aqua America executives to Aqua NC's shareholders (as proposed as an alternative recommendation of Aqua NC's

witness) and not to ratepayers through inclusion of those expenses in the revenue requirement. That decision is consistent with the Commission's decision in Aqua NC's 2011 general rate case (Docket No. W-218, Sub 319). The Commission notes that, unlike Aqua NC, Public Staff witness Johnson testified that an adjustment to remove any portion of executive compensation has not been made for CWSNC in a past rate case proceeding.

The Commission determines that there are distinct differences between CWSNC and Aqua NC that justify allowing CWSNC to include in its revenue requirement the full amount of compensation allocated to CWSNC for the Company Executives. As noted in the December 18, 2018 Order, Aqua America, Inc., the parent company of Aqua NC, is the second largest investor-owned water and wastewater utility in the United States with its shares traded on the New York Stock Exchange and a $6.709 billion market capitalization at the August 17, 2018 market close as reported by Morningstar. In contrast, as witness DeStefano testified, the parent company of CWSNC, UI, is more of an operating company and its shares are not publicly-traded. Further, the Commission observes that Corix, a corporate level above UI, is also a privately held corporation. Finally, with respect to the size of CWSNC in comparison to that of Aqua NC, the Commission is cognizant that Aqua NC provides utility service to significantly more customers in North Carolina than CWSNC, with significantly greater total operating revenues, differences that the Commission determines are material to the resolution of this issue.[10]

The Commission disagrees with the Public Staff's view that shareholders of large water and wastewater utilities must bear some of the cost of compensating those individuals who are most closely linked to furthering shareholder interests should be applied mechanically in every case. Rather, the Commission finds that such an adjustment should be considered based upon all available information and the Commission will, in future general rate cases, continue to consider this issue on a case-by-case basis in light of all the evidence of record.

Based upon the foregoing and the entire record herein, the Commission finds that it is inappropriate to reduce CWSNC's revenue requirement to reflect the Public Staff's recommendation to allocate to shareholders 50% of the compensation, or $92,359, for the three Company Executives. Therefore, the Commission concludes that the Public Staff's proposed adjustment should be denied.

Insurance

Public Staff witness Henry testified that he adjusted insurance premiums to reflect the current amount for insurance for UI, the parent company of CWSNC, which was provided by the Company. Witness Henry allocated insurance premiums to CWSNC

[10] Aqua NC serves approximately 78,739 water customers and 17,940 wastewater customers with over $59 million in total annual operating revenues; whereas, CWSNC serves approximately 30,437 water customers and 20,233 wastewater customers with over $33 million in total annual operating revenues.

using the following factors: (1) allocated automobile insurance based on the number of automobiles for CWSNC's water and sewer operations as a percentage to the total number of UI automobiles; (2) allocated workers compensation insurance based on the adjusted level of payroll; (3) allocated property insurance to reflect the value of the property covered by the current insurance policies; and (4) allocated the remaining insurance items to the various entities based on the number of customers.

Witness Henry also testified that he removed two-thirds of the pollution liability insurance premium included in the Company's application since it is a three-year policy and only an annual level of premium expense should be included in operating expenses in this proceeding.[11]

Public Staff witness Henry testified that in cases where the Public Staff cannot directly tie a particular item to North Carolina, it uses an allocation factor based on the number of customers as a last resort. He testified that when there are tangible assets to which a value can be determined, it is reasonable and appropriate to directly assign costs based on that actual known information, as opposed to based on customer count.

On cross-examination, witness Henry testified that customer count was used by the Public Staff to allocate costs in seven out of 10 categories when there was no other means of determining the portion attributable to items in North Carolina. Tr. Vol. 8, p. 118. On cross-examination, in response to the question of whether the Company would ever fully recover through expense and rates its allocated insurance expense if the Public Staff's methodology is adopted, witness Henry stated that ratepayers should not have to bear more costs than necessary due to the Company's methodology of allocating costs based on customer count. Tr. Vol. 8, p. 121. Moreover, witness Henry stated that the Company should not be able to over-recover the insurance costs that are allocated from UI. He contended that the allocation methodology based upon customer count utilized by UI is incorrect and unfair. Tr. Vol. 8, p. 122.

CWSNC disagreed with the Public Staff's methodology of allocating automobile, worker's compensation, and property insurance to CWSNC's water and sewer operations. Company witness DeStefano testified that CWSNC's as-filed allocation method for insurance expenses is the most reasonable and appropriate allocation method. He stated that there are far too many factors in setting policy premiums that were not considered by the Public Staff, to utilize only one factor for each policy when allocating insurance costs. Witness DeStefano also testified that the Company's allocation method avoids "going down the rabbit hole" of attempting to identify a perfect allocation method, and utilizes a single, consistent allocation method in each application. The Company's as-filed position for allocating all insurance cost is based on the percentage of customers in each state that it provides water and sewer utility service.

[11] Of the Public Staff's total adjustment of ($143,010) to CWSNC's ongoing annual level of insurance expense, ($61,008) of this amount relates to its adjustment to correct the Company's overstatement of its annual pollution liability insurance premium.

After careful consideration, the Commission finds that the Public Staff appropriately allocated insurance costs to CWSNC. The Commission is persuaded that the Public Staff method is a more direct allocation methodology than the methodology advocated by the Company, because using vehicle count, payroll, and property covered in CWSNC's service territory ensures that customers are not paying more for cost of service than they would if costs were allocated solely based on customer count. Moreover, the Commission recognizes that there is no perfect methodology for allocating costs, but directly assigning costs to the rate entities that created the cost, is a more reasonable and equitable policy to follow than an allocation based on the number of customers, which does not identify the entity that created the cost. The Commission acknowledges that the Public Staff used customer count when a more accurate allocation method was not available. The Commission agrees with the Public Staff that there is a risk that North Carolina customers could inappropriately incur extra expense resulting from possible over-recovery by the Company of insurance expense due to a single, consistent allocation method, when a more accurate method exists. Therefore, the Commission concludes that the methodology employed by the Public Staff in allocating automobile, worker's compensation, and property insurance to CWSNC's water and sewer operations is just and reasonable and should be approved for this proceeding.

Summary Conclusion

Based upon the foregoing, the Commission concludes that the appropriate level of maintenance and general expenses for combined operations for use in this proceeding are as follows:

Item	Amount
Maintenance Expenses:	
Salaries and wages	$4,765,636
Purchased power	1,932,358
Purchased water and sewer	1,972,527
Maintenance and repair	2,749,845
Maintenance testing	544,360
Meter reading	225,867
Chemicals	632,415
Transportation	447,271
Oper. expenses charged to plant	(673,065)
Outside services – other	455,369
Total	$13,052,583

Item	Amount
General Expenses:	
Salaries and wages	$2,064,359
Off. supplies & other office exp.	560,363
Regulatory commission expense	165,908
Pension and other benefits	1,340,118
Rent	227,339
Insurance	429,335
Office utilities	742,300
Miscellaneous	23,469
Total	$5,553,191

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 33 – 37

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1 of CWSNC, the testimony of Public Staff witness Henry, and the testimony of Company witness DeStefano. The following table summarizes the differences between the Company's level of depreciation and amortization expenses from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Depreciation expense	$5,549,406	$5,617,382	$67,976
Amortization expense – CIAC	(1,480,909)	(1,776,720)	(295,811)
Amortization expense – PAA	(39,197)	(77,331)	(38,134)
Amortization of ITC	(519)	(519)	0
Total	$4,028,781	$3,762,812	($265,969)

With respect to CWSNC's depreciation expense, in light of the agreements reached in the Stipulation and revisions recommended by the Public Staff in its supplemental testimony and reflected in Henry Supplemental Exhibit I, the Company does not dispute the adjustments recommended by the Public Staff to depreciation expense. As detailed elsewhere in this Order, the Commission finds that the adjustments recommended by the Public Staff to depreciation expense, which are not contested, are appropriate adjustments to be made to operating revenue deductions in this proceeding.

The Commission now addresses the Public Staff adjustments to amortization expense – CIAC and amortization expense – PAA.

Amortization Expense – CIAC and PAA

Public Staff witness Henry testified that the Public Staff adjusted CIAC amortization expense and PAA amortization expense to reflect the Public Staff's recommended level of CIAC and PAA, respectively, multiplied by an amortization percentage that is based on

the composite depreciation rate for the Public Staff's adjusted level of direct plant in service.

On cross-examination, witness Henry testified that the Public Staff had previously made this adjustment in every rate case he had worked on involving CWSNC and the other UI utility subsidiaries in North Carolina, such as CWS Systems, Inc. and Transylvania Utilities, Inc. Witness Henry stated that the Public Staff initially adopted and utilized this adjustment to address problems with CWSNC's recording CIAC and PAA in prior years and also the portion of CIAC (tap-on fees) that is not directly allocated to a particular plant account. Witness Henry further testified that "in order for the customer to take advantage of those tap-on fees, the Public Staff calculated a composite depreciation rate to reduce the amount of PAA as well as CIAC." Tr. Vol. 8, p. 123.

During cross-examination, witness Henry acknowledged that the problems associated with errors affecting recordation of CIAC and PAA that existed in the past had been resolved by the Company, although the tap-on fee situation has not changed. According to witness Henry, the Company still has a problem with recording the right amount of tap-on fees in each plant account and, therefore, the Public Staff continues to think that it is necessary to use composite depreciation rates.

Witness Henry also acknowledged that, in theory, there is nothing wrong with the Company's position that CIAC and PAA amortization should use the actual amortization rates for each applicable account within the CIAC and PAA groups and not a proxy of composite depreciation rates. He continued by stating, however, that because of CWSNC's past problems, the Public Staff prefers to continue to use the composite depreciation rates. Witness Henry was not able to quantify the significance of the Public Staff's assertion of continuing tap-on fee problems. He also agreed that, in theory, it is true that what can be directly assigned should match the depreciation rates of the Company.

On cross-examination, witness Henry testified that the Public Staff's PAA adjustment in this case amounts to approximately $38,000, that the Public Staff's CIAC adjustment is approximately $296,000, and that the two adjustments total approximately $334,000. He further testified that the total adjustment is "significant," but added that it is also "appropriate." Witness Henry agreed that these two adjustments reduce the Company's revenue requirement in this case by approximately $334,000 per year; and that, under the Public Staff's position, CWSNC would not collect that amount of revenue each year that the new rates set in this proceeding remain in effect; and that the Company would never be allowed to recover such disallowed revenue.

CWSNC witness DeStefano disagreed with witness Henry's calculation of the annual amortization expenses for CIAC and PAA utilizing the composite depreciation rate for the Company's direct plant in service. Witness DeStefano testified that the Company believes CIAC and PAA amortization should use the actual amortization rates for each applicable account within the CIAC and PAA groups, and not the proxy of the composite depreciation rate for plant in service. He further testified that the Public Staff's calculation

presumes the mix of asset account values in plant in service, CIAC, and PAA are exactly the same, which they are not. Applying the Company's rates, as witness DeStefano proposed, to the actual balances at June 30, 2018, produce composite CIAC rates of 2.49%, 2.04%, 2.50%, and 2.06% for CWSNC Water, CWSNC Sewer, Bradfield Farms/Fairfield Harbor/Treasure Cove Water, and Bradfield Farms/Fairfield Harbor Sewer, respectively. For PAA, witness DeStefano testified that CWSNC's actual water rate of 2.47% and actual sewer rate of 3.53% should be utilized. Witness DeStefano explained that the Company's actual CIAC and PAA composite rates differ from the composite depreciation rate for plant in service due to a varying asset mix, therefore, he recommended that the aforementioned rates were the more reasonable and supportable calculation for use in this proceeding.

In response to questions from Chairman Finley, witness DeStefano testified that the Company's rebuttal request is that, to the extent there is a one-to-one match between the utility plant account and the CIAC account, the Commission should use the same rate for a particular account's balance, and not just the composite rate for the entire CIAC balance, because the mix of assets is different between plant in service accounts and CIAC accounts. Witness DeStefano further stated that he did not believe that the Public Staff disputed the accuracy of the rates proposed by the Company. Witness DeStefano also acknowledged the existence of certain CIAC accounts that are called "tap fee, reconnect fee, things like that" which probably do not have an equivalent plant account. However, witness DeStefano stated that this lack of equivalency should not preclude the other CIAC balances' amortizations from being calculated based on their one-to-one matches. Witness DeStefano stated that the Company would be amenable to using the composite depreciation rate for tap-fees as a proxy if that is necessary, but not for the entire CIAC balance, just for the accounts that do not have one-to-one matches.

In response to further questions from Chairman Finley, witness DeStefano testified that he disagreed with the Public Staff's position that it is proper to use the composite depreciation rate applied to the Company's total CIAC balance, for the reason that the asset mixes are different, so the composite rates would be different. Witness DeStefano also agreed that the Company's recommendation is more refined than the Public Staff's general recommendation. He stated that the proper utility accounting is to match on the books the CIAC amortization, which is the credit on the income statement, and the depreciation expense, which is a debit on the income statement, so that there is no net benefit or detriment to the Company from contributed property.

In response to questions from Commissioner Brown-Bland, witness DeStefano again emphasized the Company's position that the proper accounting is to match CIAC amortization with the applicable utility plant assets. He stated that, with respect to depreciation and amortization expense, the Company should neither be punished nor benefit from for having received contributed property, which is proper accounting. Witness DeStefano stated that the Public Staff's methodology does not match what the Company is doing on its books; i.e., proper accounting. When asked if the methodology proposed by the Public Staff, which was stated to have been used consistently over many rate cases, would, over time, balance out both ways, witness DeStefano responded that he

did not believe that it will balance out to the extent that the Company's recovery through rates and the entries on its books will not be in sync.

The Commission observes that in the Sub 356 Proceeding, as stated in Paragraph 13 of the Joint Stipulation, there was a difference of opinion between CWSNC and the Public Staff concerning the methodology used to calculate CIAC amortization expense and CIAC accumulated amortization. In that proceeding, CWSNC accepted the Public Staff's adjustment but "reserve[d] the right to request and advocate for a change in methodology in a future general rate case". The Public Staff did not dispute or oppose the Company's right to seek a change in methodology in a subsequent rate case.

In the present proceeding, CWSNC's NCUC Form W-1, Item 10, Schedules B-22 and B-23, demonstrate that CWSNC has proposed utilizing per book amounts for CIAC amortization expense and PAA amortization expense with no pro forma adjustments. In his rebuttal testimony, CWSNC witness DeStefano proposed to utilize the composite CIAC rates of 2.49%, 2.04%, 2.50%, and 2.06% for Uniform Water, Uniform Sewer, Bradfield Farms/Fairfield Harbour/Treasure Cove Water, and Bradfield Farms/Fairfield Harbour Sewer, respectively. According to witness DeStefano, these composite CIAC rates are based upon the actual amortization rates for each applicable account within the CIAC group rather than utilizing the composite depreciation rates for plant in service as recommended by the Public Staff. For the calculation of PAA amortization expense, witness DeStefano recommended using the actual water rate of 2.47% and the actual sewer rate of 3.53% rather than the composite depreciation rates recommended by the Public Staff.

The Commission acknowledges that the Public Staff calculated an annual level of amortization expense for each amortization expense, CIAC and PAA, based on the recommended level of each balance multiplied by the composite depreciation rate for the Company's direct plant in service, consistent with the methodology used by the Public Staff in numerous past general rate case proceedings. However, the Commission determines that the basis of the Public Staff's historical use of the composite depreciation rate is undermined in this proceeding by witness Henry's testimony that the problems associated with errors affecting recordation of CIAC and PAA, which existed in the past with CWSNC, had been resolved. However, based upon the evidence presented in this proceeding, it is unclear whether the correction of these past problems occurred on a going-forward basis or if CWSNC recorded a restatement of historical data on the Company's books and records. Further, the Sub 356 Proceeding was the first general rate case proceeding filed by CWSNC since the merger of the UI entities operating in North Carolina into CWSNC was approved by the Commission on August 17, 2016. The Commission observes that the combined total amount of the Public Staff's adjustment to CIAC amortization expense in that proceeding was higher than in past proceedings, being an increase of $410,479 per Johnson Exhibit I, Schedules 3(a)–3(d)). The Public Staff's combined total adjustment to PAA amortization expense was a decrease of $9,459.

Based upon a review of previous general rate case proceedings for the individual pre-merger UI entities, the Commission notes that there have been significant

adjustments recommended by the Public Staff and approved by the Commission for CIAC and PAA amortization expenses in past Commission Orders. For example, in Docket No. W-778, Sub 91, a stipulated general rate case proceeding for CWS Systems, Inc. (Order issued February 24, 2016), the Public Staff's adjustment to CIAC and PAA amortization expense was an increase of $138,481 and $7,093, respectively.[12] Similarly, in Docket No. W-354, Sub 344, a stipulated general rate case proceeding for CWSNC (Order issued December 7, 2015), the Public Staff's adjustment for CIAC and PAA amortization expense was an increase of $51,290 and $7,489, respectively. Although these general rate case proceedings were stipulated, the Commission finds it relevant that as a result of the Public Staff's audit of these general rate case application filings, significant adjustments to CIAC and PAA amortization expense were recommended by the Public Staff and approved by the Commission. For these reasons, the Commission determines that in CWSNC's next general rate case proceeding, the methodology used to calculate CIAC and PAA amortization expense should be examined and evaluated in greater detail by CWSNC and the Public Staff and the parties should seek to reach agreement on the proper methodology to use on a going-forward basis for the post-merger CWSNC entity in order to ensure that contributed property is depreciated at the same rate that the related CIAC is amortized. The Commission notes that Company witness DeStefano testified that CWSNC is amenable to using the composite depreciation rate as proposed by the Public Staff with respect to tap fees collected by CWSNC.

In the present rate case proceeding, the Public Staff has recommended a total increase to CIAC and PAA amortization expense of $295,811 and $38,144, respectively. In light of the significant increases to the Public Staff's adjustment to CIAC and PAA amortization expense in the Sub 356 Proceeding and in the present proceeding, the Commission determines that use of the Public Staff's past methodology may have overstated its recommended adjustments for the post-merger CWSNC entity, particularly since Public Staff witness Henry testified on cross-examination that the problems associated with errors affecting recordation of CIAC and PAA, which existed in the past with CWSNC, had been solved by the Company. Consequently, for purposes of this proceeding, the Commission finds that the methodology recommended by witness DeStefano for calculating the adjustment to CIAC and PAA amortization expenses should be adopted.

In reaching this conclusion, the Commission gives significant weight to Public Staff witness Henry's testimony on cross-examination that, in theory, there is nothing wrong with the Company's position that CIAC and PAA amortization should use the actual amortization rates for each applicable account within the CIAC and PAA groups and not a proxy of composite depreciation rates. On cross-examination, witness Henry also agreed that, in theory, it is true that what can be directly assigned should match the depreciation rates of the Company. The Commission determines that this testimony

[12] CWS Systems, Inc. had erroneously calculated both CIAC amortization expense and PAA amortization expense by applying the amortization percentage to the amount of CIAC and PAA, net of accumulated amortization, instead of applying the amortization percentage to the amount of CIAC and PAA before amortization. Part of the Public Staff's total adjustment in that proceeding was the correction of CWS Systems, Inc.'s error.

supports and provides justification for CWSNC's position regarding proper accounting for CIAC and PAA amortization and for the Commission's decision for purposes of this proceeding.

Accordingly, for the reasons set forth above, the Commission finds that an adjustment to increase CIAC and PAA amortization expenses by $8,073 and $15,168, respectively, based upon the methodology proposed by CWSNC is reasonable and appropriate for use in this proceeding.

Based on the foregoing, the Commission concludes that the appropriate level of depreciation and amortization expense for use in this proceeding is as follows:

Item	Amount
Depreciation expense	$5,617,382
Amortization expense – CIAC	(1,488,982)
Amortization expense – PAA	(54,365)
Amortization of ITC	(519)
Total	$4,073,516

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 38 – 42

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1 of CWSNC, and in the testimony of Public Staff witness Henry and of Company witness DeStefano. The following table summarizes the differences between the Company's level of franchise, property, payroll, and other taxes from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Franchise and other taxes	($49,700)	($49,702)	($2)
Property tax	233,280	233,575	295
Payroll taxes	538,817	526,275	(12,542)
Total	$722,397	$710,148	($12,249)

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Henry Supplemental Exhibit I, the Company does not dispute adjustments recommended by the Public Staff to franchise and other taxes and property taxes. Therefore, the Commission finds that the adjustments recommended by the Public Staff to franchise and other taxes and payroll taxes, which are not contested, are appropriate adjustments to be made to operating revenue deductions in this proceeding.

Payroll Tax

The difference in the level of payroll taxes is due to the differing levels of salaries and wages recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in this Order regarding the appropriate levels of salaries

and wages, the Commission concludes that the appropriate level of payroll taxes for use in this proceeding is $529,195.

Summary Conclusion

Based on the foregoing, the Commission concludes that the appropriate level of franchise, property, payroll, and property other taxes for use in this proceeding is as follows:

Item	Amount
Franchise and other taxes	($49,702)
Property tax	233,575
Payroll taxes	529,195
Total	$713,068

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 43 – 46

The evidence supporting these findings of fact is found in the testimony of Public Staff witnesses Boswell and Henry, and of Company witness DeStefano. The following summarizes the differences between the Company's level of regulatory fee and income taxes from its Application and the amounts recommended by the Public Staff:

Item	Company Application	Public Staff	Difference
Regulatory fee	$51,800	$45,606	($6,194)
Deferred income tax	0	(83,555)	(83,555)
State income tax	273,392	189,741	(83,651)
Federal income tax	1,856,324	1,288,340	(567,984)
Total	$2,181,516	$1,440,132	($741,384)

With the Stipulation and revisions made by the Public Staff in its supplemental testimony and Henry Supplemental Exhibit I, and in the testimony of witness Boswell and Boswell Exhibit 1, the Company agreed with the Public Staff adjustment to deferred income tax of $83,555 to reflect the annual amortization of protected federal EDIT.

Regulatory Fee

The difference in the level of regulatory fee is due to the differing levels of revenues recommended by the Company and the Public Staff. Based on conclusions reached elsewhere in this Order regarding the levels of revenues, the Commission concludes that the appropriate level of regulatory fee for use in this proceeding is $45,606.

State Income Taxes

The difference in the level of state income taxes is due to the differing levels of revenues and expenses recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in the Order regarding the levels of revenues and expenses, the Commission concludes that the appropriate level of state income taxes for use in this proceeding is $177,812.

Federal Income Taxes

The difference in the level of federal income taxes is due to the differing levels of revenues and expenses recommended by the Company and the Public Staff. Based on the conclusions reached elsewhere in the Order regarding the levels of revenues and expenses, the Commission concludes that the appropriate level of federal income taxes for use in this proceeding is $1,207,341.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 47 – 51

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1, in the testimony of CWSNC witness DeStefano and of Public Staff witnesses Henry and Boswell, and in the Stipulation.

CWSNC witness DeStefano noted in his direct testimony that on December 22, 2017, President Trump signed into law the Tax Act. Witness DeStefano stated that the most impactful component of the Tax Act to CWSNC was the reduction in the federal corporate income tax rate from 35% to 21%. Witness DeStefano maintained that this component not only impacts the current tax rate for corporations but also impacts the deferred income taxes recorded on the Company's books prior to the Tax Act. Witness DeStefano also noted that the second significant component of the Tax Act is the fact that contributed plant is now treated as a form of income and subject to the federal corporate income tax rate.

Witness DeStefano provided details on how the Company has proposed to implement and address the Tax Act in this proceeding. Witness DeStefano noted that CWSNC has reflected the new federal corporate income tax rate of 21% in its calculation of its proposed revenue requirement as reflected in its Application for a rate increase.

Witness DeStefano further testified that due to the fact that the Tax Act was a singular event occurring outside of the Company's historic test period, it should not be treated as a stand-alone event since many changes occur over the course of time. Witness DeStefano asserted that for that reason, CWSNC recommends that the Tax Act not automatically trigger a refund to customers of revenues collected from January 1, 2018, until a final order is received in this proceeding (a period of time CWSNC identified as the Review Period).

Witness DeStefano asserted that, instead, the Commission should consider all items within the Company's revenue requirement, as it is doing in this rate case, and, if the actual return earned by CWSNC during the Review Period exceeds the authorized return considering the new 21% federal corporate income tax rate, then, and only at that point, should the Commission order CWSNC to refund the revenues collected since January 1, 2018 based on the 35% federal corporate income tax rate. Witness DeStefano testified that should a refund be required, CWSNC suggests that such refund be instituted as a negative surcharge to the customers' bills over a 12-month period.

Witness DeStefano also described the impact of the Tax Act on the deferred income taxes on the Company's books. Witness DeStefano stated that prior to January 1, 2018, deferred taxes were recorded on the Company's books at the federal corporate income tax rate of 35% to normalize the impact of future tax liability or benefit. Witness DeStefano noted that due to the reduction in the corporate income tax rate to 21% on January 1, 2018, the tax liability is expected to be paid back at the new lower federal corporate income tax rate. Witness DeStefano maintained that because of the lower corporate income tax rate, the deferred taxes have been adjusted on the books as of December 31, 2017.

Witness DeStefano stated that CWSNC is proposing the following treatment for the EDIT. Witness DeStefano maintained that for EDIT protected under the IRS normalization rules, CWSNC proposes to apply the flow back in accordance with those rules. Witness DeStefano testified that for EDIT not protected by normalization rules, but related to property, plant, and equipment (PP&E), the Company proposes flow back over a 20-year period. During the evidentiary hearing, Company witness DeStefano clarified the Company's proposal, stating the Company did not have any EDIT related to PP&E. Finally, witness DeStefano stated that for EDIT not protected by normalization rules nor related to PP&E, CWSNC proposes flow back over a five year period.

The Public Staff noted in its proposed order that on December 22, 2017, the Tax Act was signed into law. The Public Staff stated that, among other provisions, the Tax Act reduced the federal corporate income tax rate from 35% to 21%, effective January 1, 2018[13], and it also repealed the manufacturing tax deduction and eliminated bonus depreciation.

The Public Staff stated that the reduction in the corporate income tax rate in the Tax Act also results in federal EDIT for utilities. The Public Staff explained that EDIT arise from the impact of tax changes on ADIT. The Public Staff explained that ADIT occur because of timing differences between when a utility collects income taxes from ratepayers and when those taxes are paid to the IRS. The Public Staff noted that one of

[13] The Public Staff noted that in response to the enactment of the Tax Act, on January 3, 2018, the Commission opened a generic rulemaking docket (Docket No. M-100, Sub 148, i.e., the Tax Docket) for the purpose of determining how the Commission should proceed. The Public Staff stated that in the order establishing the Tax Docket, the Commission placed all public utilities on notice that the federal corporate income tax expense component of all existing rates and charges, effective January 1, 2018, would be billed and collected on a provisional rate basis.

the major types of ADIT arises from differing annual depreciation rates applied to the cost of assets purchased by a utility or other business. The Public Staff maintained that under generally accepted accounting principles and, in many cases, under the regulatory accounting principles followed by the Commission, a utility business is allowed to record on its books an annual depreciation expense representing the allocation of the cost of an item of property between its acquisition and the end of its useful life, and determine its annual income tax expense recovered from its ratepayers on that basis. The Public Staff stated that the depreciation expense is in most cases determined by the straight line method; that is, evenly over each year of the property item's life. The Public Staff maintained that, in contrast, the IRC allows accelerated depreciation for purposes of annual income tax determination: the business may deduct from its income, on its tax returns, a larger proportion of the property's value in the initial years of its life and a smaller percentage in the later years. The Public Staff commented that all other things being equal, for example, the tax basis and book basis of the asset, the total depreciation expense over the life of the asset will be the same for ratemaking and income tax purposes.

The Public Staff noted that for accounting and ratemaking purposes, the temporary tax savings that a utility obtains by using accelerated rather than straight-line depreciation for income tax purposes is treated as a deferred tax liability. The Public Staff stated that the total amount of taxes a utility has been able to defer, at any given time, is classified as ADIT. The Public Staff maintained that ADIT is treated as cost-free capital and is deducted from rate base because the source of the funds that have not yet been paid to the IRS or another taxing authority is the ratepayer. The Public Staff asserted that if the income tax rate remains constant, the increased taxes a utility pays in the later years of a property item's life will be equal to the tax benefit of accelerated depreciation received by the utility in the earlier years but not flowed through to the ratepayers in the earlier years; and, if the time value of money is disregarded, the total taxes the utility pays with respect to that property item will not be increased or reduced by the use of accelerated depreciation.

The Public Staff commented that when the federal corporate income tax rate is reduced, as it was in the Tax Act, a portion of the federal ADIT that the utility has accumulated from the ratepayers will never be needed by the utility for the payment of taxes. The Public Staff stated that this portion is classified as federal EDIT. The Public Staff noted that the IRC requires that certain federal EDIT must be normalized, or flowed back, subject to certain limitations and that federal EDIT that is subject to this limitation is classified as federal protected EDIT. The Public Staff stated that all other types of federal EDIT are classified as unprotected, in that there are no limitations placed upon them by the IRS with regard to the length of time over which they can be returned to ratepayers.

In her supplemental testimony, Public Staff witness Boswell presented the Public Staff's proposal regarding the flowback of federal and state EDIT, as well as the flowback of the overcollection of taxes since January 1, 2018. She included three adjustments, based on the information provided by the Company. First, witness Boswell recommended the return of federal protected EDIT based upon the Company's calculation of the net

remaining life of the timing differences, as required under the IRC. For federal unprotected EDIT, witness Boswell recommended removing the entire federal EDIT regulatory liability associated with the unprotected differences from rate base, and placing it in a rider to be refunded to ratepayers over three years on a levelized basis, with carrying costs calculated at the overall weighted average cost of capital. Public Staff witness Boswell stated that the immediate removal of federal unprotected EDIT from rate base increases the Company's rate base and mitigates regulatory lag that may occur from refunds of federal unprotected EDIT not contemporaneously reflected in rate base. Further, witness Boswell noted that the financing cost to the Company will be imposed ratably over the period that the EDIT is returned through the levelized rider.

Additionally, witness Boswell disagreed with the Company's proposal to offset the federal unprotected EDIT and state EDIT against deferred regulatory assets. Witness Boswell stated that the Public Staff deems that offsetting known and measurable reductions in taxes to be paid going forward against either unknown future regulatory assets, or regulatory assets previously approved by the Commission for recovery over a specified period, presents significant intergenerational issues and constitutes inappropriate ratemaking. Witness Boswell stated that existing deferred regulatory assets are the result of accounting adjustments approved or adopted by the Commission, the purpose of which typically is to spread the recovery of incurred costs over a specified period of time known as the amortization period. Witness Boswell maintained that the amortization period for each regulatory asset is approved by the Commission based upon its determination of what is fair and reasonable for the ratepayers with regard to the costs associated with that specific regulatory asset, or other specific factors taken into consideration by the Commission at the time of that approval. Witness Boswell stated that choosing to simply offset the new unprotected EDIT regulatory liability with the remaining unamortized portion of any regulatory asset would effectively override the Commission's prior decision as to the appropriate amortization period for the regulatory asset, by equalizing the remaining amortization period and the amortization period for the new EDIT regulatory liability. Witness Boswell stated that it is the Public Staff's opinion that the amortization periods for existing regulatory assets and the federal unprotected EDIT should be determined separately, based on the specific characteristics of each cost or benefit. Witness Boswell asserted that departing from this transparent process in the course of a general rate case simply to offset flowing through the benefit of reductions in an entirely separate category of costs (income taxes) is neither fair nor reasonable.

Witness Boswell also maintained that in the case of unknown future possible regulatory assets or other costs, currently offsetting them against the EDIT liability would likewise be inappropriate, not only because those costs are not currently known and actual, but also because doing so would be prejudging the appropriate amortization period for those future costs.

For state EDIT, witness Boswell did not recommend an adjustment in this case, as the Company has been amortizing the applicable regulatory liability over a three-year period as approved in the Sub 356 Proceeding.

Finally, witness Boswell recommended that the Commission require the Company to refund to ratepayers the overcollection of federal taxes related to the decrease in federal tax rates for the period beginning January 1, 2018, including the corresponding interest calculated at the overall weighted cost of capital, as a surcharge credit for a one-year period beginning when the new base rates become effective in the current docket. Witness Boswell noted that the Company did not file a proposal to return the overcollection[14].

Witness Boswell stated that it is the Public Staff's position that the Commission's October 5, 2018 Order in Docket No. M-100, Sub 148 was explicitly clear that the overcollection of taxes since January 1, 2018 should be flowed back to ratepayers. The Public Staff argued that these funds rightfully belong to the ratepayers and should be returned to them as soon as reasonably possible.

Witness Boswell also disagreed with the Company's proposal to retain the overcollection of taxes since January 1, 2018 if the Company has not earned its approved rate of return during the period. Witness Boswell maintained that the approved rate of return in any general rate case represents the amount the Company has the potential to earn, with proper management. She argued that it does not represent guaranteed dollars or return for the Company. Witness Boswell stated that the actual return earned by a utility fluctuates over time, and may fall below the approved rate of return for significant periods of time. Witness Boswell maintained that, nevertheless, it is ultimately the utility's choice as to when it should file for a general rate increase; otherwise, its rates as they exist at any moment in time are generally presumed to recover its costs. Witness Boswell stated that in this particular case even if the Company had not been recovering its currently approved rate of return during 2018, applying the future Commission-mandated refund of overcollected income taxes against that past return deficiency would, in principle, constitute inappropriate retroactive ratemaking. Witness Boswell stated that the tax overcollection in question was to be used to pay taxes that the Company was expected to owe and that as of January 1, 2018, the overcollected taxes are no longer owed. Witness Boswell maintained that the overcollection is ratepayer money that should not be utilized to assist the Company in attaining its return, and thus benefit its shareholders.

Finally, witness Boswell asserted that the appropriate interest rate to apply to the overcollection should be calculated at the overall weighted cost of capital since the same methodology is utilized to calculate the revenue impacts of the collected taxes. Witness Boswell asserted that utilizing a lower rate would shortchange the ratepayers the full value of the refund.

The Public Staff maintained in its proposed order that the Commission's primary concern regarding the effects of the Tax Act should be to ensure that ratepayers receive the full benefit of the reduction in the federal corporate income tax rate. The Public Staff asserted that rates have been set to ensure that the Company has adequate funds with

[14] CWSNC witness DeStefano did state in his direct testimony that should a refund of these amounts be required, CWSNC suggested a negative surcharge to the customers' bills over a 12-month period.

which to pay taxes; now that the federal income tax rate is reduced, rates should be adjusted accordingly. The Public Staff stated that the question before the Commission is how, and over what length of time, these effects should be implemented.

The Public Staff argued that the evidence shows that there is some agreement regarding how to implement the effects of the Tax Act. The Public Staff noted that the Company and the Public Staff agree upon the revenue requirement effect of the decrease in the corporate income tax rate; additionally, no party disputes the amounts presented by the Company regarding the impact of the Tax Act on these issues. The Public Staff recommended that the Commission find that the revenue requirement changes presented by the Company related to these issues are appropriate and should be approved.

The Public Staff noted that, additionally, the Company and the Public Staff agree, and no party disputes, that federal protected EDIT, which is subject to tax normalization rules, should not be returned to ratepayers any faster than allowed under the IRS rules. Therefore, the Public Staff recommended that the Commission find that it is appropriate for the Company to return federal protected EDIT in the amount, and over the time period, recommended by the Company and the Public Staff.

The Public Staff stated that the evidence shows there is not agreement as to how CWSNC should return to ratepayers the federal unprotected EDIT. The Public Staff noted that CWSNC proposed several solutions for handling the federal unprotected EDIT. The Public Staff maintained that in direct testimony, CWSNC proposed to amortize the balance over a five-year period. The Public Staff also noted that in rebuttal testimony, CWSNC proposed to utilize the federal unprotected EDIT as an offset against the Company's various unamortized deferred maintenance assets in the current proceeding. The Public Staff disagreed with the Company's rebuttal proposal, and proposed refunding the federal unprotected EDIT balance through a levelized rider over a three-year period. The Public Staff further recommended removing the entire federal EDIT balance from rate base in the current case, thus mitigating regulatory lag that may occur from refunds of federal unprotected EDIT not contemporaneously reflected in rate base.

CWSNC amended its Tax Act proposals as outlined in the rebuttal testimony of CWSNC witness DeStefano. Witness DeStefano reiterated that CWSNC has adjusted the federal corporate income tax rate to 21% in its Application. He also asserted that due to the fact that the Tax Act was a singular event occurring outside of the Company's historic test period, the Company contends that it should not be treated as a stand-alone event since many changes occur over the course of time. Witness DeStefano argued that for that reason, CWSNC contends that the Tax Act should not automatically trigger a refund to customers of revenues collected from January 1, 2018, until a final order is issued by the Commission in this proceeding.

Witness DeStefano testified that the Commission should carefully and thoroughly consider all items within the Company's revenue requirement and that indeed is precisely what is occurring in the current proceeding. Witness DeStefano maintained that the Company has updated its original test year of December 31, 2017 with actual data as of

June 30, 2018, which is approximately the midpoint between the Tax Act taking effect and the date the current rate case will likely become effective and reflects a fair representation of the Company's financial status in the Review Period. Witness DeStefano asserted that if the proper revenue requirement as determined by the Commission in this rate case meets or exceeds that of the Company's last rate case, excluding effects of the Tax Act beyond the change in the income tax rate to 21%, such as amortization of EDIT, it will therefore strengthen the claim that the Company did not exceed its authorized return. Consequently, witness DeStefano testified, the Company concludes that it is in a unique position relative to other North Carolina utilities, as the comprehensive financial review in this proceeding would directly support the retention of the Review Period funds by the Company to sustain its just-vetted operating needs. However, witness DeStefano maintained that should a refund be required by the Commission in this rate case, the Company recommends that the credit be offset by the Company's existing deferred asset balances.

Witness DeStefano also noted that the Company has provided supporting workpapers for the federal protected EDIT balance and requests a 45-year amortization of this balance using the Reverse South Georgia method, inclusive of gross up, in accordance with IRS normalization rules.

Witness DeStefano further noted that the Company was authorized in its last rate case to amortize state EDIT realized due to the recent North Carolina corporate income tax rate changes. Witness DeStefano testified that CWSNC proposes combining the remaining state EDIT with the federal unprotected EDIT and offsetting the balance against the Company's various unamortized deferred maintenance assets in this proceeding. Witness DeStefano maintained that the particular deferred assets to be utilized in this calculation are shown in the testimony of Public Staff witness Henry, Exhibit I, Schedule 2-10(a), and are comprised of tank painting, wastewater treatment plant painting, and wastewater pumping and hauling costs. Witness DeStefano argued that CWSNC contends, and the Public Staff's testimony confirms, that there are sufficient deferred assets to offset the combined EDIT credit balance, with a focus on those asset balances closest to conclusion of their amortization period in order to best align this proposal with the Public Staff proposal of a three-year amortization period.

Witness DeStefano testified that this proposal would smooth customer impacts by netting balances due-to and due-from customers immediately, as opposed to initiating offsetting customer rates (recovery in base rates of deferred asset rate base and amortization, versus an EDIT credit rider) with different effective periods, which would result in uneven customer impact over the next several years and mask price signals otherwise considered in rate design, or in other words, a yo-yoing of rates. Witness DeStefano argued that it will also mitigate cash flow concerns for the Company, as the lower tax rate going forward will lead to slower growth in the ADIT balance, which is a source of cash used for continued capital investment. Witness DeStefano argued that limiting interest payments required on refunds will also mitigate negative cash flow impacts. He stated that it will also avoid for both the Company and the Public Staff the additional effort of implementing a new rider, tracking the balances, and potentially

manually calculating interest. Witness DeStefano maintained that a similar proposal was recently accepted by the Regulatory Commission of Alaska (RCA) in Docket U-18-042, Order No. 2.

Witness DeStefano stated that if the Commission does not adopt the Company's proposal as outlined in his rebuttal testimony of offsetting deferred assets against the unprotected EDIT, the Company alternatively reiterates its position articulated in the direct testimony presented by witness DeStefano, with a five-year amortization of unprotected non-PP&E EDIT.

Finally, witness DeStefano testified that, should a sur-credit be implemented for revenues recorded in the Review Period, the Company proposes to offset this credit balance with the unamortized deferred assets approved in this proceeding until the deferred assets are exhausted before implementing a sur-credit. Witness DeStefano maintained that any amount determined to be refunded should be credited to customers over one year, and accrue interest at an appropriate short-term interest rate, especially if refunds commence at or before January 1, 2019. Witness DeStefano argued that using an appropriate short-term interest rate is more reasonable than applying the cost of capital rate due to the funds being returned to customers approximately one year or less since they were billed. Witness DeStefano maintained that the Company proposes that any calculation of Review Period revenues to be refunded should identify the percent revenue reduction due to the decrease in income tax expense for each tariff group. He stated that this percentage would then be multiplied by the actual applicable revenues booked for the Review Period to determine the level of refund.

Witness DeStefano also noted that the Commission issued an Order on October 5, 2018 in Docket No. W-100, Sub 57, which initiated a generic proceeding to review the impacts of the Tax Act on water and wastewater utilities, specifically CIAC, in North Carolina. He noted that comments were due on October 25, 2018. Witness DeStefano stated that CWSNC plans on providing comments in the generic proceeding and will, in the interim, comply with the Commission's requirement that the full gross-up method be utilized, excepting circumstances where the present value method is authorized by the Commission.

The AGO stated in its post-hearing brief that ratepayers should promptly enjoy the benefits of CWSNC's cost savings resulting from recent changes in the federal tax law. The AGO asserted that recent reductions in federal and state corporate income tax rates result in lower operating expenses for utilities, with a favorable impact on the cost of public utility service, and produce an excess accumulation of funds for deferred income taxes that may be returned to ratepayers. The AGO noted that the Commission determined in a recent order in a generic proceeding that the issue of how to reflect the changes in federal tax rates in new utility rates would be determined for CWSNC in this general rate case proceeding. See Order Addressing the Impacts of the Federal Tax Cuts and Jobs Act on Public Utilities in Docket No. M-100, Sub 148 issued on October 5, 2018 at p. 58. The AGO stated that it supports rate adjustments to flow through the benefits of tax changes to ratepayers as soon as possible.

The AGO noted that the change in the federal corporate income tax rate results in five impacts: (1) the federal corporate income tax rate reduction from 35% to 21% is reflected in the Company's proposed operating expenses; (2) the Company proposes not to return the amount of tax expense that was overcollected in rates from January 1, 2018 until new rates take effect; (3) the Company proposes that the return of EDIT associated with the recent reductions in the state corporate income tax rate decided in the Company's last general rate case proceeding be modified in this case and treated similarly to the Company's proposal for federal unprotected EDIT; (4) the Company proposes to use the federal unprotected EDIT as an offset to existing deferred asset balances, instead of returning it to ratepayers; and (5) CWSNC proposes to return the federal protected EDIT through rates over the period required by federal tax provisions, which it shows to be a 45-year period.

The AGO stated that it does not object to the first and fifth impacts noted above, but objects to the second, third, and fourth.

The AGO noted that, first, the federal corporate income tax rate reduction from 35% to 21% is reflected in the Company's proposed operating expenses and that this proposed impact is not disputed.

Second, the AGO maintained that the Company proposes not to return the amount of tax expense that was overcollected in rates from January 1, 2018 until new rates take effect. The AGO stated that that amount has been booked as a regulatory liability as required by the Commission's January 3, 2018 Order in Docket No. M-100, Sub 148 and will amount to approximately $1.26 million for the calendar year. The AGO noted that if not allowed to keep the amount, CWSNC asks the Commission to allow the amount to be used as an offset by the Company to existing deferred asset balances.

The AGO asserted that CWSNC's argument that it should be allowed to keep the provisional amount that was collected since January 1, 2018 lacks merit. The AGO noted that the Commission considered arguments in its October 5, 2018 Order in Docket No. M-100, Sub 148, and concluded on page 55 that it is "appropriate to require an immediate reduction in the base rates (for the expense piece) of affected utilities to reflect the 21% federal corporate income tax rate mandated by the Tax Act, effective January 1, 2018." The AGO further noted that the Commission explained on pages 55 and 56 of the Order that "the federal corporate income tax rate reduction mandated by the Tax Act is material and substantial," and concluded that "ratepayers should not be forced to continue paying base rates that were set to recover a 35% federal corporate income tax rate that has been reduced to 21% until the utility's next general rate case proceeding."

The AGO argued that there is no justification for allowing CWSNC to retain the provisional amount collected after the federal corporate income tax rate was reduced on January 1, 2018. The AGO stated that the Public Staff has proposed that the amounts overcollected for taxes since January 1, 2018 be returned to customers in a rider over a

one-year period with carrying costs calculated using the weighted cost of capital approved in this case. The AGO stated that it agrees with the Public Staff's proposal in this regard.

The AGO stated that, third, the appropriate treatment of the state EDIT was addressed in the Company's last general rate case proceeding. The AGO noted that CWSNC proposed in rebuttal testimony in this proceeding that the return of the state EDIT be modified and treated similarly to the Company's proposal for federal unprotected EDIT.

The AGO stated that it does not support such a change and agrees with the recommendation of Public Staff witness Boswell that no adjustment be made to the provision for return of state EDIT from what was proposed and approved in the Company's prior rate case proceeding. The AGO asserted that the Company's vague proposal would offset the state EDIT against either unknown future regulatory assets or known regulatory assets that have been reviewed and approved with particular treatment in previous cases and that it is not appropriate to override such prior determinations or to set aside ratepayer funds for possible future uses.

The AGO noted that, fourth, the Company's initial proposal was to return federal unprotected EDIT to ratepayers over a five-year period. The AGO stated that, however, in rebuttal testimony the Company proposed instead that the money be used as an offset to existing deferred asset balances.

The AGO noted that it recommended a return of the federal unprotected EDIT over a period of two years or less in the recent Duke Energy Carolinas rate case in Docket No. E-7, Sub 1146, so that ratepayers benefit as soon as possible from the amounts they are owed. The AGO asserted that, likewise, in this proceeding, the AGO recommends a two-year period. The AGO stated that the Public Staff's proposal in this case would return the federal unprotected EDIT over a three-year period, as was done under the settlement reached between the Public Staff and Aqua North Carolina in the recent Aqua North Carolina rate case proceeding (Docket No. W-218, Sub 497). The AGO noted that Public Staff witness Boswell testified that although the Public Staff has proposed a three-year period in this proceeding, a two-year time frame is feasible and is within the range that the Public Staff has proposed in other cases. The AGO also noted that the time frame has not been specified in the Stipulation in this case and that the AGO supports a return of the federal unprotected EDIT as soon as possible, but in no event longer than two years. The AGO asserted that with the adoption of a two-year timeframe to return the federal unprotected EDIT, ratepayers will benefit immediately from the use of the amounts they are owed.

The AGO maintained that CWSNC's proposal not to return federal unprotected EDIT to ratepayers and instead to apply the EDIT to unspecified asset balances should be denied because it is unjust and unreasonable. The AGO asserted that it is inappropriate to override prior determinations about the amortization of regulatory assets. The AGO noted that, further, CWSNC has not shown that any harm will fall to the Company by the prompt return of the funds. The AGO maintained that it is time for CWSNC to stop relying on excess revenues from its customers to maintain the overly

flush cash flow that was provided under former tax deferral policies. The AGO asserted that the alternative of not returning dollars to consumers who struggle to pay their bills, or to consumers who would use their money for different purposes if given the opportunity, results in an undue burden on ratepayers and communities in North Carolina.

The AGO stated that, fifth, CWSNC proposes to return the federal protected EDIT associated with the reduction in the federal corporate income tax rate through rates over the period of time required by federal tax provisions, which the Company shows to be a 45-year period. The AGO noted that the Public Staff does not dispute the 45-year time frame based on its investigation and that the Public Staff explained that federal tax provisions do not permit regulators to flow back the EDIT immediately and instead require a flow back that is ratable over the life of the timing differences that gave rise to the excess. The AGO stated that based on the federal requirements and the Public Staff's investigation, the AGO does not object to this proposal.

After reviewing the entire record, the Commission notes that there are five separate issues that need to be addressed for CWSNC in this proceeding concerning the Tax Act. Further, as concluded by the Commission on page 58 of its October 5, 2018 Order in Docket No. M-100, Sub 148, the Commission will address these impacts of the Tax Act on CWSNC in this rate case proceeding.

Based upon the foregoing, and after careful consideration of all of the evidence in this proceeding, the Commission reaches the following findings regarding the issues related to the Tax Act for CWSNC in this proceeding:

1. It is appropriate in this proceeding to reflect the reduction in the federal corporate income tax rate from 35% to 21% on the Company's ongoing federal income tax expense.

2. It is appropriate in this proceeding to amortize CWSNC's federal protected EDIT over 45 years in accordance with the IRC.

3. It is appropriate in this proceeding to implement a four-year levelized rider for the return of federal unprotected EDIT to ratepayers.

4. It is appropriate in this proceeding to maintain the decision reached by the Commission in CWSNC's last general rate case proceeding to amortize over three years the Company's state EDIT recorded pursuant to the Commission's Sub 138 Order.

5. It is appropriate in this proceeding to adopt the Public Staff's recommendation that CWSNC should refund to ratepayers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, including interest at the overall weighted cost of capital, as a credit for a one-year period.

Federal Income Tax Expense - First, the Commission notes that the Company reflected the use of the 21% federal corporate income tax rate in calculating its proposed revenue requirement as filed in its Application. No party has disputed reflecting the 21% rate in this proceeding, and the Commission finds that it is appropriate to calculate CWSNC's revenue requirement in this proceeding using the current 21% federal corporate income tax rate.

Federal Protected EDIT - Second, the Commission notes that the Public Staff and CWSNC agreed in the Stipulation on the appropriate treatment for the Company's federal protected EDIT. Specifically, Section III, Paragraph G of the Stipulation states as follows:

> The Stipulating Parties agree that the protected EDIT will be flowed back over a 45-year period using the Reverse South Georgia method, in accordance with tax normalization rules required by IRC Section 203(e).

As shown on Public Staff witness Boswell Exhibit 1, CWSNC has a regulatory liability of $4,907,523 for federal protected EDIT.

No party disputed this treatment for CWSNC's federal protected EDIT. Therefore, the Commission finds it appropriate to approve this treatment for CWSNC's federal protected EDIT.

Federal Unprotected EDIT – CWSNC's proposed treatment for its federal unprotected EDIT changed during the course of this proceeding. In direct testimony, the Company recommended that EDIT not protected by normalization rules, but related to PP&E be flowed back over a 20-year period and that EDIT not related to PP&E be flowed back over a five-year period. CWSNC witness DeStefano confirmed during cross-examination by the AGO that the Company does not have any PP&E-related federal unprotected EDIT and has approximately $1 million in non-PP&E federal unprotected EDIT.[15] However, in rebuttal testimony, CWSNC recommended that the federal unprotected EDIT be offset against deferred assets, but that if that proposal is not adopted by the Commission that the federal unprotected EDIT be returned with a five-year amortization period.

On cross-examination by the Public Staff, witness DeStefano agreed that the deferred maintenance assets he referenced in his rebuttal testimony to be used as offsets were already decided and approved in a prior CWSNC rate case. He stated that the balances and the amortization periods were set in a prior case and that CWSNC is proposing to change that in order to smooth out the impacts of the Tax Act. Witness DeStefano maintained that it appears to the Company to be a unique offset situation that could be utilized to smooth out the impact to customers for cost spread to future years. He also stated that he is not aware of a situation wherein the North Carolina Utilities Commission has approved such offsetting treatment.

[15] Public Staff witness Boswell Exhibit 2 shows $966,595 in federal unprotected EDIT.

Both the Public Staff and the AGO recommended that the Commission not approve CWSNC's offsetting proposal.

Based upon the record of evidence, the Commission finds that CWSNC's federal unprotected EDIT should be returned to ratepayers through a levelized rider.[16] The Commission finds that this treatment appropriately balances the interests of ratepayers and the Company.

In arriving at its conclusion, the Commission gives substantial weight to the testimony of Public Staff witness Boswell. The Commission agrees with witness Boswell that offsetting known and measurable reductions in taxes to be paid going forward against either unknown future regulatory assets, or regulatory assets previously approved by the Commission for recovery over a specified period, presents significant intergenerational issues and constitutes inappropriate ratemaking. The Commission further agrees with witness Boswell that the amortization period for each regulatory asset is approved by the Commission based upon its determination of what is fair and reasonable for the ratepayers with regard to the costs associated with that specific regulatory asset, or other specific factors taken into consideration by the Commission at the time of that approval. The Commission finds that choosing to simply offset the new unprotected EDIT regulatory liability with the remaining unamortized portion of any regulatory asset would effectively override the Commission's prior decision as to the appropriate amortization period for the regulatory asset, by equalizing the remaining amortization period and the amortization period for the new EDIT regulatory liability. And as CWSNC witness DeStefano testified, he is not aware of a situation wherein the Commission has approved such offsetting treatment.

The Commission further agrees with witness Boswell that the amortization periods for existing regulatory assets and the federal unprotected EDIT should be determined separately, based on the specific characteristics of each cost or benefit. The Commission agrees with witness Boswell that departing from this transparent process in the course of a general rate case simply to offset flowing through the benefit of reductions in an entirely separate category of costs (income taxes) is neither fair nor reasonable. Further, the Commission notes that for customers, a rider will be separately identified on their bills so they can see in dollars and cents the impact of the federal unprotected EDIT flow through. This transparency would not occur with the offsetting proposed by the Company.

Through the years the Commission has set rates at a level to ensure that the Company would be able to pay its taxes, including deferred taxes, when they became due.[17] These funds were paid by ratepayers to the Company to enable the Company to pay its taxes; now that the funds are no longer needed to pay the Company's taxes, they

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[16] The Commission notes that the calculation of the rider should reflect the return on equity approved by the Commission herein.

[17] The Commission notes that the last reduction in the corporate income tax rate occurred in 1986. The evidence in the record shows that the Company in that instance did not propose to create two separate classifications of federal unprotected EDIT, but simply refunded all of its federal unprotected EDIT through amortization over a five-year period.

should be flowed back to ratepayers as quickly as practicable. The fact that the Company has made use of these funds as cost-free capital does not change the fact that these funds are ultimately customer money that is no longer needed for tax payments. The only remaining question for the Commission to decide is what is a reasonable period of time to refund these federal unprotected EDIT to ratepayers.

The Commission has carefully considered the evidence as to the appropriate time period over which to return federal unprotected EDIT. The evidence shows that all of the parties agree that the timeframe should be within a two-year to five-year range. Specifically, the Public Staff recommends three years, the AGO recommends two years, and the Company, if its offsetting proposal is not adopted, recommends five years. The Company no longer needs these funds to pay its taxes, which is why they were collected from ratepayers in the first place. Therefore, based on the evidence in this case, the Commission finds that it is appropriate in this case to return federal unprotected EDIT over a four-year period through a levelized rider. The Commission finds that this decision appropriately balances the interests of ratepayers and the Company. By removing the total amount of the federal unprotected EDIT credit from rate base in the current case, the Company will be provided with an increase in rates to moderate any cash flow issues, to the extent they would exist. Further, the Commission finds that requiring the flowback over four years provides the Company with additional time to return the money and is the appropriate timeframe to balance both the Company's and the ratepayer's interests.

State EDIT - Additionally, the Commission does not find it appropriate to adopt witness DeStefano's proposal to utilize the state EDIT to offset various unamortized deferred maintenance assets in the current proceeding. The Commission has previously approved the amortization of state EDIT in the Sub 356 proceeding, and does not find any of the evidence presented in this proceeding persuasive to change the decision reached by the Commission in that docket.

In arriving at its conclusion, the Commission gives substantial weight to the testimony of witness Boswell. The Commission agrees with witness Boswell that CWSNC's proposal to offset the state EDIT against deferred regulatory assets presents significant intergenerational issues and constitutes inappropriate ratemaking. The Commission also agrees with the Public Staff and the AGO that there is no compelling reason to change the amortization of the state EDIT in this proceeding.

Therefore, the Commission finds that the state EDIT regulatory liability should continue to be amortized over a three-year period as approved in the Sub 356 Order.

Provisional Amount – Finally, the Commission finds that it is appropriate to require CWSNC to return the overcollection of federal taxes related to the decrease in the federal corporate income tax rate, including interest calculated at the overall weighted cost of capital, as a credit over a one-year period beginning when new base rates become effective. The rates with respect to the federal income tax expense have been provisional based on the Commission's generic order, so retroactive ratemaking is not at issue.

The Commission notes that CWSNC witness DeStefano specified during cross-examination by the AGO that the Company will have approximately $1.26 million in provisional revenues for the 2018 calendar year. In reaching its conclusion on this issue, the Commission notes that in its generic order issued in Docket No. M-100, Sub 148 on January 3, 2018, the Commission ordered all utility rates based on the federal corporate income tax rate of 35% rather than the Congressionally approved 21%, effective January 1, 2018, to be provisional and required accompanying deferred accounting for the amount of reduced rates. This meant that the Commission in subsequent orders could require refunds of revenues collected after January 1, 2018 to return to customers the portion of rates providing revenues to cover federal income tax expense greater than 21%. The North Carolina Supreme Court in State ex rel. Utilities Com. v. Nantahala Power & Light Co., 326 N.C. 190, 388 S.E.2d 118, 1990 N.C. LEXIS 12, 110 P.U.R.4th 250, ruled that this procedure in a generic rulemaking case is appropriate with respect to a similar federal income tax reduction with respect to the Tax Reform Act of 1986. The Court rejected challenges to the Commission's order requiring generic rate reductions as constituting single-issue rate adjustments. The Court held, however, that should utilities wish to demonstrate that their overall rate level not be reduced to reflect lower federal income tax expense, the remedy was to file a general rate case.

In this case, CWSNC has filed a general rate case, and the cost of service evidence justifies a rate increase, thus offsetting the reduction in cost of service from the tax rate decrease with increases elsewhere.

CWSNC nevertheless wishes to retain the overcollected, provisional revenues from January 1, 2018 to October 16, 2018. CWSNC's theory is that it failed to recover its overall cost of service during that period. The Commission determines that the Company's proposed justification to permit CWSNC to retain the revenues at issue is inapposite. The Commission uses the historic test year as adjusted through the end of the hearing to set rates prospectively, effective as of the date of this rate case Order. The reduction in federal income tax expense to 21% is an ongoing reduction in cost of service. To authorize the Company to effectively add a surcharge in rates beginning on January 1, 2018 with respect to this expense item would be no different than authorizing a surcharge for recovery of rates covering a decrease in labor costs during the test year as adjusted.

In addition, on cross-examination by the Public Staff, witness DeStefano noted that an affiliate of CWSNC pointed him to a recent Order by the RCA wherein that Commission declined to make a portion of the revenues received by two water utilities refundable pursuant to the Tax Act. The Commission gives little weight to witness DeStefano's testimony concerning the August 28, 2018 Order by the RCA. Witness DeStefano agreed during cross-examination that the utilities that were granted the favorable treatment by the RCA are distinguishable from CWSNC's case in this instance. First, the Alaska decision addresses two specific water utilities wherein the RCA opened the dockets and held show cause proceedings to investigate if the rates charged by the two utilities remained just and reasonable given the reduction to the annual revenue requirement caused by the Tax Act. In contrast, in North Carolina, in response to the Tax Act, the

Commission established a generic rulemaking docket (Docket No. M-100, Sub 148) on January 3, 2018, and in the Order establishing the docket, the Commission put the utilities on notice that any revenues collected on and after January 1, 2018, were to be considered provisional pending a final ruling by the Commission. In addition, the two Alaskan utilities had not been in for rate cases since 2014, and both companies are required to file their next rate case by July 1, 2020, if not sooner. Witness DeStefano also stated on cross-examination that he was not aware of any other state besides Alaska to make this decision, although he did not think he had "uncovered every stone" on this issue and that a lot of states are still working through this process. Witness DeStefano also agreed that he is aware of several other states that are ordering their utilities to refund these provisional amounts.

In fact, in North Carolina, the Commission has required other utilities in its October 5, 2018 Order issued in Docket No. M-100, Sub 148 to return the provisional amount collected since January 1, 2018, with interest reflected at each company's overall weighted cost of capital as approved in the company's last general rate case proceeding, in each utility's next general rate case proceeding or in three years, whichever is sooner.

Addressing CWSNC witness DeStefano's proposal to use a short-term interest rate instead of the overall weighted cost of capital for the provisional amount, the Commission notes that on cross-examination by the Public Staff, witness DeStefano stated that he does not have a proposed short-term interest rate offhand to apply to the provisional amount in question in this proceeding. He specified that the rate could be anything that would reflect the retention of funds for one calendar year or less. Witness DeStefano stated that in this case applying the cost of capital rate seems too high for something that is refunded within a 12-month period from when it was generated. Witness DeStefano specified that the short-term borrowing rate would be less than the overall weighted cost of capital and could be very low, in the 2% range. Both the Public Staff and the AGO disagreed with witness DeStefano on using a short-term interest rate for the provisional amount.

After reviewing the record of evidence on this issue, the Commission finds that the Company's recommendation that the interest on any refund be calculated using a short-term debt rate is not appropriate or reasonable to ratepayers when the Company earns a return on its rate base, based on the overall weighted cost of capital. In reaching this conclusion, the Commission gives substantial weight to the testimony of the Public Staff's witness and the arguments of the AGO.

The Commission also notes that it recently required Cardinal Pipeline Company, LLC, to return to ratepayers the provisional amount that it voluntarily decided to return now instead of under the parameters of the October 5, 2018 Order with interest reflected at the company's overall weighted cost of capital as approved in its last general rate case proceeding (See Docket Nos. G-39, Sub 42 and M-100, Sub 148).

In summary, the Commission finds and concludes that these decisions concerning the Tax Act are appropriate and provide for the full flowback to ratepayers of the effects

of the Tax Act. As noted in Public Staff witness Casselberry's supplemental testimony, many of the public witnesses that testified at the public hearings in New Bern and Charlotte noted the tax reductions due to the Tax Act. The decisions herein address those concerns expressed by the various public witnesses in this proceeding and do provide a full flowback to ratepayers of the decrease in the federal corporate income tax rate resulting from the Tax Act.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 52 – 60

The evidence supporting these findings of fact and conclusions is found in the Application and the accompanying NCUC Form W-1 of the Company, the testimony and exhibits of the public witnesses, the testimony and exhibits of Company witness D'Ascendis, the testimony and exhibits of Public Staff witness Hinton, and the entire record of this proceeding.

Rate of Return on Equity

In its Application and in the direct testimony of CWSNC witness D'Ascendis, the Company requested approval for its rates to be set using a rate of return on equity in a range of 11.50% to 11.90%. In his rebuttal testimony, witness D'Ascendis reduced his recommended rate of return on equity to a range of 10.80% to 11.20% after updating his analysis and making several changes to the application of his models. For the reasons set forth herein, the Commission finds that a rate of return on equity of 9.75% is just and reasonable.

Rate of return on equity, also referred to as the cost of equity capital, is often one of the most contentious issues to be addressed in a rate case. In the absence of a settlement agreed to by all parties, the Commission must exercise its independent judgment and arrive at its own independent conclusion as to all matters at issue, including the rate of return on equity. See, State ex rel. Utils. Comm'n v. Carolina Utils. Customers Ass'n, 348 N.C. 452, 466, 500 S.E.2d 693, 707 (1998). In order to reach an appropriate independent conclusion regarding the rate of return on equity, the Commission should evaluate the available evidence, particularly that presented by conflicting expert witnesses. State ex rel. Utils. Comm'n v. Cooper, 366 N.C. 484, 491-93, 739 S.E.2d 541, 546-47 (2013) (Cooper I). In this case, the evidence relating to the Company's cost of equity capital was presented by CWSNC witness D'Ascendis and Public Staff witness Hinton. No other rate of return on equity expert evidence was presented by any party.

In addition to its evaluation of the expert evidence, the Commission must also make findings of fact regarding the impact of changing economic conditions on customers when determining the proper rate of return on equity for a public utility. Cooper I, 366 N.C. at 494, 739 S.E.2d at 548. This was a factor newly announced by the Supreme Court in its Cooper I decision and not previously required by the Commission or any appellate courts as an element that must be considered in connection with the Commission's determination of an appropriate rate of return on equity. The Commission's

discussion of the evidence with respect to the findings required by Cooper I is set out in detail in this Order.

Cooper I was the result of the Supreme Court's reversal and remand of the Commission's approval of the agreement regarding the rate of return on equity in a stipulation between the Public Staff and Duke Energy Carolinas, LLC (DEC) in Docket No. E-7, Sub 989. The Commission has had occasion to apply both prongs of Cooper I in subsequent orders, specifically the following:

- Order Granting General Rate Increase, Docket No. E-2, Sub 1023 (May 30, 2013) (2013 DEP Rate Order), which was affirmed by the North Carolina Supreme Court in State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 444, 761 S.E.2d 640 (2014) (Cooper III)[18];

- Order on Remand, Docket No. E-7, Sub 989 (Oct. 23, 2013) (DEC Remand Order), which was affirmed by the North Carolina Supreme Court in State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 644, 766 S.E.2d 827 (2014) (Cooper IV);

- Order Granting General Rate Increase, Docket No. E-7, Sub 1026 (Sep. 24, 2013) (2013 DEC Rate Order), which was affirmed by the Supreme Court in State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 741, 767 S.E.2d 305 (2015) (Cooper V);

- Order on Remand, Docket No. E-22, Sub 479 (July 23, 2015), which was not appealed to the Supreme Court;

- Order Approving Rate Increase and Cost Deferrals and Revising PJM Regulatory Conditions, Docket No. E-22, Sub 532 (Dec. 22, 2016);

- Order Accepting Stipulation, Deciding Contested Issues and Granting Partial Rate Increase, Docket No. E-2, Sub 1142 (Feb. 23, 2018); and

- Order Accepting Stipulation, Deciding Contested Issues, and Requiring Revenue Reduction, Docket No. E-7, Sub 1146 (June 22, 2018).

In order to give full context to the Commission's decision herein and to elucidate its view of the requirements of the General Statutes as they relate to rate of return on equity, as interpreted by the Supreme Court in Cooper I, the Commission deems it

[18] An intervening case, State ex rel. Utils. Comm'n v. Cooper, 367 N.C. 430, 758 S.E.2d 635 (2014) (Cooper II), arose from Dominion North Carolina Power's 2012 rate case and resulted in a remand to the Commission, inasmuch as the Commission's Order in that case predated Cooper I.

important to provide in this Order an overview of the general principles governing this subject.

A. Governing Principles in Setting the Rate of Return on Equity

First, there are, as the Commission noted in the 2013 DEP Rate Order, constitutional constraints upon the Commission's rate of return on equity decisions established by the United States Supreme Court Decisions in Bluefield Waterworks & Improvement Co., v. Pub. Serv. Comm'n of W. Va., 262 U.S. 679 (1923) (Bluefield), and Fed. Power Comm'n v. Hope Natural Gas Co., 320 U.S. 591 (1944) (Hope):

> To fix rates that do not allow a utility to recover its costs, including the cost of equity capital, would be an unconstitutional taking. In assessing the impact of changing economic conditions on customers in setting a return on equity, the Commission must still provide the public utility with the opportunity, by sound management, to (1) produce a fair profit for its shareholders, in view of current economic conditions, (2) maintain its facilities and service, and (3) compete in the marketplace for capital. State ex rel. Utilities Commission v. General Telephone Co. of the Southeast, 281 N.C. 318, 370, 189 S.E.2d 705, 757 (1972). As the Supreme Court held in that case, these factors constitute "the test of a fair rate of return" in Bluefield and Hope. Id.

2013 DEP Rate Order, p. 29.

Second, the rate of return on equity is, in fact, a cost. The return that equity investors require represents the cost to the utility of equity capital. In his dissenting opinion in Missouri ex rel. Southwestern Bell Tel. Co. v. Missouri Pub. Serv. Comm'n, 262 U.S. 276 (1923), Justice Brandeis remarked upon the lack of any functional distinction between the rate of return on equity (which he referred to as a "capital charge") and other items ordinarily viewed as business costs, including operating expenses, depreciation, and taxes:

> Each is a part of the current cost of supplying the service; and each should be met from current income. When the capital charges are for interest on the floating debt paid at the current rate, this is readily seen. But it is no less true of a legal obligation to pay interest on long-term bonds ... and it is also true of the economic obligation to pay dividends on stock, preferred or common.

Id. at 306 (Brandeis, J. dissenting) (emphasis added). Similarly, the United States Supreme Court observed in Hope, "From the investor or company point of view it is important that there be enough revenue not only for operating expenses but also for the capital costs of the business ... [which] include service on the debt and dividends on the stock." Hope at 603.

Leading academic commentators also define rate of return on equity as the cost of equity capital. Professor Charles Phillips, for example, states that "the term 'cost of capital' may be defined as the annual percentage that a utility must receive to maintain its credit, to pay a return to the owners of the enterprise, and to ensure the attraction of capital in amounts adequate to meet future needs." Phillips, Charles F., Jr., The Regulation of Public Utilities (Public Utilities Reports, Inc. 1993), p. 388. Professor Roger Morin approaches the matter from the economist's viewpoint:

> While utilities enjoy varying degrees of monopoly in the sale of public utility services, they must compete with everyone else in the free open market for the input factors of production, whether it be labor, materials, machines, or capital. The prices of these inputs are set in the competitive marketplace by supply and demand, and it is these input prices which are incorporated in the cost of service computation. This is just as true for capital as for any other factor of production. Since utilities must go to the open capital market and sell their securities in competition with every other issuer, there is obviously a market price to pay for the capital they require, for example, the interest on capital debt, or the expected return on equity.
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> * * *
>
> [T]he cost of capital to the utility is synonymous with the investor's return, and the cost of capital is the earnings which must be generated by the investment of that capital in order to pay its price, that is, in order to meet the investor's required rate of return.

Morin, Roger A., Utilities' Cost of Capital (Public Utilities Reports, Inc. 1984), at pp. 19-21. Professor Morin adds: "The important point is that the prices of debt capital and equity capital are set by supply and demand, and both are influenced by the relationship between the risk and return expected for those securities and the risks expected from the overall menu of available securities." Id. at 20 (emphasis added).

Changing economic circumstances as they impact CWSNC's customers may affect those customers' ability to afford rate increases. For this reason, customer impact weighs heavily in the overall ratemaking process, including, as set out in detail elsewhere in this Order, the Commission's own decision of an appropriate authorized rate of return on equity. In addition, in the event of a settlement, customer impact no doubt influences the process by which the parties to a rate case decide to settle contested matters and the level of rates achieved by any such settlement.

However, a customer's ability to afford a rate increase has absolutely no impact upon the supply of or the demand for capital. The economic forces at work in the competitive capital market determine the cost of capital – and, therefore, the utility's required rate of return on equity. The cost of capital does not go down because some customers may find it more difficult to pay for an increase in water and wastewater prices

as a result of prevailing adverse economic conditions, any more than the cost of capital goes up because some customers may be prospering in better times.

Third, the Commission is and must always be mindful of the North Carolina Supreme Court's command that the Commission's task is to set rates as low as possible consistent with the dictates of the United States and North Carolina Constitutions. State ex rel. Utils. Comm'n v. Pub. Staff-N. Carolina Utils. Comm'n, 323 N.C. 481, 490, 374 S.E.2d 361, 370 (1988). Further, and echoing the discussion above concerning the fact that rate of return on equity represents the cost of equity capital, the Commission must execute the Supreme Court's command "irrespective of economic conditions in which ratepayers find themselves." (2013 DEP Rate Order, p. 37.) The Commission noted in that Order:

> The Commission always places primary emphasis on consumers' ability to pay where economic conditions are difficult. By the same token, it places the same emphasis on consumers' ability to pay when economic conditions are favorable as when the unemployment rate is low. Always there are customers facing difficulty in paying utility bills. The Commission does not grant higher rates of return on equity when the general body of ratepayers is in a better position to pay than at other times, which would seem to be a logical but misguided corollary to the position the Attorney General advocates on this issue.

Id. Indeed, in Cooper I the Supreme Court emphasized "changing economic conditions" and their impact upon customers. Cooper I, at 548.

Fourth, while there is no specific and discrete numerical basis for quantifying the impact of economic conditions on customers, the impact on customers of changing economic conditions is embedded in the rate of return on equity expert witnesses' analyses. The Commission noted this in the 2013 DEP Rate Order: "This impact is essentially inherent in the ranges presented by the return on equity expert witnesses, whose testimony plainly recognized economic conditions – through the use of econometric models – as a factor to be considered in setting rates of return." 2013 DEP Rate Order, p. 38.

Fifth, under long-standing decisions of the North Carolina Supreme Court, the Commission's subjective judgment is a necessary part of determining the authorized rate of return on equity. State ex rel. Utils. Comm'n v. Pub. Staff, 323 N.C. 481, 490, 374 S.E.2d 361, 369 (1988). As the Commission also noted in the 2013 DEP Rate Order:

> Indeed, of all the components of a utility's cost of service that must be determined in the ratemaking process, the appropriate [rate of return on equity] is the one requiring the greatest degree of subjective judgment by the Commission. Setting [a return on equity] for regulatory purposes is not simply a mathematical exercise,

despite the quantitative models used by the expert witnesses. As explained in one prominent treatise:

> Throughout all of its decisions, the [United States] Supreme Court has formulated no specific rules for determining a fair rate of return, but it has enumerated a number of guidelines. The Court has made it clear that confiscation of property must be avoided, that no one rate can be considered fair at all times and that regulation does not guarantee a fair return. The Court also has consistently stated that a necessary prerequisite for profitable operations is efficient and economical management. Beyond this is a list of several factors the commissions are supposed to consider in making their decisions, but no weights have been assigned.
> The relevant economic criteria enunciated by the Court are three: financial integrity, capital attraction and comparable earnings. Stated another way, the rate of return allowed a public utility should be high enough: (1) to maintain the financial integrity of the enterprise, (2) to enable the utility to attract the new capital it needs to serve the public, and (3) to provide a return on common equity that is commensurate with returns on investments in other enterprises of corresponding risk. These three economic criteria are interrelated and have been used widely for many years by regulatory commissions throughout the country in determining the rate of return allowed public utilities.

In reality, the concept of a fair rate of return represents a "zone of reasonableness." As explained by the Pennsylvania commission:

> There is a range of reasonableness within which earnings may properly fluctuate and still be deemed just and reasonable and not excessive or extortionate. It is bounded at one level by investor interest against confiscation and the need for averting any threat to the security for the capital embarked upon the enterprise. At the other level it is bounded by consumer

> interest against excessive and unreasonable charges for service.
>
> As long as the allowed return falls within this zone, therefore, it is just and reasonable. . . . It is the task of the commissions to translate these generalizations into quantitative terms.
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> Charles F. Phillips, Jr., The Regulation of Public Utilities, 3d ed. 1993, pp. 381-82 (Notes omitted.)

2013 DEP Rate Order, pp. 35-36.

Thus, the Commission must exercise its subjective judgment so as to balance two competing rate of return on equity-related factors – the economic conditions facing the Company's customers and the Company's need to attract equity financing in order to continue providing safe and reliable service.

The Supreme Court in Cooper V affirmed the 2013 DEC Rate Order, in which this framework was fully articulated. But to the framework we can add additional factors based upon the Supreme Court's decisions in Cooper III, Cooper IV, and Cooper V. Specifically, the Supreme Court held that nothing in Cooper I requires the Commission to "quantify" the influence of changing economic conditions upon customers (see, e.g., Cooper V, 367 N.C. at 745-46; Cooper IV, 367 N.C. at 650; Cooper III, 367 N.C. at 450), and, indeed, the Supreme Court reiterated that setting the rate of return on equity is a function of the Commission's subjective judgment: "Given th[e] subjectivity ordinarily inherent in the determination of a proper rate of return on common equity, there are inevitably pertinent factors which are properly taken into account but which cannot be quantified with the kind of specificity here demanded by [the appellant]." Cooper III, 367 N.C. at 450, quoting State ex rel. Utils. Comm'n v. Pub. Staff-North Carolina Utils. Comm'n, 323 NC 481, 490 (1988).

Finally, the Supreme Court discussed with approval the Commission's reference to and reliance upon expert witness testimony that used econometric models that the Commission had noted "inherently" contained the effects of changing economic circumstances upon customers and also discussed with approval the Commission's reference to and reliance upon expert witness testimony correlating the North Carolina economy with the national economy. See, e.g., Cooper V, 367 N.C. at 747; Cooper III, 367 N.C. at 451.

It is against this backdrop of overarching principles that the Commission turns to the evidence presented in this case.

B. Application of the Governing Principles to the Rate of Return Decision

1. Evidence from Expert Witnesses on Cost of Equity Capital

Company witness D'Ascendis recommended in his direct testimony a rate of return on equity range of 11.50% to 11.90%. This range was based upon his indicated cost of common equity of 11.50% plus a recommended size adjustment of 0.40%. In his rebuttal testimony, witness D'Ascendis provided an updated analysis including changes in the application of his models and reduced his recommended rate of return on equity to a range of 10.80% to 11.20%.

D'Ascendis Direct Testimony

Witness D'Ascendis' recommendation was based upon his Discounted Cash Flow (DCF) model, his Risk Premium Model (RPM), and his Capital Asset Pricing Model (CAPM), applied to market data of a proxy group of six publicly-traded water companies (Utility Proxy Group). He also applied the DCF, RPM, and CAPM to a proxy group of domestic, non-price regulated companies (Non-Price Regulated Proxy Group) which he described as comparable in total risk to his Utility Proxy Group.

The results derived from witness D'Ascendis' analyses in his direct testimony are as follows:

Summary of D'Ascendis' Common Equity Cost Rate Analyses in Direct Testimony

Utility Proxy Group	
Discounted Cash Flow Model	9.10%
Risk Premium Model	12.12
Capital Asset Pricing Model	11.31
Cost of Equity Models Applied to Non-Price Regulated Proxy Group	12.63
Indicated Common Equity Cost Rate Before Adjustments	11.50%
Size Adjustment	0.40
Range of Common Equity Cost Rates After Adjustments	11.50% - 11.90%

He concluded that a common equity cost rate of 11.50% for CWSNC is indicated before any Company-specific adjustments. He then adjusted upward by 0.40% to reflect CWSNC's smaller relative size as compared with the members of his Utility Proxy Group, resulting in a size-adjusted indicated common equity cost rate of 11.90%.

Witness D'Ascendis testified he used the single-stage constant growth DCF model. He testified his unadjusted dividend yields are based on the proxy companies' dividends as of March 29, 2018, divided by the average of closing market prices for the 60 trading

days ending March 29, 2018.[19] He made an adjustment to the dividend yield because dividends are paid periodically, usually quarterly.

For witness D'Ascendis' DCF growth rate, he testified he used only analysts' five-year forecasts of earning per share (EPS) growth. He testified that the mean result of his application of the single-stage DCF model is 9.12%, the median result is 9.07%, and the average of the two is 9.10% for his Utility Proxy Group.

CWSNC witness D'Ascendis used two risk premium methods. He testified his first method is the Predictive Risk Premium Model (PRPM), while the second method is a RPM using a total market approach. He testified that the inputs to his PRPM are the historical returns on the common shares of each company in the Utility Proxy Group minus the historical monthly yield on long-term U.S. Treasury securities through March 2018. He testified he added the forecasted 30-year U.S. Treasury Bond yield, 3.69% to each company's PRPM-derived equity risk premium to arrive at an indicated cost of common equity. He testified that the mean PRPM indicated common equity cost rate for the Utility Proxy Group is 13.52%, the median is 13.33%, and the average of the two is 13.43%.

Witness D'Ascendis testified that his total market approach RPM adds a prospective public utility bond yield to an average of (1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, and (2) an equity risk premium based on the S&P Utilities Index. He calculated his adjusted prospective bond yield for the Utility Proxy Group to be 5.00%, and the average equity risk premium to be 5.80% resulting in a risk premium derived common equity of 10.80% for his RPM using his total market approach.

To determine the results of his risk premium method, he testified that he averaged the PRPM result of 13.43% and the RPM results of 10.80% and the indicated cost of equity from his risk premium method was 12.12%.

For his CAPM, witness D'Ascendis testified that he applied both the traditional CAPM and the empirical CAPM (ECAPM) to the companies in his Utility Proxy Group and averaged the results. For his CAPM beta coefficient, he considered two methods of calculation: the average of the beta coefficients of the Utility Proxy Group companies reported by Bloomberg Professional Services, and the average of the beta coefficients of the Utility Proxy Group companies as reported by Value Line resulting in a mean beta of 0.78 and a median beta of 0.74.

Witness D'Ascendis testified that the risk-free rate adopted for both applications of the CAPM is 3.69%. This risk-free rate of 3.69% is based on the average of the *Blue Chip* consensus forecast of the expected yields on 30-year U.S. Treasury bonds for the six quarters ending with the second calendar quarter of 2019, and long-term projections for the years 2019 to 2023 and 2024 to 2028.

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[19] See Schedule DWD-3, page 1, column 1.

Witness D'Ascendis stated that he used three sources of data to determine the risk premium in his CAPM: historical, Value Line, and Bloomberg, that when averaged, result in an average total market equity risk premium of 9.12%. He testified that the mean result of his CAPM/ECAPM analyses is 11.25%, the median is 11.37%, and the average of the two is 11.31%.

Witness D'Ascendis also selected 17 domestic non-price regulated companies for his Non-Price Regulated Proxy Group that he believes are comparable in total risk to his Utility Proxy Group. He calculated common equity cost rates using the DCF, RPM, and CAPM for the Non-Price Regulated Proxy Group. His DCF result was 14.15%, his RPM cost rate was 12.46%, and his CAPM/ECAPM cost rate was 11.78%.

Witness D'Ascendis also made a 0.40% equity cost rate adjustment due to CWSNC's small size relative to the Utility Proxy Group. He testified that the Company has greater relative risk than the average company in the Utility Proxy Group because of its smaller size compared with the group, as measured by an estimated market capitalization of common equity for CWSNC (whose common stock is not publicly-traded).

Hinton Direct Testimony

Public Staff witness Hinton recommended a common equity cost rate of 9.20%. He testified that, according to Moody's Bond Survey, yields on long-term "A" rated public utility bonds as of August 2018 were 4.26% and 4.27% for July 2018. Witness Hinton noted that such bonds yielded 4.63% on January 10, 2014 which is the time of filing of the Public Staff and Company Stipulation in Docket No. W-354, Sub 336 that included a 9.75% cost of equity. He further testified that the relative decrease in long-term bond yields since the last rate case is not indicative of an increase in financing costs for utilities; rather, it portends a lowering of financing costs for long-term capital. However, he also testified that there has been an increase in the cost of short-term financing.

Witness Hinton stated that the current lower interest rates and stable inflationary environment of today indicate that borrowers are paying less for the time value of money. He testified that this is significant since utility stocks and utility capital costs are highly interest-rate sensitive relative to most industries. Furthermore, given that investors often view purchases of the common stocks of utilities as substitutes for fixed income investments, the reductions in interest rates observed over the past 10 years or more have paralleled the decreases in investor required rates of return on common equity.

Witness Hinton testified that he generally does not rely on interest rate forecasts. Rather, he considers that relying on current interest rates, especially in relation to yields on long-term bonds, is more appropriate for ratemaking in that, it is reasonable to expect that as investors are pricing bonds, they are based on expectations on future interest rates, inflation rates, etc. He testified that while he has a healthy respect for forecasting, he is aware of the risk of relying on predictions of rising interest rate cases. He presented a case that can be observed in the testimony of Company witness Ahern in the 2013 Aqua NC rate case. In that case, witness Ahern identified several point forecasts of

30-year Treasury Bond yields that were predicted to rise to 4.3% in 2015, 4.7% in 2016, and 5.2% in 2017. He presented a graph of 30-Year US Treasury Bonds yields which showed in 2016 and 2017 the range was approximately 2.25% to 3.10%. Tr. Vol. 7, pp. 136-137.

Witness Hinton testified that he used the DCF model and the RPM to determine the cost of equity for CWSNC. He testified that the DCF model is a method of evaluating the expected cash flows from an investment by giving appropriate consideration to the time value of money. The DCF model is based on the theory that the price of the investment will equal the discounted cash flows of return. The return to an equity investor comes in the form of expected future dividends and price appreciation. He testified that as the new price will again be the sum of the discounted cash flows, price appreciation is ignored and attention is focused on the expected stream of dividends.

Witness Hinton testified that he applied the DCF method to a comparable group of water utilities followed by the Value Line Investment Survey (Value Line). He testified that the standard edition of Value Line covers nine water companies. He excluded Connecticut Water Service, Inc. and the SJW Group because of a merger of the two companies and also excluded Consolidated Water Co. because of its significant overseas operations.

Witness Hinton calculated the dividend yield component of the DCF by using the Value Line estimate of dividends to be declared over the next 12 months divided by the price of the stock as reported in the Value Line Summary and Index sections for each week of the 13-week period June 29, 2018 through September 21, 2018. He testified that a 13-week averaging period tends to smooth out short-term variations in the stock prices. This process resulted in an average dividend yield of 2.1% for his proxy group of water utilities.

To calculate the expected growth rate component of the DCF, Public Staff witness Hinton employed the growth rates of his proxy group in EPS, dividends per share (DPS), and book value per share (BVPS) as reported in Value Line over the past 10 and five years. He also employed the forecasts of the growth rates of his proxy group in EPS, DPS, and BVPS as reported in Value Line. He testified that the historical and forecast growth rates are prepared by analysts of an independent advisory service that is widely available to investors, and should also provide an estimate of investor expectations. He testified that he included both historical known growth rates and forecast growth rates, because it is reasonable to expect that investors consider both sets of data in deriving their expectations.

Witness Hinton incorporated the consensus of various analysts' forecasts of five-year EPS growth-rate projections as reported in Yahoo Finance. He testified that the dividend yields and growth rates for each of the companies and for the average for his comparable proxy group are shown in Exhibit JRH-3.

Witness Hinton concluded based upon his DCF analysis that a reasonable expected dividend yield is 2.1% with an expected growth rate of 6.1% to 7.1%. Thus, he

testified that his DCF analysis produces a cost of common equity for his comparable proxy group of water utilities of 8.20% to 9.20%.

Witness Hinton testified that the equity risk premium method can be defined as the difference between the expected return on a common stock and the expected return on a debt security. The differential between the two rates of return are indicative of the return investors require in order to compensate them for the additional risk involved with an investment in the Company's common stock over an investment in the Company's bonds that involves less risk.

Witness Hinton testified that his method relies on approved returns on common equity for water utility companies from various public utility commissions as reported in a RRA Water Advisory, published by the Regulatory Research Associates, Inc. (RRA), a group within S&P Global Market Intelligence (RRA Water Advisory). In order to estimate the relationship with a representative cost of debt capital, he regressed the average annual allowed equity returns with the average Moody's A-rated yields for Public Utility bonds from 2006 through 2018. His regression analysis, which incorporates years of historical data, is combined with recent monthly yields to provide an estimate of the current cost of common equity.

Witness Hinton testified that the use of allowed returns as the basis for the expected equity return has two strengths over other approaches that involve various models that estimate the expected equity return on common stocks and subtracting a representative cost of debt. He stated that one strength of his approach is that authorized returns on equity are generally arrived at through lengthy investigations by various parties with opposing views on the rate of return required by investors. He testified that it is reasonable to conclude that the approved allowed returns are good estimates of the cost of equity.

Witness Hinton testified that the summary data of risk premiums shown on his Exhibit JRH-4, page 1 of 2, indicates that the average risk premium is 4.95% with a maximum premium of 5.78% and minimum premium of 3.73%, which when combined with the last six months of Moody's A-rated utility bond yields produces yields with an average cost of equity of 9.11%, a maximum cost of equity of 9.94%, and a minimum cost of equity of 7.89%. He performed a statistical regression analysis as shown on Exhibit JRH-4, page 2 of 2 in order to quantify the relationship of allowed equity returns and bond costs. He testified that by applying this relationship to the current utility bond cost of 4.22%, resulted in a current estimate of the cost of equity of 9.70% which reflects a risk premium of 5.48%.

Witness Hinton concluded that based on all of the results of his DCF model that indicate a cost of equity from 8.20% to 9.20% with a central point estimate of 8.70%, and the risk premium model that indicates a cost of equity of 9.70%, he determined that the investor required rate of return on equity for CWSNC is between 8.70% and 9.70%. He concluded that 9.20% is his single best estimate of the Company's cost of common equity.

Witness Hinton testified as to the reasonableness of his recommended return, that he considered the pre-tax interest coverage ratio produced by his cost estimates for the cost of equity. He testified that based on his recommended capital structure, cost of debt, and equity return of 9.20%, the pre-tax interest coverage ratio is approximately 3.2 times. He testified that this pre-tax interest coverage and a funds flow to debt ratio of 26% should allow CWSNC to qualify for a single "A" bond rating.

Witness Hinton testified that his recommended return on common equity takes into consideration the impact of the water and sewer system improvement charges pursuant to N.C.G.S. § 62-113.12 on CWSNC's financial risk. He testified that these improvement charges are seen by debt and equity investors as supportive regulation that mitigates business risk. Witness Hinton stated that he considers this mechanism to be noteworthy and is supportive of his 9.20% return on equity recommendation.

Witness Hinton testified that it is not appropriate to add a risk premium to the cost of equity due to the size of the company. He testified that from a regulatory policy perspective, ratepayers should not be required to pay higher rates because they are located in the franchise area of a utility of a size which is arbitrarily considered to be small. He further testified that if such adjustments were routinely allowed, an incentive would exist for large existing utilities to form subsidiaries when merging or even to split-up into subsidiaries to obtain higher allowed returns. He further testified that CWSNC operates in a franchise environment that insulates the Company from competition and it operates with procedures in place that allow for rate adjustments for eligible capital improvements, cost increases, and other unusual circumstances that impact its earnings.

D'Ascendis Rebuttal Testimony

In his rebuttal testimony, CWSNC witness D'Ascendis disagreed with witness Hinton that a 9.20% common equity rate is appropriate for CWSNC and stated that the Public Staff's recommendation would not be sufficient to maintain the integrity of presently invested capital and permit the attraction of needed new capital at a reasonable cost in competition with other firms of comparable risk.

Witness D'Ascendis also disagreed with witness Hinton's exclusion of the CAPM and comparable earnings model (CEM), both of which witness Hinton used as a check on his DCF and RPM in a previous proceeding involving Aqua NC (Docket No. W-218, Sub 319). According to witness D'Ascendis, both the academic literature and the Commission support the use of multiple models in determining a return on common equity. Witness D'Ascendis then attempted to supplement what would have been witness Hinton's analysis with a CAPM and CEM, which indicated results of 10.93% and 12.49%, respectively.

Witness D'Ascendis objected to witness Hinton's DCF analysis and he also took issue with witness Hinton's use of historical growth rates in EPS, DPS, and BVPS as well as his use of projected growth rates in DPS and BVPS. He asserted that it is appropriate

to rely exclusively upon security analysts' forecasts of EPS growth rates in a DCF analysis for multiple reasons.

First, he believed that individual investors who could potentially invest in utility stocks generally have more limited informational resources than institutional investors and are therefore likely to place greater significance on the opinions and projections expressed by financial information services such as Value Line, Reuters, Zacks, and Yahoo! Finance, which are all easily accessible and/or available on the Internet and through public libraries. Witness D'Ascendis testified that security analysts have significant insight into the dynamics of the industries and individual companies they analyze, as well as company's abilities to effectively manage the effects of a changing industry, economic, or market environment. Second, over the long run, there can be no growth in DPS without growth in EPS. Security analysts' earnings expectations have a more significant, but not exclusive, influence upon market prices than dividend expectations, providing a better matching between investors' market price appreciation expectation and the growth component of the DCF model. Third, there is academic support for the superiority of analysts' forecasts of growth in EPS as the growth component in the DCF model. Witness D'Ascendis asserted that witness Hinton should have relied exclusively upon the Value Line and Yahoo! Finance EPS forecasts.

Witness D'Ascendis also disagreed with witness Hinton's application of his RPM because of his use of annual average authorized returns on equity for water companies instead of using individual cases and his use of current interest rates instead of projected interest rates. According to witness D'Ascendis, using current or historical measures, such as interest rates, are inappropriate for cost of capital and ratemaking purposes because they are both prospective in nature.

In addition, witness D'Ascendis disagreed with witness Hinton on risk due to size. Witness D'Ascendis emphasized that because it is the rate base of a specific regulated jurisdictional utility to which a regulatory allowed rate of return will be applied, it is the unique risk of that rate base which needs to be reflected in the allowed rate of return, including any additional risk due to small size. In addition, the corporate structure of the owners of that rate base is irrelevant as it is the use of the funds which gives rise to the investment risk, not the source of those funds. It matters not whether the rate base is held privately, by a municipality, by a large holding company, by a small holding company, by an equity investment fund, multiple shareholders, or a single shareholder. Only the riskiness of the particular rate base is relevant. The size of any given jurisdictional rate base is not arbitrary, it is what it is, and it is imminently relevant relative to the size of any publicly-traded utilities from whose market data a common equity cost rate recommendation is derived. Therefore, there is no incentive for "large existing utilities to form subsidiaries when merging or even to split-up into subsidiaries" because it is the risk of the regulated rate base which is relevant.

Witness D'Ascendis testified that witness Hinton's corrected cost of common equity analysis results in a common equity cost rate of 10.62% for witness Hinton's

comparable group of water utilities before adjustment for CWSNC's increased risk due to size relative to the proxy group.

In his rebuttal testimony, Company witness D'Ascendis also updated his analysis and made certain changes in the application of the models he used to determine the cost of equity in his direct testimony. As a result, he revised his recommended rate of return on equity range to be 10.80% to 11.20%. This range was based upon his indicated cost of common equity of 10.80% plus a recommended size adjustment of 0.40%.

Witness D'Ascendis' rebuttal testimony also updated his original DCF, RPM, and CAPM models with relation to his Utility Proxy Group, as well as his Non-Price Regulated Proxy Group.

The results derived from witness D'Ascendis' analyses in his rebuttal testimony are as follows:

Summary of D'Ascendis' Common Equity Cost Rate Analyses
in Rebuttal Testimony

Utility Proxy Group	
Discounted Cash Flow Model	9.15%
Risk Premium Model	10.73
Capital Asset Pricing Model	10.93
Cost of Equity Models Applied to Non-Price Regulated Proxy Group	12.43
Indicated Common Equity Cost Rate Before Adjustments	10.80%
Size Adjustment	0.40
Range of Common Equity Cost Rates After Adjustments	10.80% - 11.20%

He concluded that a common equity cost rate of 10.80% for CWSNC is indicated before any Company-specific adjustments. He then adjusted upward by 0.40% to reflect CWSNC's smaller relative size as compared with the members of his Utility Proxy Group, resulting in a size-adjusted indicated common equity cost rate of 11.20%.

Witness D'Ascendis testified that his rebuttal testimony provided an updated analysis as of September 28, 2018. In addition, he testified that his rebuttal testimony differed from his direct testimony in the application of his models, which he had changed in May 2018. Witness D'Ascendis listed such changes as follows:

> 1. In the Predictive Risk Premium Model (PRPM) applicable to the proxy group companies, instead of averaging the spot and long-term average predicted variances, I selected the minimum value for each company;

2. For the beta adjusted equity risk premium (ERP), instead of averaging the ERPs by source {i.e. Ibbotson, Value Line, and Bloomberg), I gave all six ERP measures equal weight;

3. For the Standard & Poor's (S&P) utility-specific ERP, instead of averaging the ERPs by source, I gave all five ERP measures equal weight; and

4. For the market risk premium (MRP) used in the Capital Asset Pricing Model (CAPM), instead of averaging the MRPs by source. I gave all six MRP measures equal weight.

Tr. Vol. 7, p. 184.

D'Ascendis Cross-Examination

On cross-examination, witness D'Ascendis testified he was aware that CWSNC has approximately 50,000 customers in North Carolina and that CWSNC is the second largest regulated water and wastewater company in North Carolina. Witness D'Ascendis further testified on cross-examination that CWSNC obtains all of its debt and all of its equity from Utilities, Inc., and in this general rate case both CWSNC and the Public Staff are using Utilities, Inc.'s capital structure and cost of debt.

Witness D'Ascendis testified that Public Staff D'Ascendis Direct Cross-Examination Exhibit 1 lists the market capitalizations for four of the companies in his Utility Proxy Group as shown on D'Ascendis Direct Exhibit No. 1, Schedule DWD-8, page 2, column 6. He testified that this cross-examination exhibit correctly listed the Utilities, Inc. book equity on June 30, 2018, at $252.2 million and when the Utility Proxy Group market to book ratio of 300.5 was applied to Utilities Inc.'s $252.2 million book equity, the resulting Utilities, Inc. market capitalization is $758 million. He testified Utilities, Inc.'s $758 million market capitalization was larger than two of his Utility Proxy Group companies, Middlesex Water Company at $600 million and York Water Company at $399 million.

Witness D'Ascendis also testified that he was aware that as testified to by Public Staff witness Hinton, in the 1990s the Commission specifically rejected a size adjustment for CWS Systems, an affiliate of CWSNC.

CWSNC witness D'Ascendis testified on cross-examination that Public Staff D'Ascendis Cross-Examination Exhibit 2 was his response to a Public Staff data request showing water and wastewater utility general rate cases in which he testified recommending a return on equity range or a specific return on equity. He testified that in the Emporium Water case in Pennsylvania, which was a fully litigated case, he recommended an 11.05% return on equity and the Commission approved a 10.0% return on equity in January 2015, being 105 basis points below his recommendation.

He testified that in the Carolina Water Service, Inc. general rate case in South Carolina with decision on December 22, 2015, he recommended a return on equity range of 10.0% to 10.50% which had a mid-point of 10.25%, and the Commission approved a return on equity of 9.34% which was 91 basis points below his mid-point. He further testified in the Aqua Illinois, Inc. general rate case with decision on March 2, 2018, he recommended a specific return on equity of 10.85%, and the Commission approved a return on equity of 9.60%, which was 125 basis points below his recommendation.

Witness D'Ascendis testified that in the Middlesex Water Company general rate case in New Jersey with decision on March 6, 2018, he recommended a specific return on equity of 10.70% and the Commission approved a return on equity of 9.60%, which was 110 basis points below his recommendation. Witness D'Ascendis testified that in the current Aqua Virginia general rate case, in which he recommended a specific return on equity of 10.60%, Aqua Virginia recently agreed in a settlement to a 9.25% return on equity, which the Hearing Examiner accepted.

Witness D'Ascendis testified that most of the authorized returns on equity on Public Staff D'Ascendis Direct Cross-Examination Exhibit 2 were the result of settlements which the Commissions approved. He testified for the nine cases with approved returns on equity, the average approved return on equity was 142 basis points below his recommendation.

He testified that his most recent litigated and most relevant case was for Carolina Water Service, Inc. in South Carolina where on May 26, 2018, the Commission approved a return on equity of 10.50%, which was within his range of 10.45% to 10.95%.

CWSNC witness D'Ascendis testified that Public Staff Direct Cross-Examination Exhibit 3 is a RRA Water Advisory, S&P Global, dated July 27, 2018, which lists water utility rate case decisions in the years 2014 through 2017, and through June 30, 2018. He testified that in 2018 through June 30, 2018, the average approved return on equity was 9.41%. He testified that if for any reason the South Carolina 10.5% return on equity decision for Carolina Water Service was dropped, the 2018 average would be 9.23% return on equity. He testified that the four 2018 California return on equity decisions have fully forecasted test years, full decoupling, and three year rate plans. He testified that these California decisions dated March 22, 2018, were all fully litigated, and the approved returns on equity were: California America Water – 9.20%, California Water Service – 9.20%, Golden State Water Co. – 8.90%, and San Jose Water Co. – 8.90%. He testified that more relevant than these cases was the recent Duke Energy Carolinas case Docket No. E-7, Sub 1146 with a settlement approved 9.90% return on equity.

CWSNC witness D'Ascendis further testified that in 2014 where the RRA Water Advisory reported 13 water utility rate case decisions with approved returns on equity, none were 10% or above. He testified that in 2015 where the RRA Water Advisory reported 11 water utility decisions with approved returns on equity, only two were 10.0% or above, being Maryland American Water at 10.0% and Kona Water in Hawaii with 10.10% return on equity. He testified that in 2016 where the RRA Water Advisory reported nine water utility rate case decisions with approved returns on equity, only Hawaii Water

Service at 10.10% return on equity, had an approved return on equity at 10.0% or above. He testified that in 2017 where the RRA Water Advisory reported nine water utility rate case decisions with approved returns on equity averaging 9.56%, only Utilities, Inc. of Florida with a formula-based return on equity of 10.40% and a 41.92% approved common equity capital structure, had an approved return on equity at 10.0% or above.

CWSNC witness D'Ascendis further testified on cross-examination as shown on Public Staff D'Ascendis Direct Cross-Examination Exhibit 5, that three of the four California water utilities with the litigated decisions dated March 22, 2018, being California American Water with a 9.20% approved return on equity, California Water Service with a 9.20% approved return on equity, and Golden State Water with an approved 8.90% return on equity, being a subsidiary of American States Water, are companies included in his Utility Proxy Group. CWSNC witness D'Ascendis testified that Public Staff D'Ascendis Cross-Examination Exhibit 5 contained the 2018 return on equity decisions for five of the companies in his Utility Proxy Group and the average approved return on equity was 9.30%.

On cross-examination witness D'Ascendis further testified that there was a backlash in the investment community relating to the four California March 22, 2018, return on equity decisions. He testified that MSN Money is a reliable source for the market prices on Public Staff D'Ascendis Cross-Examination Exhibit 4. This cross-examination exhibit listed the market close prices on March 22, 2018, and October 15, 2018, for American Waterworks, American States Water, California Water Service, and San Jose Water. The respective market price percentage increases between March 22, 2018, and October 15, 2018 were: American Waterworks – 9.80%, American States Water – 8.40%, California Water Service – 7.30%, and San Jose Water – 9.50%. He testified that in comparison the S&P 500 from March 22, 2018 to October 15, 2018 had increased 4.10%, being less than one half the market price gains of the four water companies.

2. Evidence of Impact of Changing Economic Conditions on Customers

As noted above, utility rates must be set within the constitutional constraints made clear by the United States Supreme Court in Bluefield and Hope. To fix rates that do not allow a utility to recover its costs, including the cost of equity capital, would be an unconstitutional taking. In assessing the impact of changing economic conditions on customers in setting a return on equity, the Commission must nonetheless provide the public utility with the opportunity, by sound management, to (1) produce a fair profit for its shareholders, in view of current economic conditions, (2) maintain its facilities and service, and (3) compete in the marketplace for capital. State ex rel. Utils. Comm'n v. General Telephone Co. of the Southeast, 281 N.C. 318, 370, 189 S.E.2d 705 (1972). As the Supreme Court held in that case, these factors constitute "the test of a fair rate of return" in Bluefield and Hope. Id.

a. Discussion and Conclusions Regarding Evidence Introduced During the Evidentiary Hearing

In this case, all parties had the opportunity to present the Commission with evidence concerning changing economic conditions as they affect customers. The testimony of witnesses D'Ascendis and Hinton, which the Commission finds entitled to substantial weight, addresses changing economic conditions.

As to the impact of changing economic conditions on CWSNC's customers, Public Staff witness Hinton testified that he reviewed information on the economic conditions in the areas served by CWSNC, specifically, the 2014, 2015, and 2016 data on total personal income from the Bureau of Economic Analysis (BEA) and the Development Tier Designations published by the North Carolina Department of Commerce for the counties in which CWSNC's systems are located. The BEA data indicates that from 2014 to 2016, total personal income weighted by the number of water customers by county grew at a compound annual growth rate (CAGR) of 3.0%.

Witness Hinton testified that the North Carolina Department of Commerce annually ranks the State's 100 counties based on economic well-being and assigns each a Tier designation. The most distressed counties are rated a "1" and the most prosperous counties are rated a "3". The rankings examine several economic measures such as, household income, poverty rates, unemployment rates, population growth, and per capita property tax base. For 2017, the average Tier ranking that has been weighted by the number of water customers by county is 2.6. He testified that both these economic measures indicate that there has been improvement in the economic conditions for CWSNC's service area relative to the three previous CWSNC rate increases in Docket Nos. W-354, Subs 356, 344, and 336 that were approved in 2017, 2015, and 2014, respectively.

CWSNC witness D'Ascendis testified on economic conditions in North Carolina that he reviewed. He testified that he reviewed: unemployment rates from the United States, North Carolina, and the counties comprising CWSNC's service territory; the growth in Gross Domestic [sic] Product (GDP) in both the United States and North Carolina; median household income in the United States and in North Carolina; and national income and consumption trends.

He testified that the rate of unemployment has fallen substantially in North Carolina and the United States since late 2009 and early 2010, when the rates peaked at 10.00% and 12.00%, respectively. He testified that by February 2018, the unemployment rate had fallen to less than one-half of those peak levels: 4.10% nationally; and 4.60% in North Carolina.

He testified that he was also able to review (seasonally unadjusted) unemployment rates in the counties served by CWSNC. At its peak, which occurred in late 2009 into early 2010, the unemployment rate in those counties reached 12.58% (58 basis points higher than the statewide average); by February 2018 it had fallen to 4.87% (27 basis points higher than the statewide average).

Witness D'Ascendis testified that for real GDP growth, there also has been a relatively strong correlation between North Carolina and the national economy (approximately 69%). Since the financial crisis, the national rate of growth at times (during portions of 2010 and 2012) outpaced North Carolina. He testified that since the third quarter of 2015, however, North Carolina has consistently exceeded the national growth rate.

Witness D'Ascendis testified that as to median household income, the correlation between North Carolina and the United States is relatively strong (approximately 88% from 2005 through 2015). Since 2009 (that is, the years subsequent to the financial crisis), median household income in North Carolina has grown at a faster annual rate than the national median income (3.62% vs. 2.47%).

Witness D'Ascendis noted that in the Commission's Order on Remand in Docket No. E-22, Sub 479, the Commission observed that economic conditions in North Carolina were highly correlated with national conditions, such that they were reflected in the analyses used to determine the cost of common equity. He testified that those relationships still hold: Economic conditions in North Carolina continue to improve from the recession following the 2008/2009 financial crisis, and they continue to be strongly correlated to conditions in the United States generally. He testified unemployment, at both the State and county level, continues to fall and remains highly correlated with national rates of unemployment; real GDP recently has grown faster in North Carolina than the national rate of growth, although the two remain fairly well correlated; and median household income also has grown faster in North Carolina than the rest of the country, and remains strongly correlated with national levels.

b. Evidence Introduced During Public Hearings and Further Conclusions

The Commission's review also includes consideration of the evidence presented during the public hearings by public witnesses, almost all of whom presently are customers of CWSNC. The hearings provided 35 witnesses the opportunity to be heard regarding their respective positions on CWSNC's application to increase rates. The Commission held six evening hearings throughout CWSNC's North Carolina service territory to receive public testimony. The testimony presented at the hearings illustrates the difficult economic conditions facing many North Carolina citizens. The Commission accepts as credible, probative, and entitled to substantial weight the testimony of the public witnesses.

c. Commission's Decision Setting Rate of Return and Approving Rate Increase/ Takes Into Account and Ameliorates the Impact of Current Economic Conditions on Customers

As noted above, the Commission's duty under N.C.G.S. § 62-133 is to set rates as low as reasonably possible without impairing the Company's ability to raise the capital needed to provide reliable water and wastewater service and recover its cost of providing

service. The Commission is especially mindful of this duty in light of the evidence in this case concerning the impact of current economic conditions on customers.

Chapter 62 of the North Carolina General Statues in general, and N.C.G.S. § 62-133 in particular, set forth the formula that the Commission must employ in establishing rates. The rate of return on cost of property element of the formula in N.C.G.S. § 62-133(b)(4) is a significant, but not independent one. Each element of the formula must be analyzed to determine the utility's cost of service and revenue requirement. The Commission must make many subjective decisions with respect to each element in the formula in establishing the rates it approves in a general rate case. The Commission must approve accounting and pro forma adjustments to comply with N.C.G.S. § 62-133(b)(3). The Commission must approve depreciation rates pursuant to N.C.G.S. § 62-133(b)(1). The decisions the Commission makes in each of these subjective areas have multiple and varied impacts on the Decisions it makes elsewhere in establishing rates, such as its decision on rate of return on equity.

Economic conditions existing during the test year, at the time of the public hearings, and at the date of this Commission Order affect not only the ability of CWSNC's consumers to pay water and wastewater utility rates, but also the ability of CWSNC to earn the authorized rate of return during the period rates will be in effect. Pursuant to N.C.G.S. § 62-133, rates in North Carolina are set based on a modified historic test period.[20] A component of cost of service as important as return on investment is test year revenues.[21] The higher the level of test year revenues the lower the need for a rate increase, all else remaining equal. Historically, and in this case, test year revenues are established through resort to regression analysis, using historic rates of revenue growth or decline to determine end of test year revenues.

When costs and expenses grow at a faster pace than revenues during the period when rates will be in effect, the utility will experience a decline in its realized rate of return on investment to a level below its authorized rate of return. Differences exist between the authorized return and the earned or realized return. Components of the cost of service must be paid from the rates the utility charges before the equity investors are paid their return on equity. Operating and administrative expenses must be paid, depreciation must be funded, taxes must be paid, and the utility must pay interest on the debt it incurs. To the extent revenues are insufficient to cover the entire cost of service, the shortfall reduces the return to the equity investor, last in line to be paid. When this occurs, the utility's realized or earned return is less than the authorized return.

This phenomenon, caused by incurrence of higher costs prior to the implementation of new rates to recover those higher costs, is commonly referred to as regulatory lag. Just as the Commission confronts constitutional and statutory restrictions in making discrete decrements to rate of return on equity to mitigate the impact of rates on consumers, it also confronts statutory constraints on its ability to adjust test year

[20] N.C.G.S. § 62-133(c).

[21] N.C.G.S. § 62-133(b)(3).

revenues to mitigate for regulatory lag. However, the WSIC and SSIC legislation N.C.G.S. § 62-133.12 and Commission Rules R7-39 and R10-26, have mitigated the regulatory lag for CWSNC. The Commission, in its expert experience and judgment and based on evidence in the record, is aware of the effects of regulatory lag in the existing economic environment. However, just as the Commission is constrained to address difficult economic times on customers' ability to pay for service by establishing a lower rate of return on equity in isolation from the many subjective determinations that must be made in a general rate case, it likewise does not address the effect of regulatory lag on the Company by establishing a higher rate of return on equity. Instead, in setting the rate of return, the Commission considers both of these negative impacts in its ultimate decision fixing CWSNC's rates. The Commission keeps all factors affected by current economic conditions in mind in the many subjective decisions it makes in establishing rates. In doing so in the case at hand, the Commission is approving a 9.75% rate of return on equity in the context of weighing and balancing numerous factors and making many subjective decisions. When these decisions are viewed as a whole, including the decision to establish the rate of return on equity at 9.75%, the Commission's overall decision fixing rates in this general rate case results in lower rates to consumers in the existing economic environment.

Consumers pay rates, a charge in dollars per 1,000 gallons for the water they consume and for the metered wastewater that is treated (or a monthly flat rate for certain residential wastewater customers). Investors are compensated by earning a return on the capital they invest in the business. Consumers do not pay a rate of return on equity.

All of the scores of adjustments the Commission approves reduce the revenues to be recovered from ratepayers and the return to be paid to equity investors. Some adjustments reduce the authorized rate of return on investment financed by equity investors. The adjustments are made solely to reduce rates and provide rate stability to consumers (and return to equity investors) to recognize the difficulty for consumers to pay in the current economic environment. While the equity investor's cost was calculated by resort to a rate of return on equity of 9.75% instead of within a range of 10.80% to 11.20% as proposed by the Company, this is only one approved adjustment that reduced ratepayer responsibility and equity investor reward. Many other adjustments reduced the dollars the investors actually have the opportunity to receive. Therefore, nearly all of these other adjustments reduce ratepayer responsibility and equity investor returns in compliance with the Commission's responsibility to establish rates as low as reasonably permissible without transgressing constitutional constraints.

For example, to the extent the Commission makes downward adjustments to rate base, or disallows test year expenses, or increases test year revenues, or reduces the equity capital structure component, the Commission reduces the rates consumers pay during the future period when rates will be in effect. Because the utility's investors' compensation for the provision of service to consumers takes the form of return on investment, downward adjustments to rate base or disallowances of test year expenses or increases to test year revenues, or reduction in the equity capital structure component,

reduce investors' return on investment irrespective of its determination of rate of return on equity.

The rate base, expenses, and revenue adjustments are instances where the Commission makes decisions in each general rate case, including the present case, that influence the Commission's determination on rate of return on equity and cost of service and the revenue requirement. The Commission always endeavors to comply with the North Carolina Supreme Court's requirements that it "fix rates as low as may be reasonably consistent" with U.S. Constitutional requirements irrespective of economic conditions in which ratepayers find themselves. While compliance with these requirements may have been implicit and, the Commission reasonably assumed, self-evident as shown above, the Commission makes them explicit in this case to comply with the Supreme Court requirements of Cooper I.

Based on the changing economic conditions and their effects on CWSNC's customers, the Commission recognizes the financial difficulty that the increase in CWSNC's rates will create for some of CWSNC's customers, especially low-income customers. As shown by the evidence, relatively small changes in the rate of return on equity have a substantial impact on a utility's base rates. Therefore, the Commission has carefully considered the changing economic conditions and their effects on CWSNC's customers in reaching its decision regarding CWSNC's approved rate of return on equity. The Commission also recognizes that the Company is investing significant sums in system improvements to serve its customers, thus requiring the Company to maintain its creditworthiness in order to compete for large sums of capital on reasonable terms. The Commission must weigh the impact of changing economic conditions on CWSNC's customers against the benefits that those customers derive from the Company's ability to provide safe, adequate, and reliable water and wastewater service. Safe, adequate, and reliable water and wastewater service is essential to the well-being of CWSNC's customers.

The Commission finds that these investments by the Company provide significant benefits to CWSNC's customers. The Commission concludes that the return on equity approved by the Commission in this proceeding appropriately balances the benefits received by CWSNC's customers from CWSNC's provision of safe, adequate, and reliable water and wastewater service with the difficulties that some of CWSNC's customers will experience in paying CWSNC's increased rates.

The Commission in every case seeks to comply with the North Carolina Supreme Court mandate that the Commission establish rates as low as possible within constitutional limits. The adjustments the Commission approves in this case comply with that mandate. Nearly all of them reduced the requested return on equity and benefit consumers' ability to pay their bills in this economic environment.

Summary and Conclusions on the Rate of Return on Equity

The Commission has carefully evaluated the return on equity testimony of CWSNC witness D'Ascendis and Public Staff witness Hinton. The results of each of the models or methods used by these two witnesses to derive the return on equity that each witness recommends is shown below:

	D'Ascendis	Hinton
Utility Proxy Group		
DCF	9.15%	8.70%
Risk Premium	10.73%	9.70%
PRPM	10.90%	
Total Market RPM	10.56%	
CAPM	10.93%	------
Traditional CAPM	10.67%	
ECAPM	11.18%	
Non-Price Regulated Proxy Group	12.43%	------
DCF	13.79%	
Risk Premium	12.32%	
CAPM	11.52%	
Indicated Return on Equity Before Adjustment	10.80%	9.20%
Size Adjustment	0.40%	-------
Recommended Return on Equity	10.8-11.2%	9.20%

The range of these results is 8.70% to 12.43%. Underlying the low result of 8.70%, is a range of 8.20% to 9.20%, according to witness Hinton's testimony concerning his application of the DCF. Similarly, underlying the high result of 12.43% is a range of 11.52% (CAPM) to 13.79% (DCF), according to witness D'Ascendis' testimony concerning the cost of equity models applied to his Non-Price Regulated Proxy Group. Such a wide range of estimates by expert witnesses is not atypical in proceedings before the Commission with respect to the return on equity issue. Neither is the seemingly endless debate and habitual differences in judgment among expert witnesses on the virtues of one model or method versus another and how to best determine and measure the required inputs of each model in representing the interest of their intervening party. Nonetheless, the Commission is uniquely situated, qualified, and required to use its impartial judgment to determine the return on equity based on the testimony and evidence in this proceeding in accordance with the legal guidelines discussed above.

In so doing, the Commission finds that the testimony of Company witness D'Ascendis regarding the DCF (9.15%), traditional CAPM (10.67%), and total market RPM (10.56%) analyses of his Utility Proxy Group and the DCF (8.70%) and risk premium

(9.70%) analysis testimony of Public Staff witness Hinton are credible, probative, and are entitled to substantial weight as set forth below.

Company witness D'Ascendis, noting that CWSNC is not publicly-traded, first established a group of six relatively comparable risk water companies that are publicly-traded (Utility Proxy Group). He testified that use of relatively comparable risk companies as proxies is consistent with principles of fair rate of return established in the Hope and Bluefield cases, which are recognized as the primary standards for the establishment of a fair return for a regulated public utility. He then applied the DCF, the CAPM, and the risk premium models to the market data of the Utility Proxy Group. Witness D'Ascendis' DCF model indicated a cost of equity of 9.15%, his traditional CAPM model indicated a cost of equity of 10.67%, and his total market RPM model indicated a cost of equity of 10.56%.

Witness Hinton applied a risk premium analysis by performing a regression analysis using the allowed returns on common equity for water utilities from various public utility commissions, as reported in an RRA Water Advisory, with the average Moody's A-rated bond yields for public utility bonds from 2006 through 2018. The results of the regression analysis were combined with recent monthly yields to provide the current cost of equity. According to witness Hinton, the use of allowed returns as the basis for the expected equity return has strengths over other (risk premium) approaches that estimate the expected return on equity and subtract a representative cost of debt. He testified that one strength of his approach is that authorized returns on equity are generally arrived at through lengthy investigations by various parties with opposing views on the rate of return required by investors. Thus, it is reasonable to conclude that the approved returns are good estimates for the cost of equity. Witness Hinton testified that applying the significant statistical relationship of the allowed equity returns and bond yields from the regression analysis and adding current bond cost of 4.22% resulted in a current estimate of the cost of equity of 9.70%.

Witness Hinton also applied the DCF model to a proxy risk group of publicly-traded water utilities. To determine the expected growth rate component in his application of the DCF, witness Hinton testified that he employed both historical and forecasted growth rates of earnings per share (EPS), book value per share (BVPS), and dividends per share (DPS). He concluded that an expected growth rate of 6.10% to 7.10% should be combined with a dividend yield of 2.10% which produced his cost of equity estimate of 8.20% to 9.20% for his comparable risk group based on his DCF analysis, with a specific cost of equity estimate of 8.70%.

The average of witness D'Ascendis' Utility Proxy Group DCF result of 9.15%, traditional CAPM result of 10.67%, total market RPM result of 10.56%, witness Hinton's DCF result of 8.70%, and RPM of 9.70% is 9.75%. The Commission approved return on equity of 9.75% is thus supported by the average of the results of the above-listed cost of equity models which the Commission finds are entitled to substantial weight based on the record in this proceeding.

Witness D'Ascendis used two risk premium methods to estimate the cost of equity to CWSNC. He testified that his first method is the PRPM and the second method is a RPM using a total market approach. In his PRPM, he employed the Eviews© statistical software applied to the historical returns on the common shares of each company in his Utility Proxy Group minus the historical monthly yields on long-term U.S. Treasury securities through March 2018 to arrive at a predicted annual equity risk premium. He then added the forecasted 30-year U.S. Treasury yield to each company's PRPM derived equity risk premium. Using this approach, he calculated a cost of equity estimate of 10.90%. In his total market approach RPM, he added a prospective public utility bond yield to an average of (1) an equity risk premium that is derived from a beta-adjusted total market equity risk premium, and (2) an equity risk premium based on the S&P Utilities Index. His RPM result produced a rate of return estimate of 10.56%. Averaging his PRPM result of 10.90% and his total market approach RPM, he determined that the cost of equity is 10.73% using his risk premium methods.

The Commission gives little weight to witness D'Ascendis' PRPM result of 10.90%. This result is considerably lower than his original PRPM result of 13.43%, highlighting the sensitivity of this model to changes in the way it is applied. Further, the Commission is skeptical that investor expectations are influenced by a method analyzing economic time series with time-varying volatility using the statistical software employed by witness D'Ascendis.

Witness D'Ascendis also used two CAPM methods to estimate the cost of equity to CWSNC. He testified that his first method is the traditional CAPM, and the second method is the empirical CAPM approach. The traditional CAPM method adds a risk-free rate to the product of a company specific beta and a market risk premium for each company in the Utility Proxy Group. This approach yields a cost of equity estimate of 10.67%. Witness D'Ascendis' empirical CAPM approach, which assumes a Security Market Line that is less steep than that described by the CAPM formula, produced a cost of equity estimate of 11.18%.

The Commission gives little weight to witness D'Ascendis' ECAPM result of 11.18%. The Commission concludes that, in this instance, witness D'Ascendis's testimony fails to demonstrate how the ECAPM approach is superior to the CAPM approach which is widely accepted by the investment community.

In addition to estimating the cost of equity for his Utility Proxy Group of publicly-traded water utilities, witness D'Ascendis attempted to estimate the cost of equity for another proxy group consisting of 17 domestic, non-price regulated companies. In order to select a proxy group of domestic, non-price regulated companies similar in risk to the Utility Proxy Group, he testified that he relied on the beta coefficients and related statistics derived from Value Line regression analyses of weekly market prices over the last five years. After selecting the 17 unregulated companies, he applied the DCF, RPM, and CAPM in the identical manner used for his Utility Proxy Group, with certain limited expectations. The results of the DCF, RPM, and CAPM applied to the non-price regulated proxy group are 13.79%, 12.32%, and 11.52%, respectively. The Commission concludes

that these results are unreasonably high. Each of these results are higher than witness D'Ascendis' estimates of the cost of equity for his own Utility Proxy Group and deserve no weight, particularly with respect to the DCF. The Commission further concludes that given the difference in these results, the risk of the two groups is not equal and the Utility Proxy Group is more reliable as a proxy for the investment risk of common equity in CWSNC.

After determining that the indicated cost of equity from the DCF, CAPM, and risk premium methods applied to both of his proxy groups equals 10.80%, witness D'Ascendis then adjusted the indicated cost of equity upward by 0.40% to reflect CWSNC's smaller size compared to companies in his Utility Proxy Group. He testified that the size of the company is a significant element of business risk for which investors expect to be compensated through higher returns. Witness D'Ascendis calculated his size adjustment as described in his prefiled direct testimony and stated that even though a 4.61% upward size adjustment is indicated, he applies a 0.40% size premium to CWSNC's indicated common equity cost rate. Witness Hinton testified that he does not believe it is appropriate to add a risk premium to the cost of equity of CWSNC due to size for several reasons. First, from a regulatory policy perspective, witness Hinton stated that ratepayers should not be required to pay higher rates because they are located in the franchise area of a utility which is arbitrarily considered to be small. Further, if such adjustments were routinely allowed, an incentive would exist for large utilities to form subsidiaries or split-up subsidiaries to obtain higher returns. In addition, he noted that CWSNC operates in a franchise environment that insulates the Company from competition with procedures in place for rate adjustments for circumstances that impact its earnings. Finally, while witness Hinton stated that while there are studies that address how the small size of a company relates to higher returns, he is aware of only one study that focuses on the size of regulated utilities and risk and that study concluded that utility stocks do not exhibit a significant size premium. In rebuttal, witness D'Ascendis maintained that a small size adjustment was necessary based on the results of studies he cited and discussed and contended that the study concerning size premiums for utilities discussed by witness Hinton was flawed.

Based upon the foregoing and the entire record in this proceeding, the Commission concludes that a size adjustment of 0.40% is not warranted and should not be approved. The Commission determines there is insufficient evidence to authorize an adjustment to the approved rate of return on equity in this case. The record simply does not indicate the extent to which CWSNC's size alone justifies added risk. While a small water/wastewater utility might face greater risk than a publicly-traded peer group, because for example the service area was confined to a hurricane prone coastal geographic area, evidence of such factual predicates is absent from the record. The Commission notes that the witnesses also disagreed with respect to whether the studies discussed in the testimony concerning size and risk are reliable or even applicable to regulated utilities. The Commission concludes that the testimony regarding these studies is not convincing and does not support a size adjustment. In addition, while witness D'Ascendis calculates and testifies that a 4.61% upward size adjustment is indicated, he applies a size premium of 0.40% to

CWSNC's indicated cost of equity. The Commission thus concludes that the 0.40% adjustment is not supported by his testimony and is rather arbitrary.

Having determined that the appropriate rate of return on equity based upon the evidence in this proceeding is 9.75%, the Commission notes that there is considerable testimony concerning the authorized returns on equity for water utilities in other jurisdictions. While the Commission has relied upon the record in this proceeding and is certainly aware that returns in other jurisdictions can be influenced by many factors, such as different capital market conditions during different periods of time, settlements versus full litigation, the Commission concludes that the rate of return on equity trends and decisions by other regulatory authorities deserve some weight as (1) they provide a check or additional perspective on the case-specific circumstances, and (2) the Company must compete with other regulated utilities in the capital markets, meaning that a rate of return significantly lower than that approved for other utilities of comparable risk would undermine the Company's ability to raise necessary capital, while a rate of return significantly higher than other utilities of comparable risk would result in customers paying more than necessary. Public Staff D'Ascendis Cross-Examination Exhibit 3, the RRA Water Advisory publication showing approved return on equity decisions for water utilities across the country from January 2014 through June 30, 2018, is helpful in illustrating that the average rate of return on equity for water utilities is 9.59% in 2014, 9.76% in 2015, 9.71% in 2016, 9.56% in 2017, and in the only seven cases reported on for the first six months of 2018 the average is 9.41% with a range of 8.9% to 10.5%. This authorized return data is generally supportive of the Commission approved return on equity of 9.75% based upon the evidence in this proceeding. To the extent it is not, the record evidence justifies any such difference.

In its post-hearing brief, the AGO notes that the 10.80% to 11.20% range for rate of return on equity requested by CWSNC is substantially higher than the 9.6% return on equity stipulated to in the Sub 356 Proceeding. In this case, the AGO, in its role as consumer advocate, argues that the DCF model is relied upon by investors using widely available current market data and the DCF results produced by expert witnesses for CWSNC and the Public Staff show that a 9.2% return on equity is more than sufficient to attract the investment dollars needed for adequate service. However, unlike the AGO, the Commission cannot ignore the other evidence in this proceeding. When other such evidence is considered and weighed by the Commission as discussed hereinabove, the Commission finds that the reasonable and appropriate return on equity is 9.75%.

The Commission notes further that its approval of a rate of return on equity at the level of 9.75% or for that matter at any level, is not a guarantee to the Company that it will earn a rate of return on equity at that level. Rather, as North Carolina law requires, setting the rate of return on equity at this level merely affords CWSNC the opportunity to achieve such a return. The Commission finds, based upon all the evidence presented, that the rate of return on equity provided for herein will indeed afford the Company the opportunity to earn a reasonable and sufficient return for its shareholders while at the same time producing rates that are just and reasonable to its customers.

Capital Structure

CWSNC witness D'Ascendis recommended the use of the actual capital structure of Utilities Inc., on June 30, 2018 consisting of 49.09% long-term debt and 50.91% common equity.

In his supplemental testimony, Public Staff witness Hinton also recommended a 49.09% long-term debt and 50.91% common equity capital structure based upon updated information provided by CWSNC concerning the capital structure at June 30, 2018. The Partial Stipulation also supports a 49.09% long-term debt, 50.91% common equity capital structure. No other party presented evidence as to a different capital structure.

Accordingly, the Commission finds that the recommended capital structure of 50.91% common equity and 49.09% long-term debt is just and reasonable to all parties in light of all the evidence presented.

Cost of Debt

In its Application, the Company proposed a cost rate for long-term debt of 6.00%. In supplemental testimony, witness Hinton revised his recommended cost of debt to 5.68%. In addition, the Stipulation includes a cost of debt rate of 5.68%. No intervenor offered any evidence supporting a debt cost rate below 5.68%.

Therefore, the Commission finds that the use of a debt cost rate of 5.68% is just and reasonable to all parties based upon all the evidence presented in this proceeding.

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 61

The following schedules summarize the gross revenue and rate of return that the Company should have a reasonable opportunity to achieve based on the increases in revenues approved in this Order for each rate entity. These schedules, illustrating the Company's gross revenue requirements, incorporate the adjustments found appropriate by the Commission in this Order.

SCHEDULE I

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Net Operating Income for a Return
For the Twelve Months Ended December 31, 2017
Combined Operations

	Present Rates	Increase Approved	After Approved Increase
Operating Revenues:			
Service revenues	$32,429,699	$1,434,938	$33,864,637
Miscellaneous revenues	360,163	3,314	363,477
Uncollectibles	(214,395)	(14,164)	(228,559)
Total operating revenues	32,575,467	1,424,088	33,999,555
Operating Revenue Deductions:			
Salaries and wages – Maintenance	4,765,636	0	4,765,636
Purchased power	1,932,358	0	1,932,358
Purchased water and sewer	1,972,527	0	1,972,527
Maintenance and repair	2,749,845	0	2,749,845
Maintenance testing	544,360	0	544,360
Meter reading	225,867	0	225,867
Chemicals	632,415	0	632,415
Transportation	447,271	0	447,271
Operating expense charged to plant	(673,065)	0	(673,065)
Outside services – other	455,369	0	455,369
Salaries and wages – General	2,064,359	0	2,064,359
Office supplies & other office expense	560,363	0	560,363
Regulatory commission expense	165,908	0	165,908
Pension and other benefits	1,340,118	0	1,340,118
Rent	227,339	0	227,339
Insurance	429,335	0	429,335
Office utilities	742,300	0	742,300
Miscellaneous	23,469	0	23,469
Depreciation expense	5,617,382	0	5,617,382
Amortization of CIAC	(1,488,982)	0	(1,488,982)
Amortization of PAA	(54,365)	0	(54,365)
Amortization of ITC	(519)	0	(519)
Franchise and other taxes	(49,702)	0	(49,702)
Property taxes	233,575	0	233,575
Payroll taxes	529,195	0	529,195
Regulatory fee	45,606	1,994	47,600
Deferred income tax	(83,555)	0	(83,555)
State income tax	177,812	42,663	220,475
Federal income tax	1,207,341	289,680	1,497,021
Total operating revenue deductions	24,739,562	334,337	25,073,899
Net operating income for a return	$7,835,905	$1,089,751	$8,925,656

SCHEDULE II

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Original Cost Rate Base
For the Twelve Months Ended December 31, 2017
Combined Operations

Item	Amount
Plant in service	$213,005,526
Accumulated depreciation	(52,955,117)
Net plant in service	160,050,409
Cash working capital	2,079,155
Contributions in aid of construction	(42,183,408)
Advance in aid of construction	(32,940)
Accumulated deferred income taxes	(3,972,592)
Customer deposits	(342,640)
Gain on sale and flow back taxes	(289,628)
Plant acquisition adjustment	(1,052,168)
Excess book value	(456)
Cost-free capital	(261,499)
Average tax accruals	(125,909)
Regulatory liability for excess deferred taxes	(251,770)
Deferred charges	1,522,955
Pro forma plant	0
Original cost rate base	$115,139,509
Rates of return:	
Present	6.81%
Approved	7.75%

SCHEDULE III

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Statement of Capitalization and Related Costs
For the Twelve Months Ended December 31, 2017
Combined Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	49.09	$ 56,521,985	5.68	$3,210,449
Common Equity	50.91	58,617,524	7.89	4,625,456
Total	100.00	$115,139,509		$7,835,905
		APPROVED RATES		
Long-Term Debt	49.09	$ 56,521,985	5.68	$3,210,449
Common Equity	50.91	58,617,524	9.75	5,715,207
Total	100.00	$115,139,509		$8,925,656

SCHEDULE I-A

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Net Operating Income for a Return
For the Twelve Months Ended December 31, 2017
CWSNC Water Operations

	Present Rates	Increase Approved	After Approved Increase
Operating Revenues:			
Service revenues	$16,931,032	$490,858	$17,421,890
Miscellaneous revenues	189,225	1,325	190,550
Uncollectibles	(98,200)	(2,847)	(101,047)
Total operating revenues	17,022,057	489,336	17,511,393
Operating Revenue Deductions:			
Salaries and wages – Maintenance	2,587,126	0	2,587,126
Purchased power	957,880	0	957,880
Purchased water and sewer	1,285,290	0	1,285,290
Maintenance and repair	828,186	0	828,186
Maintenance testing	208,965	0	208;965
Meter reading	197,562	0	197,562
Chemicals	224,644	0	224,644
Transportation	238,827	0	238,827
Operating expense charged to plant	(370,288)	0	(370,288)
Outside services – other	254,847	0	254,847
Salaries and wages – General	1,120,684	0	1,120,684
Office supplies & other office expense	306,345	0	306,345
Regulatory commission expense	90,071	0	90,071
Pension and other benefits	713,025	0	713,025
Rent	123,289	0	123,289
Insurance	233,072	0	233,072
Office utilities	413,686	0	413,686
Miscellaneous	15,929	0	15,929
Depreciation expense	2,877,977	0	2,877,977
Amortization of CIAC	(712,658)	0	(712,658)
Amortization of PAA	(105,674)	0	(105,674)
Amortization of ITC	(287)	0	(287)
Franchise and other taxes	(21,943)	0	(21,943)
Property taxes	134,370	0	134,370
Payroll taxes	287,285	0	287,285
Regulatory fee	23,831	685	24,516
Deferred income tax	(35,576)	0	(35,576)
State income tax	102,338	14,660	116,998
Federal income tax	694,876	99,538	794,414
Total operating revenue deductions	12,673,680	114,883	12,788,563
Net operating income for a return	$4,348,377	$374,453	$4,722,830

SCHEDULE II-A

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Original Cost Rate Base
For the Twelve Months Ended December 31, 2017
CWSNC Water Operations

Item	Amount
Plant in service	$109,412,912
Accumulated depreciation	(27,471,271)
Net plant in service	81,941,641
Cash working capital	1,017,981
Contributions in aid of construction	(18,419,357)
Advance in aid of construction	(23,760)
Accumulated deferred income taxes	(1,699,612)
Customer deposits	(191,669)
Gain on sale and flow back taxes	(196,947)
Plant acquisition adjustment	(2,282,334)
Excess book value	(456)
Cost-free capital	(121,791)
Average tax accruals	(71,951)
Regulatory liability for excess deferred taxes	(144,323)
Deferred charges	1,116,295
Pro forma plant	0
Original cost rate base	$60,923,717
Rates of return:	
Present	7.14%
Approved	7.75%

SCHEDULE III-A

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Statement of Capitalization and Related Costs
For the Twelve Months Ended December 31, 2017
CWSNC Water Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	49.09	$ 29,907,453	5.68	$1,698,743
Common Equity	50.91	31,016,264	8.54	2,649,634
Total	100.00	$ 60,923,717		$4,348,377
		APPROVED RATES		
Long-Term Debt	49.09	$ 29,907,453	5.68	$1,698,743
Common Equity	50.91	31,016,264	9.75	3,024,087
Total	100.00	$ 60,923,717		$4,722,830

SCHEDULE I-B

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Net Operating Income for a Return
For the Twelve Months Ended December 31, 2017
CWSNC Sewer Operations

	Present Rates	Increase Approved	After Approved Increase
Operating Revenues:			
Service revenues	$12,685,778	291,163	$12,976,941
Miscellaneous revenues	110,138	815	110,953
Uncollectibles	(74,846)	(1,718)	(76,564)
Total operating revenues	12,721,070	290,260	13,011,330
Operating Revenue Deductions:			
Salaries and wages – Maintenance	1,540,179	0	1,540,179
Purchased power	748,066	0	748,066
Purchased water and sewer	687,237	0	687,237
Maintenance and repair	1,606,630	0	1,606,630
Maintenance testing	302,561	0	302,561
Meter reading	0	0	0
Chemicals	347,986	0	347,986
Transportation	142,640	0	142,640
Operating expense charged to plant	(219,769)	0	(219,769)
Outside services – other	154,330	0	154,330
Salaries and wages – General	667,170	0	667,170
Office supplies & other office expense	183,350	0	183,350
Regulatory commission expense	53,622	0	53,622
Pension and other benefits	424,543	0	424,543
Rent	73,562	0	73,562
Insurance	138,751	0	138,751
Office utilities	246,763	0	246,763
Miscellaneous	9,931	0	9,931
Depreciation expense	2,271,822	0	2,271,822
Amortization of CIAC	(574,609)	0	(574,609)
Amortization of PAA	(22,136)	0	(22,136)
Amortization of ITC	(232)	0	(232)
Franchise and other taxes	(17,738)	0	(17,738)
Property taxes	79,520	0	79,520
Payroll taxes	171,028	0	171,028
Regulatory fee	17,809	407	18,216
Deferred income tax	(39,438)	0	(39,438)
State income tax	74,266	8,695	82,961
Federal income tax	504,263	59,043	563,306
Total operating revenue deductions	9,572,107	68,145	9,640,252
Net operating income for a return	$3,148,963	$222,115	$3,371,078

SCHEDULE II-B

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Original Cost Rate Base
For the Twelve Months Ended December 31, 2017
CWSNC Sewer Operations

Item	Amount
Plant in service	$84,335,000
Accumulated depreciation	(21,353,928)
Net plant in service	62,981,072
Cash working capital	802,539
Contributions in aid of construction	(18,442,146)
Advance in aid of construction	(9,180)
Accumulated deferred income taxes	(1,862,686)
Customer deposits	(114,105)
Gain on sale and flow back taxes	(92,681)
Plant acquisition adjustment	271,225
Excess book value	0
Cost-free capital	(139,708)
Average tax accruals	(43,322)
Regulatory liability for excess deferred taxes	(85,491)
Deferred charges	220,825
Pro forma plant	0
Original cost rate base	$43,486,342
Rates of return:	
Present	7.24%
Approved	7.75%

SCHEDULE III-B

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Statement of Capitalization and Related Costs
For the Twelve Months Ended December 31, 2017
CWSNC Sewer Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	49.09	$ 21,347,445	5.68	$1,212,535
Common Equity	50.91	22,138,897	8.75	1,936,428
Total	100.00	$ 43,486,342		$3,148,963
		APPROVED RATES		
Long-Term Debt	49.09	$ 21,347,445	5.68	$1,212,535
Common Equity	50.91	22,138,897	9.75	2,158,543
Total	100.00	$ 43,486,342		$3,371,078

SCHEDULE I-C

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Net Operating Income for a Return
For the Twelve Months Ended December 31, 2017
BF/FH/TC Water Operations

	Present Rates	Decrease Approved	After Approved Decrease
Operating Revenues:			
Service revenues	$1,043,134	$273,574	$1,316,708
Miscellaneous revenues	46,306	492	46,798
Uncollectibles	(15,334)	(4,022)	(19,356)
Total operating revenues	1,074,106	270,044	1,344,150
Operating Revenue Deductions:			
Salaries and wages – Maintenance	312,749	0	312,749
Purchased power	70,816	0	70,816
Purchased water and sewer	0	0	0
Maintenance and repair	62,128	0	62,128
Maintenance testing	9,286	0	9,286
Meter reading	28,305	0	28,305
Chemicals	32,714	0	32,714
Transportation	32,241	0	32,241
Operating expense charged to plant	(40,679)	0	(40,679)
Outside services – other	22,632	0	22,632
Salaries and wages – General	135,473	0	135,473
Office supplies & other office expense	34,624	0	34,624
Regulatory commission expense	10,884	0	10,884
Pension and other benefits	99,239	0	99,239
Rent	14,938	0	14,938
Insurance	28,178	0	28,178
Office utilities	40,103	0	40,103
Miscellaneous	(1,172)	0	(1,172)
Depreciation expense	127,603	0	127,603
Amortization of CIAC	(55,682)	0	(55,682)
Amortization of PAA	14,897	0	14,897
Amortization of ITC	0	0	0
Franchise and other taxes	(3,653)	0	(3,653)
Property taxes	9,645	0	9,645
Payroll taxes	34,729	0	34,729
Regulatory fee	1,504	378	1,882
Deferred income tax	1,178	0	1,178
State income tax	(1,317)	8,090	6,773
Federal income tax	(8,945)	54,931	45,986
Total operating revenue deductions	1,012,417	63,399	1,075,816
Net operating income for a return	$61,689	$206,645	$268,334

SCHEDULE II-C

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Original Cost Rate Base
For the Twelve Months Ended December 31, 2017
BF/FH/TC Water Operations

Item	Amount
Plant in service	$5,924,076
Accumulated depreciation	(1,625,325)
Net plant in service	4,298,751
Cash working capital	111,557
Contributions in aid of construction	(1,095,675)
Advance in aid of construction	0
Accumulated deferred income taxes	48,827
Customer deposits	(18,063)
Gain on sale and flow back taxes	0
Plant acquisition adjustment	22,332
Excess book value	0
Cost-free capital	0
Average tax accruals	(5,124)
Regulatory liability for excess deferred taxes	(10,756)
Deferred charges	109,634
Pro forma plant	0
Original cost rate base	$3,461,483
Rates of return:	
Present	1.78%
Approved	7.75%

SCHEDULE III-C

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Statement of Capitalization and Related Costs
For the Twelve Months Ended December 31, 2017
BF/FH/TC Water Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	49.09	$ 1,699,242	5.68	$96,517
Common Equity	50.91	1,762,241	(1.98)	(34,828)
Total	100.00	$ 3,461,483		$61,689
		APPROVED RATES		
Long-Term Debt	49.09	$ 1,699,242	5.68	$ 96,517
Common Equity	50.91	1,762,241	9.75	171,817
Total	100.00	$ 3,461,483		$268,334

SCHEDULE I-D

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Net Operating Income for a Return
For the Twelve Months Ended December 31, 2017
BF/FH Sewer Operations

	Present Rates	Increase Approved	After Approved Increase
Operating Revenues:			
Service revenues	$1,769,755	$379,343	$2,149,098
Miscellaneous revenues	14,494	682	15,176
Uncollectibles	(26,015)	(5,577)	(31,592)
Total operating revenues	1,758,234	374,448	2,132,682
Operating Revenue Deductions:			
Salaries and wages – Maintenance	325,582	0	325,582
Purchased power	155,596	0	155,596
Purchased water and sewer	0	0	0
Maintenance and repair	252,901	0	252,901
Maintenance testing	23,548	0	23,548
Meter reading	0	0	0
Chemicals	27,071	0	27,071
Transportation	33,563	0	33,563
Operating expense charged to plant	(42,329)	0	(42,329)
Outside services – other	23,560	0	23,560
Salaries and wages – General	141,032	0	141,032
Office supplies & other office expense	36,044	0	36,044
Regulatory commission expense	11,331	0	11,331
Pension and other benefits	103,311	0	103,311
Rent	15,550	0	15,550
Insurance	29,334	0	29,334
Office utilities	41,748	0	41,748
Miscellaneous	(1,220)	0	(1,220)
Depreciation expense	339,980	0	339,980
Amortization of CIAC	(146,033)	0	(146,033)
Amortization of PAA	58,548	0	58,548
Amortization of ITC	0	0	0
Franchise and other taxes	(6,368)	0	(6,368)
Property taxes	10,040	0	10,040
Payroll taxes	36,153	0	36,153
Regulatory fee	2,462	524	2,986
Deferred income tax	(9,719)	0	(9,719)
State income tax	2,525	11,218	13,743
Federal income tax	17,147	76,168	93,315
Total operating revenue deductions	1,481,357	87,910	1,569,267
Net operating income for a return	$276,877	$286,538	$563,415

SCHEDULE II-D

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Original Cost Rate Base
For the Twelve Months Ended December 31, 2017
BF/FH Sewer Operations

Item	Amount
Plant in service	$13,333,538
Accumulated depreciation	(2,504,593)
Net plant in service	10,828,945
Cash working capital	147,078
Contributions in aid of construction	(4,226,230)
Advance in aid of construction	0
Accumulated deferred income taxes	(459,121)
Customer deposits	(18,803)
Gain on sale and flow back taxes	0
Plant acquisition adjustment	936,609
Excess book value	0
Cost-free capital	0
Average tax accruals	(5,512)
Regulatory liability for excess deferred taxes	(11,200)
Deferred charges	76,202
Pro forma plant	0
Original cost rate base	$7,267,968
Rates of return:	
Present	3.81%
Approved	7.75%

SCHEDULE III-D

Carolina Water Service, Inc. of North Carolina
Docket No. W-354, Sub 360
Statement of Capitalization and Related Costs
For the Twelve Months Ended December 31, 2017
BF/FH Sewer Operations

	Ratio %	Original Cost Rate Base	Embedded Cost %	Net Operating Income
		PRESENT RATES		
Long-Term Debt	49.09	$ 3,567,845	5.68	$202,654
Common Equity	50.91	3,700,123	2.01	74,223
Total	100.00	$ 7,267,968		$ 276,877
		APPROVED RATES		
Long-Term Debt	49.09	$ 3,567,845	5.68	$ 202,654
Common Equity	50.91	3,700,123	9.75	360,761
Total	100.00	$ 7,267,968		$ 563,415

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 62 AND 63

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1, and in the testimony and exhibits of CWSNC witness DeStefano and of Public Staff witness Casselberry.

CWSNC witness DeStefano testified that the Company's experience is consistent with that of the water utility industry in general, as CWSNC continues to experience a decline in consumption. He testified that this decline in consumption, combined with regulatory lag resulting from use of traditional historical test year ratemaking principles, impairs CWSNC's opportunity to achieve its Commission-authorized rate of return on equity. Witness DeStefano further testified that, in its Application, CWSNC requested authority to implement a "consumption band" water and wastewater rate adjustment mechanism within each of the Company's four rate divisions for non-purchased water and wastewater commodity customers. He explained that the proposed CAM is a mechanism that balances the risk and impact on ratepayers and shareholders of levels of water and wastewater consumption that are either significantly higher or significantly lower than those levels of consumption that were used to set rates. He further explained that should actual consumption be greater than 1% less than what was used in designing rates within the rate case, then a surcharge would be placed on the customers' bills for a period not to exceed 12 months to make the Company whole. Conversely, he stated that if actual consumption is greater than 1% higher than the consumption used to design rates within the rate case, then a negative surcharge would be applied to the customers' bills for a period not to exceed 12 months. Witness DeStefano requested that the Commission approve the water and wastewater CAM based on the Commission's inherent regulatory authority to do so in a general rate case, recognizing that a rulemaking proceeding would be required to develop and adopt the terms of such a mechanism, and based on a finding that the proposed CAM serves the public interest. Absent approval of a water and wastewater CAM, witness DeStefano contended the Company and its customers would continue to needlessly experience the vicissitudes of significant variances in consumption over a significant period.

Witness DeStefano further testified that the CAM is a mechanism that balances the risk and impact on ratepayers and shareholders of levels of water and wastewater consumption that are either significantly higher or significantly lower than those levels of consumption that were used to set the Company's base rates. In addition, he testified that, generally, an increased conservation ethic among customers and the proliferation of efficient water fixtures that conform to increasingly strict manufacturing standards, contribute to a persistent and gradual decline in consumption per customer. He testified that these factors are out of the control of the Company and will continue to drive consumption decline for the foreseeable future as older, less-efficient fixtures are replaced with more efficient fixtures and new homes are built at current efficiency standards. Witness DeStefano also testified that the water and sewer industry operates with a cost structure that is mostly fixed; however, the utility's revenues are generated in large portion by the variable consumption component of rates. Additionally, he testified that the Company's revenue requirement is set based on an expected "normal"

consumption level, which does not account for the considerable seasonal weather variations which can occur. He contended that it is highly unlikely that any particular year will result in exactly the level of consumption utilized in the setting of rates.

Witness DeStefano then testified that the proposed CAM helps to alleviate the negative impact to the Company of declining consumption and significant seasonal weather variation and to protect customers from overcollection in an increasing consumption scenario. In addition, he testified that such a mechanism would eliminate the throughput incentive, which currently presents the Company with conflicting motivations inasmuch as the Company is currently incentivized to sell more water to improve its financial performance, yet this would increase costs to customers and fail to promote conservation of a valuable resource. The CAM mechanism, he concluded, would remove this conflict and allow the Company to promote wise water use without concern for the impacts on its financial results, in short, better aligning the interests of customers and the Company.

Public Staff witness Casselberry testified that the Public Staff's position is that any new rate mechanism, such as a CAM, should be authorized by the North Carolina General Assembly (General Assembly) before being considered by the Commission for rulemaking. Witness Casselberry further testified that, assuming the Commission does have the authority or is granted the authority to approve a CAM, the Public Staff still opposes a CAM, based on the Public Staff's concerns with the 1% threshold proposed by CWSNC. More specifically, witness Casselberry testified that the 1% threshold could be triggered by 50 seconds longer in the shower or one additional flush of the commode per day. She argued that an alternate rate design should not be triggered by such an insignificant deviation in normal customer usage. When asked how customer growth may influence consumption, witness Casselberry testified that consumption and customer growth would have to be evaluated annually, that it is possible that customer growth may decrease and consumption increase or some other combination, and that any mechanism that benefits the Company by ensuring it collects its full revenue requirement should also benefit customers by crediting customers with revenue resulting from increased usage due to customer growth.

Witness Casselberry also testified in response to witness DeStefano's testimony that the overall trend of per-capita usage continues to decline, referring to Table 1 in his testimony, which highlighted the Company's average usage for a non-seasonal window. Witness Casselberry testified that the Company's average did not take into account the newly consolidated seasonal customers, such as those who live in Sapphire Valley, Connestee Falls, and Fairfield Mountain who do not use water in the winter months and use 50% less than the average residential customer. She further testified that the reduction in consumption could also be due to higher rates after consolidation of CWSNC's service areas in the last rate case. Witness Casselberry also testified that water efficient appliances have been on the market for close to 10 years and that many customers have already installed these appliances. She testified that CWSNC's experienced reduction in consumption is more likely due to the age of the Company's meters. Witness Casselberry testified that CWSNC has no meter replacement program,

that many of CWSNC's meters are more than 30 years old, and that it is common knowledge that as meters age, they slow down. Witness Casselberry suggested that more historical data was necessary to determine what the consumption trend will be now that CWSNC's service areas have been consolidated.

In its post-hearing brief, the AGO argued that CWSNC's proposed CAM is not authorized by statute and that CWSNC has not justified the approval of a non-statutory rider. The AGO further argued that the new rider harms consumers by increasing the frequency of changes to rates outside of a general rate proceeding, by shifting business risks from investors to ratepayers, and by discouraging water conservation efforts. Like the Public Staff, the AGO noted that legislation was introduced in the regular session of the General Assembly in 2017 that, if adopted, would have authorized the creation of a rate adjustment mechanism for water and wastewater utilities based on changes in consumption, if the Commission should find such a mechanism to be in the public interest. However, the legislation was not enacted. The AGO concluded that, in light of the General Assembly's decision not to authorize this rate adjustment mechanism, the Commission should reject CWSNC's request that it approve such a mechanism as an exercise of discretion.

The AGO also argued that CWSNC had not justified the approval of a non-statutory rider, citing cases where the State appellate courts have approved non-statutory riders in limited circumstances involving highly variable and unpredictable expense or volume levels, of significant magnitude, that are beyond the control of the utility. The AGO concluded that the evidence adduced in this case does not compel approval of the new mechanism, based upon the following. First, the AGO cites the testimony of witness D'Ascendis, who testified that there is not any statistically significant change in investor-required return before or after the implementation of such a "decoupling" mechanism (i.e. a rate adjustment mechanism for changes in consumption), and that there are many things affecting publicly-traded companies, and this one factor is not measureable. Second, the AGO argued that the CAM is not justified by extreme variability or trends and the witnesses for CWSNC and the Public Staff did not agree about the significance of evidence regarding changes in consumption and whether the evidence indicates a problem of a magnitude requiring a new rate adjustment mechanism. Third, the AGO argued that the proposed mechanism is designed to make rate adjustments for changes in per customer consumption without consideration of other factors that tend to offset the impact, such as growth in the number of customers that CWSNC serves. Thus, the AGO argues that any mechanism that boosts rates relating to changes in per-customer consumption should also credit customers for increased growth in customer count. Fourth, the AGO argued that the CAM proposal would trigger a rate adjustment based on a relatively small departure from normal habits, such as by shortening a daily shower by less than a minute. Fifth, the AGO argued that, contrary to CWSNC's contention that the mechanism would balance the interests of the utility and its consumers, the new rider is harmful to consumers because it increases the frequency of changes to rates outside of general rate proceedings. The AGO contrasted the adjustments required in a general rate case, where CWSNC would be required to "net" all costs and benefits of operation at the time rates are set to take into consideration

offsetting cost decreases as well as other offsetting factors, with the proposed CAM. The AGO argued that the CAM would allow CWSNC to shift normal business risk associated with a single factor from its investors to ratepayers. Finally, the AGO argued that consumers will tend to be discouraged from investing in water conservation measures if their efforts are met with an offsetting rate increase. In sum, the AGO argued that the proposed CAM should be rejected because it is not authorized by statute, is not justified, and is harmful to consumers.

The Commission has carefully evaluated the foregoing evidence presented in this proceeding concerning CWSNC's request to implement a CAM and the entire record in this proceeding. The Commission finds persuasive the evidence presented by the Public Staff, and agrees with the arguments of the Public Staff and the AGO that the proposed CAM is not appropriately structured. More specifically, the Commission agrees with Public Staff witness Casselberry that the 1% threshold is too narrow, and would inappropriately trigger a rate change based on relatively small departures from normal consumption habits, such as shortening a daily shower by less than one minute or one additional flush of the commode. The Commission, therefore, finds that CWSNC has not demonstrated that a consumption adjustment mechanism is reasonable or justified. In making this finding, the Commission gives substantial weight to the arguments of the Public Staff and the AGO that the mechanism was designed to make rate adjustments for changes in per-customer consumption without consideration of other factors that tend to offset the impact, such as growth in the number of customers that the Company serves and periods of warm weather. The Commission concludes that these factors are relevant in determining whether circumstances establish that a decline in consumption denies the Company a reasonable opportunity to earn its authorized rate of return and whether the CAM is reasonable or justified based on the evidence in this case. The Commission finds the testimony of CWSNC witness DeStefano generally unpersuasive. Specifically, witness DeStefano's testimony is unpersuasive because, as witness Casselberry testified, the proposed CAM does not account for customer growth, potentially allowing CWSNC to earn its reasonable revenue requirement in a year when declining consumption is offset by customer growth.

Based upon the foregoing and the entire record herein, the Commission finds that CWSNC has failed to demonstrate that its proposed CAM is reasonable or justified for the purposes of this case. The Commission, therefore, concludes that CWSNC's request for approval to implement its proposed CAM should be denied.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 64 – 68

The evidence supporting these findings of fact is found in the Application and the accompanying NCUC Form W-1, and in the testimony and exhibits of Public Staff witness Casselberry and CWSNC witness DeStefano.

The water rates proposed by CWSNC in its Application were based on a fixed-to-variable ratio of 47% fixed for the base facility charge and 53% variable for the usage charge. Further, as part of its Application and as a matter of rate design in this

case, CWSNC proposed no rate changes for customers in the CLMS service area. CWSNC stated that its proposal to not increase (but hold constant) the water and sewer rates for those affected customers is consistent with the ratemaking and rate design approved by the Commission in the Company's last three general rate cases (Docket Nos. W-354, Subs 336, 344, and 356) and will continue the orderly process of moving the CLMS service area toward full inclusion in the Company's uniform water and sewer rates in future general rate cases.

With respect to sewer rates, Paragraph 25 of the Company's Application stated that, pursuant to Paragraph No. 15 (entitled, "Metered Sewer Rates") of the Joint Stipulation between CWSNC and the Public Staff filed in the Sub 356 Proceeding on September 9, 2017, the Company agreed to:

> ...consider implementing metered sewer rates for customers in its Fairfield Harbour, Bradfield Farms, and Sapphire Valley service areas in the Company's next general rate case filing and reserves the right to independently propose metered sewer rates for these systems. (Footnote omitted)

In its Application, CWSNC stated that, after careful consideration, the Company decided to file its Application premised upon continuation of flat rate sewer service for customers in its Fairfield Harbour, Bradfield Farms, and Sapphire Valley service areas, but that the Company was willing to discuss this matter with the Public Staff and reserved the right, after such consultation, to either affirm the current decision to continue flat rates or, instead, propose metered rates for the three service areas in question.

In regard to rate design, CWSNC witness DeStefano testified that, as an alternative proposal to CWSNC's requested CAM, the Company requested that the Commission find it reasonable, necessary, and appropriate to direct the parties to develop a rate design that is based on a 60% to 40% ratio of base facility to volumetric charges for water. He testified that this would be a change from the Company's current ratio of approximately 50%/50%, base to volumetric. According to witness DeStefano, the proposed ratio is needed to more closely align cost recovery with actual costs incurred. He argued that with the current ratio of approximately 50%/50%, base to volumetric, the recovery to actual costs incurred is not properly aligned. Witness DeStefano testified that the Company is currently experiencing an actual cost ratio of approximately 80%/20% fixed to variable, yet rates are designed with an approximately 50%/50% ratio for fixed and variable. He maintained that this misalignment hinders the Company's ability to earn its fair and reasonable return should consumption continue its decline. Witness DeStefano contended that the consumption trend across the industry is currently one of decline due to conservation efforts and the installation of more efficient water fixtures. Witness DeStefano testified that the current rate design reduces the Company's ability to promote conservation efforts without negatively impacting its ability to earn a fair and reasonable return.

Public Staff witness Casselberry testified that in the Sub 356 Proceeding, the Public Staff recommended that CWSNC consider implementing metered sewer rates for customers in its Sapphire Valley, Fairfield Harbour, and Bradfield Farms Subdivision service areas, and reserved the right to independently propose metered sewer rates for these systems. Witness Casselberry stated that as part of the settlement agreement in the Sub 356 Proceeding, CWSNC supported the recommendation and agreed to undertake such consideration in conjunction with its next general rate case. Witness Casselberry noted that, in this proceeding, CWSNC decided not to implement metered sewer rates for customers in those service areas.

Witness Casselberry testified that, since sewer customers in Sapphire Valley were incorporated into CWSNC's uniform sewer rate division, they should be charged the same rate as other metered sewer customers within that rate division. In addition, customers with multiple units behind a master meter should be billed the same way as the other master metered customers, which specifies that commercial customers, including condominiums or other property owner associations who bill their members directly, shall have a separate account set up for each meter and each meter shall be billed separately based on the size of the meter and usage associated with the meter as stated in the schedule of rates for water and sewer service.

Further, witness Casselberry testified that it was also the Public Staff's position that since Bradfield Farms and Fairfield Harbour are in their own separate rate division and all of the customers in that rate division have flat sewer rates and the Public Staff received only one complaint concerning the flat rate, the Public Staff agreed with the Company that the flat rate should remain for the BF/FH rate division. However, she recommended that, in the future, should the BF/FH rate division be eliminated and customers are incorporated into the CWSNC uniform sewer rate division, they too should be charged the metered sewer rate for customers who also have metered water. Witness Casselberry testified that it was also her understanding that the Company agreed with the Public Staff's recommendation that customers in Sapphire Valley should be billed the uniform metered sewer rate and that customers in Bradfield Farms and Fairfield Harbour should be billed a flat sewer rate in this general rate case.

Regarding the customers in the Linville Ridge Subdivision and The Ridges at Mountain Harbour (The Ridges), witness Casselberry testified that the Public Staff recommends uniform metered water rates. The Public Staff also recommended purchased sewer rates for The Ridges. Witness Casselberry testified that since CWSNC's last general rate case, water meters have been installed for all the residential customers in Linville Ridge and The Ridges. Both systems are located in the mountains and are considered seasonal mountain systems, because many of the customers' premises are occupied only during the summer months and during holidays. Witness Casselberry testified that she had evaluated the consumption for the other seasonal mountain systems and determined that the average residential monthly consumption is 1,920 gallons. She stated that it was her understanding that CWSNC has agreed that using 1,920 gallons as the estimated consumption for calculated revenue is reasonable and acceptable for Linville Ridge and The Ridges.

According to witness Casselberry, The Ridges is a purchased sewer system. CWSNC purchases sewage treatment from Clay County Water and Sewer District. Clay County charges a flat bi-monthly rate of $1,621.24. Based on the billing data provided, there are 44 single-family equivalents (SFEs). The base facility charge per SFE is $18.42 ($1621.24/2 months/44 SFE). Witness Casselberry recommended the following base facility charges:

Residential customers	
< 1" meter	$ 18.42
Commercial customers:	
< 1" meter	$ 18.42
2" meter	$147.36

Witness Casselberry testified that it was her understanding that CWSNC agreed with the Public Staff's recommended base facility charges for The Ridges.

Witness Casselberry testified that Carolina Trace is a purchased water system and the supplier is the City of Sanford (City). She noted that the usage rate is established based on the supplier's rate and that the existing usage charge is $2.21 per 1,000 gallons. She explained that under the general statutes, utility companies may petition the Commission for a pass-through outside of a general rate case which allows a company to directly pass on to customers the increased cost of purchased water. She observed that in this proceeding, there is no change in the City's usage charge and, therefore, CWSNC is proposing the same usage charge as the existing usage rate. However, witness Casselberry testified that since Carolina Trace is in the uniform water rate division, should the base charge for uniform rates increase, the new rate would apply to Carolina Trace as well.

Witness Casselberry further testified that CWSNC proposed, as an alternative to a CAM, that the Commission should direct the parties to develop a rate design that is based on a 60%/40% ratio of base charge to usage charge for water versus the current ratio of approximately 50%/50%. Witness Casselberry opposed CWSNC's alternative proposal. Witness Casselberry calculated the current ratio as 47%/53% base charge to usage charge based upon the end of period (EOP) residential customers for uniform rates, with meters less than one inch, and actual consumption for the test year period ending December 31, 2017 (not including Elk River or purchased water customers). In regard to rate design and seasonal customers, witness Casselberry testified that in order for seasonal customers to have water and sewer service year round, the water and sewer facilities must remain operational year round. Witness Casselberry explained that the base charge covers those costs to keep the systems operating such as testing, purchased power, maintenance and repairs, chemicals, sludge removal, salaries, and other general fixed costs. Witness Casselberry testified that the Public Staff would like to take the present ratio closer to a range of 40%/60% base charge to usage charge; thus; she recommended a ratio in the range of 45%/55% base charge to usage charge for this

proceeding, which she noted is consistent with what has been recommended by the Public Staff in the past.

Witness Casselberry testified that it is the Public Staff's position that higher usage charges promote conservation and that when the base charge is increased and the consumption charge is reduced, customers have a tendency to use more water and they also have less control over their water bill. She opined that with a higher base charge, customers have less ability to reduce their bills. In addition, witness Casselberry testified that, according to the customer testimony received at the public hearings, base charges are getting extremely high and that it is becoming difficult for some CWSNC customers to pay their base charges.

On cross-examination, witness Casselberry testified that some of the declining consumption that CWSNC has experienced may be attributed to aged meters and that the Company should implement a meter changeout plan to recoup such lost consumption. She commented that many of CWSNC's systems are over 30 years old and some of these systems still have the same meters installed that were in use when CWSNC originally acquired the systems. Witness Casselberry recommended that CWSNC evaluate the status of its current meters and implement an appropriate meter changeout program.

In his rebuttal testimony, witness DeStefano responded to witness Casselberry's view that higher base charges do not encourage conservation. He asserted that witness Casselberry's statement exemplifies the throughput incentive conflict in that the Public Staff believes a lower base charge encourages conservation, which may be reasonable. However, he contended that absent a CAM to stabilize revenues, this adds revenue volatility to the Company due to a higher proportion of revenues being subject to the unpredictability and the unexpected changes of seasonal weather patterns and any conservation measures adopted by customers. Witness DeStefano maintained that the Company is therefore not properly incented to promote conservation, and the Public Staff's position on rate design highlights the need to implement the CAM. Witness DeStefano testified that, if the Commission does not approve implementation of CWSNC's proposed CAM, the Company alternatively requests that the Commission find it reasonable, necessary, and appropriate to direct the parties to develop a rate design that is based on a 60%/40% ratio of base charges to volumetric charges for water.

Based upon the foregoing and the entire record herein, the Commission finds that the following specific rate design proposals recommended by Public Staff witness Casselberry and agreed to by the Company which were not opposed by any party, are reasonable and appropriate:

- That sewer customers in Sapphire Valley, who were incorporated into CWSNC's uniform sewer rate division, should be charged the same rate as other metered sewer customers within that rate division.

- That sewer customers in Bradfield Farms and Fairfield Harbour should continue to be charged a flat rate.

- That CWSNC's uniform metered water rates should be charged to customers in Linville Ridge and at The Ridges at Mountain Harbor based on the Public Staff's estimated usage of 1,920 gallons per EOP customer per month, consistent with the average for CWSNC's other seasonal mountain systems.

- That customers at The Ridges at Mountain Harbor should be charged purchased sewer rates at the Public Staff's recommended base facility charge, which is $18.42 per SFE. The resulting base facility charges, exclusive of the collection charge that is the same as for customers in all of CWSNC's purchased sewer systems are shown below.

Residential customers	
< 1" meter	$ 18.42
Commercial customers:	
< 1" meter	$ 18.42
2" meter	$147.36

Further, the Commission concludes, consistent with the recommendation of witness Casselberry, that CWSNC's customers in Carolina Trace, which is a purchased water system in the CWSNC uniform water rate division, should be charged the same base charge as approved in this case for that rate division.

In this case, CWSNC proposed no rate changes for customers in the Company's CLMS service area. CWSNC maintained that its proposal to not increase (but hold constant) the water and sewer rates for its customers in the CLMS service area is consistent with the ratemaking and rate design approved by the Commission in the Company's last three general rate cases (Docket Nos. W-354, Subs 336, 344, and 356) and will continue the orderly process of moving the CLMS service area toward full inclusion in the Company's uniform water and sewer rates in future general rate cases. No party to this case opposed the Company's recommendation to maintain the status quo of rates for the CLMS service area. Accordingly, the Commission finds good cause to not increase (but hold constant) the sewer rates for the CLMS service area.

As discussed in the preceding section, the Commission concluded that CWSNC's request for approval to implement its proposed CAM should be denied. In conjunction with the Company's CAM request, CWSNC also proposed a metered water rate structure for purposes of designing rates in this proceeding consisting of 47%/53% ratio of base charge to usage charge. Alternatively, if the proposed CAM was not approved, the Company proposed a ratio of 60%/40% base charge to usage charge for rate design purposes.

The Public Staff opposed using CWSNC's alternative to a CAM in this proceeding. Witness Casselberry testified that since the Public Staff would like to take the ratio closer to a 40%/60% base charge to usage charge ratio to promote conservation and give customers more control over their bills, she recommended the slightly lower ratio range of 45%/55% base charge to usage charge for this proceeding rather than the present ratio of 47%/53%.

Based upon the foregoing and the entire record herein, the Commission determines that the appropriate ratio of base charge to usage charge for use in this proceeding is 52%/48%. In reaching this conclusion, the Commission gives equal weight to the testimony of CWSNC witness DeStefano and of Public Staff witness Casselberry. Witness DeStefano testified that CWSNC continues to experience a consistent decline in consumption due to conservation efforts by customers and the installation of more water efficient household fixtures, and witness Casselberry's Late-Filed Exhibit 1 lends support to witness DeStefano's assertion concerning declining consumption. Further, the Commission notes that the testimony of witness Casselberry indicated that both CWSNC uniform water rate division and the BF/FH/TC water rate division had a customer growth factor of less than 1% in this proceeding. Tr. Vol. 8, p. 302. Consequently, the Commission recognizes that CWSNC would not have the opportunity to recover any significant portion of its declining consumption through customer growth.

The Commission also agrees with witness DeStefano that the rate design proposed by the Public Staff is weighted too heavily toward variable costs, in light of witness Casselberry's testimony that approximately 75%[22] of the Company's water service costs are fixed. Tr. Vol. 7, p. 343. Both these witnesses generally agreed that CWSNC has a substantial number of seasonal customers who have water and/or sewer service available on-demand year round, but do not contribute to cost recovery through CWSNC's volumetric charges to the same extent as year-round customers. Furthermore, the Commission recognizes the importance of the Public Staff's stated goal to encourage conservation through a decline in consumption, and relying on higher usage charges to provide incentive to customers to do so. However, the Public Staff's proposed rate design could also have the unintended effect of making it even more difficult for the Company to achieve and earn its allowed return and diminishing the Company's incentive to promote conservation of a natural resource by its customers and, ultimately, cause more frequent general rate case filings. The Commission concludes that approving a rate design in this proceeding which should work to reduce the need for CWSNC to file frequent rate case applications would benefit customers in the long term, as customers ultimately pay through monthly rates the reasonable and prudent costs incurred for rate case filings.

Having carefully weighed these competing goals or interests, and having considered the foregoing and the entire record herein, the Commission finds that it is appropriate to utilize a ratio of 52%/48% base charge to usage charge in this proceeding. The Commission concludes that such rate design is fair and reasonable to both CWSNC and its customers as it appropriately balances the competing interests involved, as testified to by the witnesses in this proceeding. Therefore, taking into account the

[22] CWSNC witness DeStefano testified that 80% of the Company's water service costs are fixed.

foregoing findings and conclusions, the Commission concludes that the rates and charges included in Appendices A-1, A-2, A-3, B-1, and B-2 are just and reasonable and should be approved.

Finally, the Commission notes that CWSNC's requested changes in its rate design, and the Public Staff's opposition thereto, is not unique to this case.[23] The Commission's experience in deciding the issues in this case and other general rate cases has informed the Commission's view that the problems that CWSNC asserts concerning declining consumption and revenue volatility due to the unpredictability and unexpected changes in weather patterns that make it difficult for the Company to generate revenue that is both stable and sufficient to cover its fixed costs of providing service to its customers is one that merits further consideration outside the context of a discrete general rate case. Although the tension between a utility's desire for stable and sufficient revenue generation, on the one hand, and policies that support conservation, on the other, is not a new phenomenon, the Commission acknowledges that there are new tools available to utilities and regulators and new research publications that may support addressing these issues in a more nuanced manner than the Company's proposal in this case. Therefore, the Commission will open a generic docket, by issuance of a forthcoming order, to investigate issues related to rate design, and require CWSNC, the Public Staff, and other specifically selected water utilities to participate in such a proceeding. The Commission's goal in doing so will be to explore and consider rate design proposals that may better achieve the utility's desire for revenue sufficiency and stability, while also sending appropriate price signals to consumers that support and encourage water efficiency and conservation.

EVIDENCE AND CONCLUSIONS FOR FINDINGS OF FACT NOS. 69 AND 70

The evidence supporting these findings of fact is found in the Commission's prior Orders approving rulemaking in Docket No. W-100, Sub 54 establishing the procedures for implementing and applying the WSIC and SSIC approved in CWSNC's rate case in Docket No. W-354, Sub 336 and in the Commission's prior Orders approving WSIC and SSIC mechanisms for CWSNC and the other Utilities, Inc. companies that have been merged into CWSNC.

The Commission's previously approved WSIC/SSIC improvement charge rate adjustment mechanism continues in effect, although it has been reset to zero in this rate case. The WSIC/SSIC mechanism is designed to recover, between rate case proceedings, the costs associated with investment in certain completed, eligible projects for water and sewer system or water quality improvements pursuant to N.C.G.S. § 62-133.12. The WSIC/SSIC surcharge is subject to commission approval and to audit and refund provisions. Any cumulative system improvement charge recovered pursuant to the WSIC/SSIC mechanism may not exceed 5% of the total annual service revenues approved by the Commission in this rate case proceeding.

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[23] See, e.g., Docket No. W-218, Sub 497, a general rate case proceeding for Aqua North Carolina, Inc.

Based on the service revenues set forth and approved in this Order, the maximum WSIC/SSIC charges as of the effective date of this Order are:

Item	Service Revenues	Cap %	WSIC & SSIC Cap
CWSNC Uniform Water Operations	$17,421,890	X 5% =	$871,095
CWSNC Uniform Sewer Operations	$12,976,941	X 5% =	$648,847
BF/FH/TC Water Operations	$1,316,708	X 5% =	$65,835
BF/FH Sewer Operations	$2,149,098	X 5% =	$107,455

EVIDENCE AND CONCLUSIONS FOR FINDING OF FACT NO. 71

With respect to CWSNC's bonding requirements, CWSNC presently has posted with the Commission a $3,730,000 bond, secured by a letter of credit from The Toronto-Dominion Bank, New York Branch. Such bond was approved by Commission Order issued on September 27, 2016, in Docket No. W-354, Sub 350, et al. (In the Matter of a Joint Application by Carolina Water Service, Inc. of North Carolina, Bradfield Farms Water Company, Carolina Trace Utilities, Inc., CWS Systems, Inc., Elk River Utilities, Inc., and Transylvania Utilities, Inc. for Approval of Merger). As of the date of this Order, an amount of $3,690,000 of the approved bond has been assigned to the existing service areas of CWSNC, leaving an amount of $40,000 of bond and surety unassigned.

Upon review of the Commission's bond files, it was determined that in its Order Approving Merger, issued on August 2, 2010, in Docket Nos. W-354, Sub 326; W-1152, Sub 8; and W-1151, Sub 7, the Commission assigned $20,000 of CWSNC's unassigned bond to Amherst Subdivision in Wake County, North Carolina and $20,000 of the unassigned bond to the Carolina Pines Service Area in Craven County, North Carolina and stated that the bonds previously posted by Nero Utility Services. Inc. and Carolina Pines Utility, Inc. would be released to those entities (which were owned by Utilities, Inc.) upon the Commission's receipt of written notification that the merger has been completed.

On September 1, 2010, Utilities, Inc. filed a letter with the Commission providing notification that the merger had been completed. The Commission has determined that neither the $20,000 bond and certificate of deposit surety from BB&T for Amherst Subdivision nor the $20,000 bond and certificate of deposit surety from BB&T posted for the Carolina Pines Service Area have been released to UI. The Commission concludes that since UI has satisfied the requirement for the release of these two bonds and sureties as established by a previous Commission Order and that the Commission's bonding requirements for these two service areas are now included in CWSNC's present bond posted with the Commission in Docket No. W-354, Sub 350, et al., the two $20,000 bonds and sureties relating to Amherst Subdivision and the Carolina Pines Service Area should be released to UI. With the release of these two bonds and sureties, CWSNC has a total bond and surety of $3,730,000 posted with the Commission, of which $3,690,000 has been assigned to existing service areas of CWSNC and $40,000 is unassigned.

IT IS, THEREFORE, ORDERED as follows:

1. That the Partial Joint Settlement Agreement and Stipulation is incorporated by reference herein and is hereby approved in its entirety;

2. That the Partial Joint Settlement Agreement and Stipulation, filed on September 17, 2018, and the parts of this Order pertaining to the contents of that agreement shall not be cited or treated as precedent in future proceedings;

3. That the Schedules of Rates, attached hereto as Appendices A-1, A-2, A-3, and A-4, and the Schedules of Connection Fees for Uniform Water and Uniform Sewer, attached hereto as Appendices B-1 and B-2, are hereby approved and deemed to be filed with the Commission pursuant to N.C.G.S. § 62-138, and are hereby authorized to become effective for service rendered on and after the issuance date of this Order;

4. That the Notices to Customers, attached hereto as Appendices C-1 and C-2 shall be mailed with sufficient postage or hand delivered to all affected customers in each relevant service area, respectively, in conjunction with the next regularly scheduled billing process;

5. That CWSNC shall file the attached Certificate of Service, properly signed and notarized, not later than 10 days after the Notices to Customers are mailed or hand delivered to customers;

6. That CWSNC shall refund to ratepayers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, including interest at the overall weighted cost of capital, as a credit to customers' bills for a one-year period beginning when the new rates become effective in the present docket;

7. That the decision reached by the Commission in CWSNC's Sub 356 Order to amortize over three years the Company's state EDIT recorded pursuant to the Commission's Sub 138 Order shall remain in full force and effect;

8. That the unprotected EDIT associated with the reduction in the federal corporate income tax rate shall be returned by CWSNC to ratepayers through a levelized rider to rates over a four-year period;

9. That the protected federal EDIT shall be amortized by CWSNC over 45 years in accordance with the IRC;

10. That in CWSNC's next general rate case proceeding, CWSNC and the Public Staff shall evaluate in detail and determine the appropriate methodology to calculate CIAC and PAA amortization expense for the post-merger entity on a going-forward basis for ratemaking purposes in order to ensure that contributed property is depreciated at the same rate that the related CIAC is amortized;

11. That, within 180 days of the date of this Order, CWSNC shall file a report with the Commission on the progress of the capital project intended to resolve the quality of service concern identified by Ms. Brown, one of the public witnesses appearing at the public hearing in Asheville, as is discussed in more detail in this Order. Such report shall state whether Ms. Brown has indicated to CWSNC that the final resolution of the issue is satisfactory;

12. That the two certificate of deposit bond sureties previously filed by Utilities, Inc. (as noted above) from BB&T for Amherst Subdivision in Wake County and for the Carolina Pines Service Area in Craven County, North Carolina shall be released to Utilities, Inc. The Chief Clerk shall file a copy of the letter to Utilities, Inc. from the Deputy Clerk releasing the bond sureties in Docket Nos. W-354, Sub 326, W-1152, Sub 8, W-1151, Sub 7, and this docket;

13. That the Chief Clerk shall establish Docket No. W-354, Sub 360A as the single docket to be used for all future WSIC/SSIC filings, orders, and reporting requirements. To that end, the Chief Clerk shall copy CWSNC's WSIC/SSIC pending application filed on January 31, 2019, in Docket No. W-354, Sub 356A and Sub 360 into Docket No. W-354, Sub 360A; and

14. That the Chief Clerk shall close Docket No. W-354, Subs 356A, 344A, and 336A.

ISSUED BY ORDER OF THE COMMISSION.

This the 21st day of February, 2019.

NORTH CAROLINA UTILITIES COMMISSION

A. Shonta Dunston, Deputy Clerk

Commissioner Daniel G. Clodfelter concurring in part and dissenting in part.

DOCKET NO. W-354, SUB 360

Commissioner Daniel G. Clodfelter, concurring in part and dissenting in part:

On all save one point I join in the Commission's opinion and in the result. My difference is in the matter of rate design and more specifically in the Commission's approval of a rate structure whereby the Company will earn 52% of its revenue requirement from fixed charges and the remaining 48% from volumetric charges. There is no special magic to the 52%/48% ratio of revenues from fixed charges to revenue from volumetric charges settled on by the Commission. The Public Staff advocated for a ratio of 45% revenue from fixed charges to 55% revenue from variable charges for setting rates, while testifying that it would prefer to move as close to a 40% fixed to 60% variable ratio as possible. The Company proposed a revenue ratio of 47% fixed to 53% variable if the requested CAM adjustment mechanism was approved and a ratio of 60% fixed to 40% variable without the CAM.[1] The actual figures for the Company's test year, as calculated by witness Casselberry, were 47% of revenue derived from fixed charges and 53% derived from volumetric rates. Nothing in the evidence presented by any of the witnesses supports a conclusion that any particular one of these ratios or, for that matter, any other ratio within the range of values advocated by the parties will ensure just the right balance between the need for revenue stability to cover fixed costs and a rate design that will encourage water efficiency and conservation.

The tension between the policy goal of providing adequate and stable revenue to cover a high level of fixed costs, a feature inherent in most water and sewer systems, and the second policy goal of encouraging water use reduction is very real and has worsened in recent years as appliances have become more efficient and as drought events have changed public consciousness of the relative abundance or scarcity of water. This tension is not, however, unmanageable, and the academic and research literature together with extensive real world experience by public and private water utilities demonstrate that there are a number of different techniques that have now been adopted, either in general use or as experiments, that can mitigate the conflicts between the competing objectives of revenue stability and water conservation.[2] Some of these mechanisms are more complex than others, and many of them take advantage of increasingly sophisticated data resources concerning customer usage patterns. All of them are more nuanced than the Company's proposals or the Commission's result in this case, and they attempt to accommodate both major goals for rate design without sacrificing or ignoring either one. A "single factor" approach to managing the conflicting

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[1] I agree with and concur in the Commission's refusal to approve the CAM adjustment mechanism for the reasons stated in the Commission's opinion.

[2] See, e.g., "Designing Water Rate Structures for Conservation and Revenue Stability," a 2014 joint study report by the Environmental Finance Center at the University of North Carolina at Chapel Hill and the Sierra Club Lone Star Chapter concerning rate design options in Texas; and "Achieving Revenue Stability through Your Water Rate Structure," a 2017 webinar presentation by, among others, the Environmental Finance Center at the University of North Carolina at Chapel Hill and the American Water Works Association. This is a topic on which the Environmental Finance Center has recognized expertise which could be invaluable to this Commission.

objectives by simply adjusting the ratio of fixed to variable charges ignores this available research and field experience and misses opportunities for the Company to implement rate designs that are tailored to the unique characteristics of its systems, its customers, and their usage patterns.

I fully agree with the Commission majority that it is time to open a generic docket to explore alternative ratemaking options for water and sewer companies regulated by the Commission for the sound reasons articulated in the Commission's order. Where I differ is that I would maintain the existing ratio of fixed to volumetric charges unchanged pending the conclusion of proceedings in that separate docket. This is especially so since I can find nothing in this record that supports picking any one fixed-to-variable ratio rather than any other. I find no persuasive evidence in this record that maintaining the present rate design will unreasonably hinder the Company's operations or its chance to earn its permitted rate of return while the Commission conducts a more thorough examination of the question.

/s/ Daniel G. Clodfelter
Commissioner Daniel G. Clodfelter

SCHEDULE OF RATES

for

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

for providing water and sewer utility service

in

ALL OF ITS SERVICE AREAS IN NORTH CAROLINA

(excluding Corolla Light, Monteray Shores, Fairfield Harbour Service Area, Treasure Cove, Register Place Estates, North Hills and Glen Arbor/North Bend Subdivisions, Bradfield Farms, Larkhaven, Silverton, and Woodland Farms Subdivisions, and Hawthorne at the Green Apartments)

WATER RATES AND CHARGES

Monthly Metered Water Service (Residential and Commercial):

Base Facility Charge (based on meter size with zero usage):

< 1" meter	$ 27.53
1" meter	$ 68.83
1½" meter	$ 137.65
2" meter	$ 220.24
3" meter	$ 412.95
4" meter	$ 688.25
6" meter	$1,376.50

Usage Charge:

A. Treated Water, per 1,000 gallons	$ 7.08
B. Untreated Water, per 1,000 gallons (Brandywine Bay Irrigation Water)	$ 4.11

Commercial customers, including condominiums or other property owner associations who bill their members directly, shall have a separate account set up for each meter and each meter shall be billed separately based on the size of the meter and usage associated with the meter.

C. Purchased Water for Resale, per 1,000 gallons:

Service Area	Bulk Provider		
Carolina Forest	Montgomery County	$	3.19
High Vista Estates	City of Hendersonville	$	3.25
Riverpointe	Charlotte Water	$	6.30
Whispering Pines	Town of Southern Pines	$	2.23
White Oak Plantation/ Lee Forest	Johnston County	$	2.40
Winston Plantation	Johnston County	$	2.40
Winston Point	Johnston County	$	2.40
Woodrun	Montgomery County	$	3.19
Yorktown	City of Winston-Salem	$	5.01
Zemosa Acres	City of Concord	$	5.27
Carolina Trace	City of Sanford	$	2.21

When because of the method of water line installation utilized by the developer or owner, it is impractical to meter each unit or other structure separately, the following will apply:

Sugar Mountain Service Area:
Where service to multiple units or other structures is provided through a single meter, the average usage for each unit or structure served by that meter will be calculated. Each unit or structure will be billed based upon that average usage plus the base monthly charge for a <1" meter.

Mount Mitchell Service Area:
Service will be billed based upon the Commission-approved monthly flat rate.

Monthly Flat Rate Water Service: (Billed in Arrears) $ 53.58

Availability Rate: (Semiannually)

Applicable only to property owners in Carolina Forest and Woodrun Subdivisions in Montgomery County $ 24.65

Availability Rate: (Monthly)	
Applicable only to property owners in Linville Ridge Subdivision	$ 12.35
Availability Rate: (Monthly rate, billed semiannually)	
Applicable only to property owners in Fairfield Sapphire Valley Service Area	$ 9.10
Availability Rate: (Monthly rate, billed quarterly)	
Applicable only to property owners in Connestee Falls	$ 4.80
Meter Testing Fee: [1/]	$ 20.00
New Water Customer Charge:	$ 27.00
Reconnection Charge: [2/]	
If water service is cut off by utility for good cause	$ 27.00
If water service is discontinued at customer's request	$ 27.00
Reconnection Charge: [3/] (Flat-rate water customers)	
If water service is cut off by utility for good cause	Actual Cost
Management Fee: (in the following subdivisions only) (Per connection)	
Wolf Laurel	$150.00
Covington Cross Subdivision (Phases 1 & 2)	$100.00
Oversizing Fee: (in the following subdivision only) (One-time charge per single-family equivalent)	
Winghurst	$400.00
Meter Fee:	
For <1" meters	$ 50.00
For meters 1" or larger	Actual Cost
Irrigation Meter Installation:	Actual Cost

SEWER RATES AND CHARGES

Monthly Metered Sewer Service:

A. Base Facility Charge:

Residential (zero usage)	$ 46.31
Commercial (based on meter size with zero usage)	
< 1" meter	$ 46.31
1" meter	$ 115.78
1½" meter	$ 231.55
2" meter	$ 370.48
3" meter	$ 694.65
4" meter	$1,157.75
6" meter	$2,315.50

B. Usage charge, per 1,000 gallons (based on metered water usage) $ 3.62

Commercial customers, including condominiums or other property owner associations who bill their members directly, shall have a separate account set up for each meter and each meter shall be billed separately based on the size of the meter and usage associated with the meter.

Monthly Metered Purchased Sewer Service:

Collection Charge (Residential and Commercial)	$ 31.63

Usage charge, per 1,000 gallons
(based on metered water usage from the water supplier)

Service Area	Bulk Provider	
White Oak Plantation/ Lee Forest/Winston Pt.	Johnston County	$ 5.06
Kings Grant	Two Rivers Utilities	$ 3.80
College Park	Town of Dallas	$ 5.70

Monthly Flat Rate Sewer Service: $ 57.82

Multi-residential customers who are served by a master meter shall be charged the flat rate per unit. $ 57.82

Mt. Carmel Subdivision Service Area:

Monthly Base Facility Charge	$ 6.77
Monthly Collection Charge (Residential and Commercial)	$ 31.63
Usage Charge, per 1,000 gallons (based on metered water usage from the water supplier)	$ 5.88

Regalwood and White Oak Estates Subdivision Service Area:

Monthly Flat Rate Sewer Service	
Residential Service	$ 57.82
White Oak High School	$1,799.66
Child Castle Daycare	$ 223.58
Pantry	$ 119.49

Fairfield Mountain/Apple Valley (a.k.a. Rumbling Bald) Service Area and Highland Shores Subdivision:

Monthly Sewer Rates:

Residential	
Collection charge/dwelling unit	$ 31.63
Treatment charge/dwelling unit	$ 69.50
Total monthly flat rate/dwelling unit	$ 101.13
Commercial and Other:	
Minimum monthly collection and treatment charge	$ 101.13
Monthly collection and treatment charge for customers who do not take water service	$ 101.13
Treatment charge per dwelling unit	
Small (less than 2,500 gallons per month)	$ 78.50
Medium (2,500 to 10,000 gallons per month)	$ 139.50
Large (over 10,000 gallons per month)	$ 219.50
Collection Charge (per 1,000 gallons)	$ 13.93

The Ridges at Mountain Harbour:

Monthly Sewer Rates:

Collection charge (Residential and Commercial)	$ 31.63
Treatment Charge (Residential and Commercial)	
< 1" meter	$ 18.42
2" meter	$ 147.36

Availability Rate: (Monthly rate, billed semiannually)

Applicable only to property owners in Fairfield Sapphire Valley Service Area	$ 8.30

Availability Rate: (Monthly rate, billed quarterly)

Applicable only to property owners in Connestee Falls	$ 4.70

New Sewer Customer Charge: [4/] $ 27.00

Reconnection Charge: [5/]
If sewer service is cut off by utility for good cause — Actual Cost

MISCELLANEOUS UTILITY MATTERS

Charge for Processing NSF Checks:	$ 25.00
Bills Due:	On billing date
Bills Past Due:	21 days after billing date
Billing Frequency:	Bills shall be rendered monthly in all service areas, except for Mt. Carmel, which will be billed bimonthly. Availability rates will be billed quarterly in advance for Connestee Falls, semiannually in advance for Carolina Forest, Woodrun, and Fairfield Sapphire Valley, and monthly for Linville Ridge.

Finance Charge for Late Payment:	1% per month will be applied to the unpaid balance of all bills still past due 25 days after billing date.

Notes:

1/ If a customer requests a test of a water meter more frequently than once in a 24-month period, the Company will collect a $20.00 service charge to defray the cost of the test. If the meter is found to register in excess of the prescribed accuracy limits, the meter testing charge will be waived. If the meter is found to register accurately or below prescribed accuracy limits, the charge shall be retained by the Company. Regardless of the test results, customers may request a meter test once in a 24-month period without charge.

2/ Customers who request to be reconnected within nine months of disconnection at the same address shall be charged the base facility charge for the service period they were disconnected.

3/ The utility shall itemize the estimated cost of disconnecting and reconnecting service and shall furnish this estimate to customer with cut-off notice.

4/ This charge shall be waived if customer is also a water customer within the same service area.

5/ The utility shall itemize the estimated cost of disconnecting and reconnecting service and shall furnish this estimate to customer with cut-off notice. This charge will be waived if customer also receives water service from Carolina Water Service within the same service area. Customers who request to be reconnected within nine months of disconnection at the same address shall be charged the base facility charge for the service period they were disconnected.

SCHEDULE OF RATES

for

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

for providing sewer utility service

in

COROLLA LIGHT AND MONTERAY SHORES SERVICE AREA

SEWER RATES AND CHARGES

Monthly Metered Sewer Service (Residential and Commercial):

Base Facility Charge (based on meter size with zero usage)

< 1" meter	$ 52.06
1" meter	$ 130.15
1½" meter	$ 260.31
2" meter	$ 416.49
3" meter	$ 780.92
4" meter	$1,301.54
6" meter	$2,603.07

Usage Charge, per 1,000 gallons $ 6.62
(based on metered water usage per the water supplier)

Commercial customers, including condominiums or other property owner associations who bill their members directly, shall have a separate account set up for each meter and each meter shall be billed separately based on the size of the meter and usage associated with the meter.

New Sewer Customer Charge: $ 21.92

Reconnection Charge: [1/]

If sewer service cut off by utility for good cause Actual Cost

Uniform Connection Fees: [2]

The following uniform connection fees apply unless specified differently by contract approved by and on file with the North Carolina Utilities Commission.

Connection Charge (CC), per SFE (Single-Family Equivalent)	$ 100.00
Plant Modification Fee (PMF), per SFE	$1,000.00

The systems where connection fees other than the uniform fees have been approved and/or allowed to become effective by the North Carolina Utilities Commission are as follows. These fees are per SFE:

Subdivision	CC	PMF
Corolla Light	$ 700.00	$ 0.00
Monteray Shores	$ 700.00	$ 0.00
Monteray Shores (Degabrielle Bldrs.)	$ 0.00	$ 0.00
Corolla Bay[3]	$ 100.00	$1,000.00
Corolla Bay[4]	$ 700.00	$ 0.00
Corolla Shores	$ 700.00	$ 0.00

One SFE shall equal 360 gallons per day of capacity.

MISCELLANEOUS UTILITY MATTERS

Charge for Processing NSF Checks:	$ 24.91
Bills Due:	On billing date
Bills Past Due:	21 days after billing date
Billing Frequency:	Bills shall be rendered monthly
Finance Charge for Late Payment:	1% per month will be applied to the unpaid balance of all bills still past due 25 days after billing date.

Notes:

[1/] The Utility shall itemize the estimated cost of disconnecting and reconnecting service and shall furnish the estimate to customer with cut-off notice.

Customers who request to be reconnected within nine months of disconnection at the same address shall be charged the base facility charge for the service period they were disconnected.

[2/] These fees are only applicable one time, when the unit is initially connected to the system.

[3/] The connection charge of $100 per SFE and the plant modification fee of $1,000 per SFE specified herein apply to new wastewater connections requested at Corolla Bay prior to June 4, 2015.

[4/] The connection charge of $700 per SFE applies to new wastewater connections requested at Corolla Bay on and after June 4, 2015.

SCHEDULE OF RATES

for

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

for providing water and sewer utility service

in

TREASURE COVE, REGISTER PLACE ESTATES, NORTH HILLS, GLEN ARBOR/NORTH BEND SUBDIVISIONS, FAIRFIELD HARBOUR SERVICE AREA, BRADFIELD FARMS SUBDIVISION, LARKHAVEN SUBDIVISION, SILVERTON AND WOODLAND FARMS SUBDIVISIONS, AND HAWTHORNE AT THE GREEN APARTMENTS

WATER RATES AND CHARGES

Monthly Metered Water Service (Residential and Commercial):

Base Facility Charge (based on meter size with zero usage)

< 1" meter	$ 16.74
1" meter	$ 41.85
1½" meter	$ 83.70
2" meter	$ 133.92
Usage Charge, per 1,000 gallons	$ 3.75

Availability Rate: (Monthly rate, billed semiannually)

Applicable only to property owners in Fairfield Harbour Service Area	$ 3.28

Connection Charge:

Treasure Cove Subdivision	$ 0.00
North Hills Subdivision	$ 100.00
Glen Arbor/North Bend Subdivision	$ 0.00
Register Place Estates	$ 500.00

Fairfield Harbor: [1/]

All Areas Except Harbor Pointe II Subdivision

Recoupment of capital fees per tap	$ 335.00
Connection charge per tap	$ 140.00

Harbor Pointe Subdivision and any area where mains have been installed after July 24, 1989

Recoupment of capital fee per tap	$ 650.00
Connection charge per tap	$ 320.00

Bradfield Farms:

Connection charge per tap	None

Meter Testing Fee: [2/]	$ 20.00
New Water Customer Charge:	$ 27.00

Reconnection Charge: [3/]

If water service is cut off by utility for good cause	$ 27.00
If water service is discontinued at customer's request	$ 27.00
New Meter Charge:	Actual Cost
Irrigation Meter Installation:	Actual Cost

SEWER RATES AND CHARGES

Monthly Sewer Service:

Residential:

Flat Rate, per dwelling unit	$ 50.46
Bulk Flat Rate, per REU	$ 50.46

Commercial and Other:

Monthly Flat Rate (Customers who do not take water service)	$ 50.46

Monthly Metered Rates
(based on meter size with zero usage)

<1" meter	$ 44.58
1" meter	$111.45
1½" meter	$222.90
2" meter	$356.64
Usage Charge, per 1,000 gallons	$ 1.43

Bulk Sewer Service for Hawthorne at the Green Apartments: [4/]

Bulk Flat Rate, per REU	$ 50.46

(To be collected from Hawthorne and delivered to Carolina Water Service, Inc. of North Carolina for treatment of the Hawthorne wastewater pursuant to Docket No. W-218, Sub 291)

Availability Rate: (Monthly rate, billed semiannually)

Applicable only to property owners in Fairfield Harbour Service Area	$ 2.65

Connection Charge:

Fairfield Harbour: [1/]

All Areas Except Harbor Pointe II Subdivision

Recoupment of capital fees per tap	$ 735.00
Connection charge per tap	$ 140.00

Harbor Pointe Subdivision and any area where mains have been installed after July 24, 1989

Recoupment of capital fee per tap	$2,215.00
Connection charge per tap	$ 310.00

Bradfield Farms:

Connection charge per tap	None

New Sewer Customer Charge: [5/] $ 27.00

Reconnection Charge: [6/]
If sewer service is cut off by utility for good cause — Actual Cost

MISCELLANEOUS UTILITY MATTERS

Charge for Processing NSF Checks:	$ 25.00
Bills Due:	On billing date
Bills Past Due:	21 days after billing date
Billing Frequency:	Bills shall be monthly for service in arrears. Availability billings semiannually in advance.
Finance Charge for Late Payment:	1% per month will be applied to the unpaid balance of all bills still past due 25 days after billing date.

Notes:

[1/] The recoupment of capital portion of the connection charges shall be due and payable at such time as the main water and sewer lines are installed in front of each lot, and the tap-on fee for water and sewer shall be payable upon request by the owner of each lot to be connected to the water and sewer lines. With written consent of the company, payment of the recoupment capital portion of the connection charge may be made payable over five-year period following the installation of the water and sewer mains in front of each lot, payment to be made in such a manner and in such installments as agreed upon between lot owner and the company, together with interest on the balance of the unpaid recoupment of capital fee from said time until payment in full at the rate of 6% per annum.

[2/] If a customer requests a test of a water meter more frequently than once in a 24-month period, the Company will collect a $20.00 service charge to defray the cost of the test. If the meter is found to register in excess of the prescribed accuracy limits, the meter testing charge will be waived. If the meter is found to register accurately or below prescribed accuracy limits, the charge shall be retained by the Company. Regardless of the test results, customers may request a meter test once in a 24-month period without charge.

[3/] Customers who request to be reconnected within nine months of disconnection at the same address shall be charged the base facility charge for the service period they were disconnected.

[4/] Each apartment building will be considered 92.42% occupied on an ongoing basis for billing purposes as soon as the certificate of occupancy is issued for that apartment building.

[5/] This charge shall be waived if customer is also a water customer within the same service area.

[6/] The utility shall itemize the estimated cost of disconnecting and reconnecting service and shall furnish this estimate to customer with cut-off notice. This charge will be waived if customer also receives water service from Carolina Water Service within the same service area. Customers who request to be reconnected within nine months of disconnection at the same address shall be charged the base facility charge for the service period they were disconnected.

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

SCHEDULE OF CONNECTION FEES

FOR WATER UTILITY SERVICE UNDER UNIFORM RATES

Uniform Connection Fees: [1/]

The following uniform connection fees apply unless specified differently by contract approved by and on file with the North Carolina Utilities Commission.

Connection Charge (CC), per SFE (Single-Family Equivalent)	$ 100.00
Plant Modification Fee (PMF), per SFE	$ 400.00

The systems where connection fees other than the uniform fees have been approved and/or allowed to become effective by the North Carolina Utilities Commission are as follows. These fees are per SFE:

Subdivision	CC	PMF
Abington	$ 0.00	$ 0.00
Abington, Phase 14	$ 0.00	$ 0.00
Amherst	$ 250.00	$ 0.00
Bent Creek	$ 0.00	$ 0.00
Blue Mountain at Wolf Laurel	$ 925.00	$ 0.00
Buffalo Creek, Phase I, II, III, IV	$ 825.00	$ 0.00
Carolina Forest	$ 0.00	$ 0.00
Chapel Hills	$ 150.00	$ 400.00
Eagle Crossing	$ 0.00	$ 0.00
Elk River Development	$1,000.00	$ 0.00
Forest Brook/Old Lamp Place	$ 0.00	$ 0.00
Harbour	$ 75.00	$ 0.00
Hestron Park	$ 0.00	$ 0.00
Hound Ears	$ 300.00	$ 0.00
Kings Grant/Willow Run	$ 0.00	$ 0.00
Lemmond Acres	$ 0.00	$ 0.00
Linville Ridge	$ 400.00	$ 0.00
Monterrey (Monterrey LLC)	$ 0.00	$ 0.00
Quail Ridge	$ 750.00	$ 0.00
Queens Harbour/Yachtsman	$ 0.00	$ 0.00
Riverpointe	$ 300.00	$ 0.00
Riverpointe (Simonini Bldrs.)	$ 0.00	$ 0.00
Riverwood, Phase 6E (Johnston County)	$ 825.00	$ 0.00

Subdivision	CC	PMF
Saddlewood/Oak Hollow (Summey Bldrs.)	$ 0.00	$ 0.00
Sherwood Forest	$ 950.00	$ 0.00
Ski Country	$ 100.00	$ 0.00
The Ridges at Mountain Harbour	$2,500.00	$ 0.00
White Oak Plantation	$ 0.00	$ 0.00
Wildlife Bay	$ 870.00	$ 0.00
Willowbrook	$ 0.00	$ 0.00
Winston Plantation	$1,100.00	$ 0.00
Winston Pointe, Phase 1A	$ 500.00	$ 0.00
Wolf Laurel	$ 925.00	$ 0.00
Woodrun	$ 0.00	$ 0.00
Woodside Falls	$ 500.00	$ 0.00

Other Connection Fees:

The following connection fees apply unless specified differently by contract approved and/or filed with the North Carolina Utilities Commission.

Amber Acres, Amber Acres North, Amber Ridge, Ashley Hills North, Bishop Pointe, Carriage Manor, Country Crossing, Covington Cross, Heather Glen, Hidden Hollow, Jordan Woods, Lindsey Point, Neuse Woods, Oakes Plantation, Randsdell Forest, Rutledge Landing, Sandy Trails, Stewart's Ridge, Tuckahoe, Wilder's Village, and Forest Hill Subdivisions

Connection Charge:

A. 5/8" meter	$ 500.00
B. All other meter sizes	Actual cost of meter and installation

The systems where other connection fees have been approved and/or allowed to become effective by the North Carolina Utilities Commission are as follows:

Subdivision	CC
Lindsey Point Subdivision	$ 0.00
Amber Acres North, Sections II & IV	$ 570.00
Fairfield Mountain/Apple Valley (a.k.a. Rumbing Bald) Service Area	$ 500.00
Highland Shores Subdivision	$ 500.00
Laurel Mountain Estates	$ 0.00
Carolina Trace	$ 605.00
Connestee Falls	$ 600.00

The following connection fees apply unless specified differently by contract approved and/or filed with the North Carolina Utilities Commission.

All Areas Except Holly Forest XI, Holly Forest XIV, Holly Forest XV, Whisper Lake I, Whisper Lake II, Whisper Lake III, Deer Run, Lonesome Valley Phases I and II, and Chattooga Ridge

Recoupment of Capital Fee (RCF) [2/]	$ 0.00
Connection charge	$ 400.00

The systems where other connection fees have been approved and/or allowed to become effective by the North Carolina Utilities Commission are as follows:

Subdivision	CC	RCF
Holly Forest XI	$ 400.00	$2,400.00
Holly Forest XIV	$ 400.00	$ 250.00
Holly Forest XV	$ 400.00	$ 500.00
Whispering Lake Phase I	$ 400.00	$1,250.00
Whispering Lake Phases II and III	$ 400.00	$2,450.00
Deer Run	$ 400.00	$1,900.00
Lonesome Valley Phases I and II	$ 0.00	$ 0.00
Chattooga Ridge	$ 0.00	$ 0.00

Notes:

[1/] These fees are only applicable one time, when the unit is initially connected to the system.

[2/] The recoupment of capital portion of the connection charges shall be due and payable at such time as the main water and sewer lines are installed in front of each lot, and the tap-on fee for water and sewer shall be payable upon request by the owner of each lot to be connected to the water and sewer lines. With written consent of the company, payment of the recoupment capital portion of the connection charge may be made payable over five-year period following the installation of the water and sewer mains in front of each lot, payment to be made in such a manner and in such installments as agreed upon between lot owner and the company, together with interest on the balance of the unpaid recoupment of capital fee from said time until payment in full at the rate of 6% per annum.

Issued in Accordance with Authority Granted by the North Carolina Utilities Commission in Docket No. W-354, Sub 360, on this the 21st day of February, 2019.

CAROLINA WATER SERVICE, INC. OF NORTH CAROLINA

SCHEDULE OF CONNECTION FEES FOR

SEWER UTILITY SERVICE UNDER UNIFROM RATES

Uniform Connection Fees: [1/]

The following uniform connection fees apply unless specified differently by contract approved by and on file with the North Carolina Utilities Commission.

Connection Charge (CC), per SFE (Single-Family Equivalent)	$ 100.00
Plant Modification Fee (PMF), per SFE	$1,000.00

The systems where connection fees other than the uniform fees have been approved and/or allowed to become effective by the North Carolina Utilities Commission are as follows. These fees are per SFE:

Subdivision	CC	PMF
Abington	$ 0.00	$ 0.00
Abington, Phase 14	$ 0.00	$ 0.00
Amber Acres North (Phases II & IV)	$ 815.00	$ 0.00
Ashley Hills	$ 0.00	$ 0.00
Amherst	$ 500.00	$ 0.00
Bent Creek	$ 0.00	$ 0.00
Brandywine Bay	$ 100.00	$1,456.00
Camp Morehead by the Sea	$ 100.00	$1,456.00
Elk River Development	$1,200.00	$ 0.00
Hammock Place	$ 100.00	$1,456.00
Hestron Park	$ 0.00	$ 0.00
Hound Ears	$ 30.00	$ 0.00
Independent/Hemby Acres/Beacon Hills (Griffin Bldrs.)	$ 0.00	$ 0.00
Kings Grant/Willow Run	$ 0.00	$ 0.00
Kynwood	$ 0.00	$ 0.00
Mt. Carmel/Section 5A	$ 500.00	$ 0.00
Queens Harbor/Yachtsman	$ 0.00	$ 0.00
Riverpointe	$ 300.00	$ 0.00
Riverpointe (Simonini Bldrs.)	$ 0.00	$ 0.00
Steeplechase (Spartabrook)	$ 0.00	$ 0.00
The Ridges at Mountain Harbour	$2,500.00	$ 0.00

Subdivision	CC	PMF
White Oak Plantation	$ 0.00	$ 0.00
Willowbrook	$ 0.00	$ 0.00
Willowbrook (Phase 3)	$ 0.00	$ 0.00
Winston Pointe (Phase 1A)	$2,000.00	$ 0.00
Woodside Falls	$ 0.00	$ 0.00

Other Connection Fees:

The systems where other connection fees have been approved and/or allowed to become effective by the North Carolina Utilities Commission are as follows:

Subdivision	
Carolina Pines	
Residential	$1,350.00 per unit (including single-family homes, condominiums, apartments, and mobile homes)
Hotels	$750.00 per unit
Nonresidential	$3.57 per gallon of daily design of discharge or $900.00 per unit, whichever is greater

Subdivision	CC
Fairfield Mountain/Apply Valley (a.k.a. Rumbling Bald) Service Area	$ 550.00
Highland Shores	$ 550.00
Carolina Trace	$ 533.00
Connestee Falls	$ 400.00

The following connection fees apply unless specified differently by contract approved and/or filed with the North Carolina Utilities Commission.

All Areas Except Holly Forest XIV, Holly Forest XV, Deer Run, and Lonesome Valley Phases I and II

Recoupment of Capital Fee (RCF) [2/]	$ 0.00
Connection Charge	$ 550.00

The systems where other connection fees have been approved and/or allowed to become effective by the North Carolina Utilities Commission are as follows:

Subdivision	CC	RCF
Holly Forest XIV	$ 550.00	$1,650.00
Holly Forest XV	$ 550.00	$ 475.00
Deer Run	$ 550.00	$1,650.00
Lonesome Valley Phases I and II	$ 0.00	$ 0.00

Notes:

[1/] These fees are only applicable one time, when the unit is initially connected to the system.

[2/] The recoupment of capital portion of the connection charges shall be due and payable at such time as the main water and sewer lines are installed in front of each lot, and the tap-on fee for water and sewer shall be payable upon request by the owner of each lot to be connected to the water and sewer lines. With written consent of the company, payment of the recoupment capital portion of the connection charge may be made payable over five-year period following the installation of the water and sewer mains in front of each lot, payment to be made in such a manner and in such installments as agreed upon between lot owner and the company, together with interest on the balance of the unpaid recoupment of capital fee from said time until payment in full at the rate of 6% per annum.

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-354, SUB 360

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application by Carolina Water Service, Inc. of North Carolina, 4944 Parkway Plaza Boulevard, Suite 375, Charlotte, North Carolina 28217, for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All of its Service Areas in North Carolina, Except Corolla Light and Monteray Shores Service Area	)))))))	**NOTICE TO CUSTOMERS**

NOTICE IS HEREBY GIVEN that the North Carolina Utilities Commission has issued an Order authorizing Carolina Water Service, Inc. of North Carolina (CWSNC) to increase rates for water and sewer utility service in all of its service areas in North Carolina (excluding Corolla Light and Monteray Shores Service Area). The new approved rates are as follows:

WATER RATES AND CHARGES

(Excluding Corolla Light and Monteray Shores Service Area, Fairfield Harbour Service Area, Treasure Cove, Register Place Estates, North Hills and Glen Arbor/North Bend Subdivisions, Bradfield Farms, Larkhaven Subdivision, Silverton and Woodland Farms Subdivisions, and Hawthorne at the Green Apartments)

Uniform Water Customers:

Monthly Metered Water Service (Residential and Commercial):

Base Facility Charge (based on meter size with zero usage)

< 1" meter	$ 27.53
1" meter	$ 68.83
1½" meter	$ 137.65
2" meter	$ 220.24
3" meter	$ 412.95
4" meter	$ 688.25
6" meter	$1,376.50

Usage Charge:

A. Treated Water, per 1,000 gallons	$	7.08
B. Untreated Water, per 1,000 gallons (Brandywine Bay Irrigation Water)	$	4.11

C. Purchased Water for Resale, per 1,000 gallons:

Service Area	Bulk Provider		
Carolina Forest	Montgomery County	$	3.19
High Vista Estates	City of Hendersonville	$	3.25
Riverpointe	Charlotte Water	$	6.30
Whispering Pines	Town of Southern Pines	$	2.23
White Oak Plantation/ Lee Forest	Johnston County	$	2.40
Winston Plantation	Johnston County	$	2.40
Winston Point	Johnston County	$	2.40
Woodrun	Montgomery County	$	3.19
Yorktown	City of Winston-Salem	$	5.01
Zemosa Acres	City of Concord	$	5.27
Carolina Trace	City of Sanford	$	2.21

Commercial customers, including condominiums or other property owner associations who bill their members directly, shall have a separate account set up for each meter and each meter shall be billed separately based on the size of the meter and usage associated with the meter.

When because of the method of water line installation utilized by the developer or owner, it is impractical to meter each unit or other structure separately, the following will apply:

Sugar Mountain Service Area:
Where service to multiple units or other structures is provided through a single meter, the average usage for each unit or structure served by that meter will be calculated. Each unit or structure will be billed based upon that average usage plus the base monthly charge for a <1" meter.

Mount Mitchell Service Area:
Service will be billed based upon the Commission-approved monthly flat rate.

Monthly Flat Rate Water Service: (Billed in Arrears) $ 53.58

Availability Rate: (Semiannually)

Applicable only to property owners in Carolina Forest and Woodrun Subdivisions in Montgomery County	$ 24.65

Availability Rate: (Monthly)

Applicable only to property owners in Linville Ridge Subdivision	$ 12.35

Availability Rate: (Monthly rate, billed semiannually)

Applicable only to property owners in Fairfield Sapphire Valley Service Area	$ 9.10

Availability Rate: (Monthly rate, billed quarterly)

Applicable only to property owners in Connestee Falls	$ 4.80

SEWER RATES AND CHARGES

(Excluding Corolla Light and Monteray Shores Service Area, Fairfield Harbour Service Area, Treasure Cove, Register Place Estates, North Hills and Glen Arbor/North Bend Subdivisions, Bradfield Farms, Larkhaven Subdivision, Silverton and Woodland Farms Subdivisions, and Hawthorne at the Green Apartments)

Uniform Sewer Customers:

Monthly Metered Sewer Service:

Base Facility Charge:

Residential (zero usage)	$ 46.31
Commercial (based on meter size with zero usage)	
< 1" meter	$ 46.31
1" meter	$ 115.78
1½" meter	$ 231.55
2" meter	$ 370.48
3" meter	$ 694.65
4" meter	$1,157.75
6" meter	$2,315.50

Usage charge, per 1,000 gallons $ 3.62

Commercial customers, including condominiums or other property owner associations who bill their members directly, shall have a separate account set up for each meter and each meter shall be billed separately based on the size of the meter and usage associated with the meter.

Monthly Metered Purchased Sewer Service:

Collection Charge (Residential and Commercial) $ 31.63

Usage charge, per 1,000 gallons
(based on metered water usage from the water supplier)

Service Area	Bulk Provider	
White Oak Plantation/		
Lee Forest/Winston Pt.	Johnston County	$ 5.06
Kings Grant	Two Rivers Utilities	$ 3.80
College Park	Town of Dallas	$ 5.70

Monthly Flat Rate Sewer Service: $ 57.82

Multi-residential customers who are served by a master meter shall be charged the flat rate per unit. $ 57.82

Mt. Carmel Subdivision Service Area:

Monthly Base Facility Charge $ 6.77

Monthly Collection Charge
(Residential and Commercial) $ 31.63

Usage Charge, per 1,000 gallons $ 5.88
(based on metered water usage from the water supplier)

Regalwood and White Oak Estates Subdivision Service Area:

Monthly Flat Rate Sewer Service

Residential Service	$ 57.82
White Oak High School	$1,799.66
Child Castle Daycare	$ 223.58
Pantry	$ 119.49

Fairfield Mountain/Apple Valley (a.k.a. Rumbling Bald) Service Area and Highland Shores Subdivision

Monthly Sewer Rates:

Residential	
Collection charge/dwelling unit	$ 31.63
Treatment charge/dwelling unit	$ 69.50
Total monthly flat rate/dwelling unit	$ 101.13
Commercial and Other	$ 101.13
Minimum monthly collection and treatment charge	$ 101.13
Monthly collection and treatment charge for customers who do not take water service (per single-family unit)	$ 101.13
Treatment charge per dwelling unit	
Small (less than 2,500 gallons per month)	$ 78.50
Medium (2,500 to 10,000 gallons per month)	$ 139.50
Large (over 10,000 gallons per month)	$ 219.50
Collection Charge (per 1,000 gallons)	$ 13.93

The Ridges at Mountain Harbour:

Monthly Sewer Rates (Residential and Commercial):

Collection charge	$ 31.63
Treatment Charge	
< 1" meter	$ 18.42
2" meter	$ 147.36

Availability Rate: (Monthly rate, billed semiannually)

Applicable only to property owners in Fairfield Sapphire Valley Service Area	$ 8.30

Availability Rate: (Monthly rate, billed quarterly)

Applicable only to property owners in Connestee Falls	$ 4.70

RATE ADJUSTMENT MECHANISM:

The Commission-authorized water and sewer system improvement charge (WSIC/SSIC) rate adjustment mechanism continues in effect and will now be applicable to all customers in CWSNC's North Carolina service areas. It has been reset at zero in the Docket No. W-354, Sub 360 rate case. On January 31, 2019, in Docket No. W-354, Sub 360A, CWSNC applied, under the Rules and Regulations of the Commission, for a rate surcharge to become effective April 1, 2019. The WSIC/SSIC mechanism is designed to recover, between rate case proceedings, the costs associated with investment in certain completed, eligible projects for system or water quality improvement. The WSIC/SSIC mechanism is subject to Commission approval and to audit and refund provisions. Any cumulative system improvement charge recovered pursuant to the WSIC/SSIC mechanism may not exceed 5% of the total annual service revenues approved by the Commission in this general rate case proceeding. Additional information regarding the WSIC/SSIC mechanism is contained in the Commission's Order and can be accessed from the Commission's website at www.ncuc.net, under Docket Information, using the Docket Search feature for docket number "W-354 Sub 356A" and "W-354 Sub 360A".

CREDIT/REFUNDS DUE TO REDUCTION IN FEDERAL CORPORATE INCOME TAX RATE:

On December 22, 2017, President Donald J. Trump signed into law the Tax Cuts and Jobs Act (The Tax Act), which among other things, reduced the federal corporate income tax rate from 35% to 21%, effective for taxable years beginning after December 31, 2017. In the present rate case proceeding, CWSNC's revenue requirement reflects the reduction in the federal corporate income tax rate from 35% to 21%, on the Company's ongoing federal income tax expense. Further, the Commission is requiring that CWSNC refund to its customers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest, through a surcharge credit for a one-year period beginning with the effective date of the new rates.

With respect to excess deferred income taxes (EDIT) resulting from the reduction in the federal corporate income tax rate, the Commission is requiring that: (1) CWSNC's Protected Federal EDIT shall be flowed back to customers over a 45-year period using the Reverse South Georgia method, in accordance with tax normalization rules required by Internal Revenue Code Section 203(e) and (2) CWSNC's Unprotected Federal EDIT shall be returned to ratepayers through a levelized rider over a period of four years.

CWSNC will provide the applicable dollar amounts concerning (1) the one-year surcharge credit and (2) the federal EDIT rider (refund) shown as separate line items on individual customers' monthly bills, along with explanatory information.

ISSUED BY ORDER OF THE COMMISSION.

This the 21st day of February, 2019.

NORTH CAROLINA UTILITIES COMMISSION

A. Shonta Dunston, Deputy Clerk

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. W-354, SUB 360

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of Application by Carolina Water Service, Inc. of North Carolina, 4944 Parkway Plaza Boulevard, Suite 375, Charlotte, North Carolina 28217, for Authority to Adjust and Increase Rates for Water and Sewer Utility Service in All of its Service Areas in North Carolina, Except Corolla Light and Monteray Shores Service Area	)	**NOTICE TO CUSTOMERS IN TREASURE COVE, REGISTER PLACE ESATES, NORTH HILLS, AND GLEN ARBOR/NORTH BEND SUBDIVISIONS, FAIRFIELD HARBOUR SERVICE AREA, BRADFIELD FARMS SUBDIVISION, LARKHAVEN SUBDIVISION, SILVERTON AND WOODLAND FARMS SUBDIVISIONS, AND HAWTHORNE AT THE GREEN APARTMENTS**

NOTICE IS HEREBY GIVEN that the North Carolina Utilities Commission has issued an Order authorizing Carolina Water Service, Inc. of North Carolina (CWSNC) to charge the following new rates for water and sewer utility service in Treasure Cove, Register Place Estates, North Hills, and Glen Arbor/North Bend Subdivisions, Fairfield Harbour Service Area, Bradfield Farms Subdivision, Larkhaven Subdivision, Silverton and Woodland Farms Subdivisions, and Hawthorne at the Green Apartments:

WATER RATES AND CHARGES

Monthly Metered Water Service (Residential and Commercial):

Base Facility Charge (based on meter size with zero usage)

< 1" meter	$ 16.74
1" meter	$ 41.85
1½" meter	$ 83.70
2" meter	$ 133.92

Usage Charge, per 1,000 gallons	$ 3.75

Availability Rate: (Monthly rate, billed semiannually)

Applicable only to property owners in Fairfield Harbour Service Area	$ 3.28

SEWER RATES AND CHARGES

Monthly Sewer Service:

Residential:

Flat Rate, per dwelling unit	$ 50.46
Bulk Flat rate, per REU	$ 50.46

Commercial and Other:

Monthly Flat Rate (Customers who do not take water service)	$ 50.46

Monthly Metered Rates
(based on meter size with zero usage)

<1" meter	$ 44.58
1" meter	$111.45
1½" meter	$222.90
2" meter	$356.64
Usage Charge, per 1,000 gallons	$ 1.43

Bulk Sewer Service for Hawthorne at the Green Apartments:

Bulk Flat Rate, per REU	$ 50.46

(To be collected from Hawthorne and delivered to Carolina Water Service, Inc. of North Carolina for treatment of the Hawthorne wastewater pursuant to Docket No. W-218, Sub 291)

Availability Rate: (Monthly rate, billed semiannually)

Applicable only to property owners in Fairfield Harbour Service Area	$ 2.65

RATE ADJUSTMENT MECHANISM:

The Commission-authorized water and sewer system improvement charge (WSIC/SSIC) rate adjustment mechanism continues in effect and will now be applicable to all customers in CWSNC's North Carolina service areas. It has been reset at zero in the Docket No. W-354, Sub 360 rate case. On January 31, 2019, in Docket No. W-354, Sub 360A, CWSNC applied, under the Rules and Regulations of the Commission, for a rate surcharge to become effective April 1, 2019. The WSIC/SSIC mechanism is designed to recover, between rate case proceedings, the costs associated with investment in certain completed, eligible projects for system or water quality improvement. The WSIC/SSIC mechanism is subject to Commission approval and to audit and refund provisions. Any cumulative system improvement charge recovered pursuant to the WSIC/SSIC mechanism may not exceed 5% of the total annual service revenues approved by the Commission in this general rate case proceeding. Additional information regarding the WSIC/SSIC mechanism is contained in the Commission's Order and can be accessed from the Commission's website at www.ncuc.net, under Docket Information, using the Docket Search feature for docket number "W-354 Sub 356A" and "W-354 Sub 360A".

CREDIT/REFUNDS DUE TO REDUCTION IN FEDERAL CORPORATE INCOME TAX RATE:

On December 22, 2017, President Donald J. Trump signed into law the Tax Cuts and Jobs Act (The Tax Act), which among other things, reduced the federal corporate income tax rate from 35% to 21%, effective for taxable years beginning after December 31, 2017. In the present rate case proceeding, CWSNC's revenue requirement reflects the reduction in the federal corporate income tax rate from 35% to 21%, on the Company's ongoing federal income tax expense. Further, the Commission is requiring that CWSNC refund to its customers the overcollection of federal income taxes related to the decrease in the federal corporate income tax rate for the period beginning January 1, 2018, and corresponding interest, through a surcharge credit for a one-year period beginning with the effective date of the new rates.

With respect to excess deferred income taxes (EDIT) resulting from the reduction in the federal corporate income tax rate, the Commission is requiring that: (1) CWSNC's Protected Federal EDIT shall be flowed back to customers over a 45-year period using the Reverse South Georgia method, in accordance with tax normalization rules required by Internal Revenue Code Section 203(e) and (2) CWSNC's Unprotected Federal EDIT shall be returned to ratepayers through a levelized rider over a period of four years.

CWSNC will provide the applicable dollar amounts concerning (1) the one-year surcharge credit and (2) the federal EDIT rider (refund) shown as separate line items on individual customers' monthly bills, along with explanatory information.

ISSUED BY ORDER OF THE COMMISSION.

This the 21st day of February, 2019.

NORTH CAROLINA UTILITIES COMMISSION

A. Shonta Dunston, Deputy Clerk

CERTIFICATE OF SERVICE

I, _____, mailed with sufficient postage or hand delivered to all affected customers the attached Notices to Customers issued by the North Carolina Utilities Commission in Docket No. W-354, Sub 360, and the Notices were mailed or hand delivered by the date specified in the Order.

This the ___ day of _____, 2019.

By: _____
Signature

_____
Name of Utility Company

The above named Applicant, _____, personally appeared before me this day and, being first duly sworn, says that the required Notices to Customers were mailed or hand delivered to all affected customers, as required by the Commission Order dated _____ in Docket No. W-354, Sub 360.

Witness my hand and notarial seal, this the ____ day of _____, 2019.

_____
Notary Public

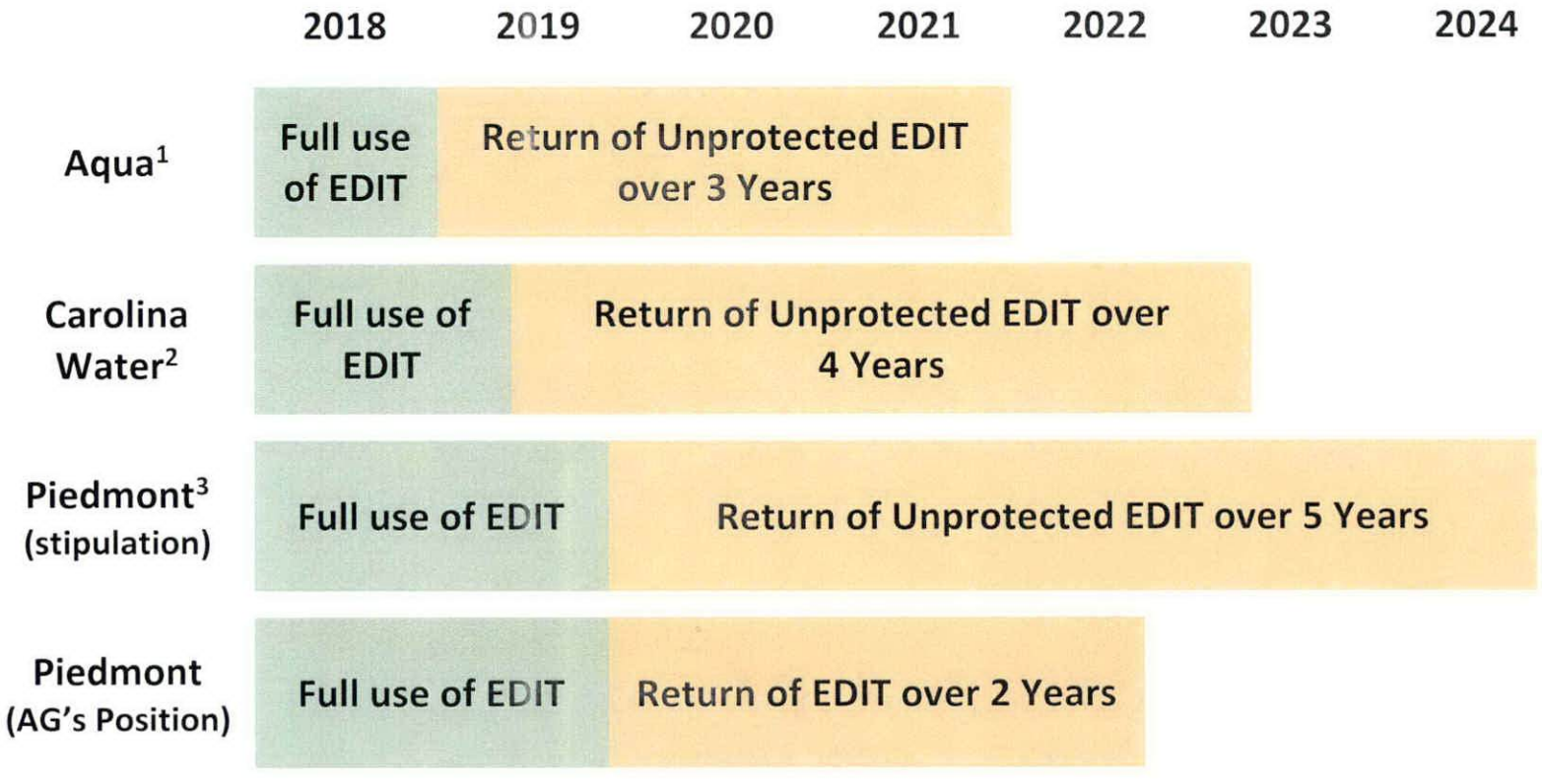
_____
Printed or Typed Name

(SEAL) My Commission Expires: _____
Date

Attorney General Barkley Cross Ex. 3
I/A

Return of Federal Unprotected Excess Deferred Income Taxes

Comparison of recent orders with Stipulation



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[1] In Aqua North Carolina's last general rate case, W-218 Sub 497, on December 18, 2018 the Commission entered the Order Approving Partial Settlement Agreement and Stipulation, Granting Partial Rate Increase, and Requiring Customer Notice, which ordered that unprotected excess accumulated deferred income taxes associated with the reduction in the federal corporate income tax rate (unprotected EDIT) shall be returned by Aqua to ratepayers in a rider to rates over a three year period.

[2] In the general rate case brought by Carolina Water Service, Inc., W-354, Sub 360, the Commission entered an Order Approving Joint Partial Settlement Agreement and Stipulation, Granting Partial Rate Increase, and Requiring Customer Notice on February 21, 2019, ordering the unprotected EDIT to be returned by Carolina Water to ratepayers through a levelized rider to rates over a four-year period.

[3] Assumes an order is entered requiring return of federal unprotected EDIT in accordance with the Stipulation in the fourth quarter of 2019.

Piedmont Woolridge Cross Ex. 1
I/A

S&P Global
Market Intelligence

Rate Case History (Past Rate Cases)

List None
Company List All
States All
Years 2019, 2018, 2017
Service Type Natural Gas

State	Company	Parent Company Ticker	Docket	Rate Case Service Type	Case Type	Filing Date	Rate Increase ($M)	Return on Original Cost Rate (%)	Requested Return on Equity (%)	Requested Common Equity to Total Capital (%)	Rate Base ($M)	Approval Date	Decision Type	Rate Increase ($M)	Phase-In?	Interim Authorized?	Return on Original Cost Rate (%)	Return on Equity (%)	Common Equity to Total Capital (%)	Rate Case Test Year End Date	Rate Base ($M)	Rate Base Valuation Method	Rate Case Duration (months)
New York	Consolidated Edison Co. of NY	ED	C-16-G-0061	Natural Gas	Distribution	1/29/2016	158.9	7.31	9.75	48.00	4,882.14	1/24/2017	Settled	(5.3)	Yes	No	6.82	9.00	48.00	12/2017	4,841.00	Average	12
Georgia	Atlanta Gas Light Co.	SO	D-40828	Natural Gas	Distribution	12/1/2016	0.0	NA	NA	NA	NA	2/21/2017	Settled	20.4	No	No	NA	10.55	51.00	NA	1,973.03	NA	2
District of Columbia	Washington Gas Light Co.	ALA	FC-1137	Natural Gas	Distribution	2/26/2016	17.2	8.23	10.25	57.76	261.87	3/1/2017	Fully Litigated	8.5	No	No	7.57	9.25	55.70	09/2015	255.57	Average	12
Arizona	Southwest Gas Corp.	SWX	D-G-01551A-16-0107	Natural Gas	Distribution	5/2/2016	31.9	7.82	10.25	51.69	1,336.05	4/11/2017	Settled	16.0	No	No	7.42	9.50	51.70	11/2015	1,324.90	Year-end	11
New York	Natl Fuel Gas Distribution Cor	NFG	C-16-G-0257	Natural Gas	Distribution	4/25/2016	41.7	7.81	10.20	48.00	718.14	4/20/2017	Fully Litigated	5.9	No	No	6.92	8.70	42.90	03/2016	704.01	Average	11
Idaho	Intermountain Gas Co.	MDU	C-INT-G-16-2	Natural Gas	Distribution	8/12/2016	10.2	7.42	9.90	50.00	236.93	4/28/2017	Fully Litigated	5.3	No	No	7.30	9.50	50.00	12/2016	235.53	Average	8
Texas	CenterPoint Energy Resources	CNP	D-GUD-10567	Natural Gas	Distribution	11/16/2016	31.4	NA	10.25	55.15	NA	5/23/2017	Settled	16.5	No	No	8.02	9.60	55.15	06/2016	NA	Year-end	6
Delaware	Delmarva Power & Light Co.	EXC	D-16-0650	Natural Gas	Distribution	5/17/2016	22.2	7.19	10.60	49.44	361.32	6/6/2017	Settled	4.9	No	Yes	NA	9.70	NA	12/2015	NA	NA	12
Kentucky	Louisville Gas & Electric Co.	PPL	C-2016-00371 (gas)	Natural Gas	Distribution	11/23/2016	13.8	7.24	10.23	53.27	706.90	6/22/2017	Settled	6.8	No	No	NA	9.70	NA	NA	NA	NA	7
New Jersey	Elizabethtown Gas Co.	SJI	D-GR-16090826	Natural Gas	Distribution	8/31/2016	20.1	7.17	10.25	49.15	728.89	6/30/2017	Settled	13.3	No	No	6.71	9.60	48.00	03/2017	720.00	Year-end	10
Montana	NorthWestern Corp.	NWE	D-D2016.9.68	Natural Gas	Distribution	9/30/2016	9.4	7.33	10.35	46.79	431.94	7/20/2017	Settled	5.2	No	No	6.96	9.55	46.79	12/2015	NA	Average	9
Michigan	Consumers Energy Co.	CMS	C-U-18124	Natural Gas	Distribution	8/1/2016	80.0	6.17	10.60	41.27	4,401.96	7/31/2017	Fully Litigated	29.2	No	Yes	5.97	10.10	41.27	12/2017	4,304.49	Average	12
Oregon	Avista Corp.	AVA	D-UG 325	Natural Gas	Distribution	11/30/2016	6.7	7.80	9.90	50.00	240.75	9/13/2017	Settled	3.5	No	No	7.35	9.40	50.00	09/2018	229.93	Average	9
Maryland	Columbia Gas of Maryland Inc	NI	C-9447	Natural Gas	Distribution	4/14/2017	5.0	7.98	10.90	52.37	95.18	9/19/2017	Settled	2.4	No	No	7.35	9.70	NA	04/2017	NA	NA	5
Alaska	ENSTAR Natural Gas Co.	ALA	D-U-16-066	Natural Gas	Distribution	6/1/2016	11.8	8.92	12.55	51.68	286.49	9/22/2017	Fully Litigated	5.8	No	Yes	8.59	11.88	51.81	12/2015	274.14	Average	15
South Carolina	Piedmont Natural Gas Co.	DUK	D-2017-7-G	Natural Gas	Distribution	6/15/2017	17.2	8.87	12.60	53.00	304.80	9/27/2017	Settled	5.5	No	No	7.60	10.20	53.00	03/2017	304.08	Year-end	3
New Jersey	South Jersey Gas Co.	SJI	D-GR-17010071	Natural Gas	Distribution	1/27/2017	87.7	7.66	11.00	54.24	1,635.11	10/20/2017	Settled	39.5	No	No	6.80	9.60	52.50	08/2017	1,612.09	Year-end	8
California	San Diego Gas & Electric Co.	SRE	Advice No. 2611-G	Natural Gas	Distribution	9/29/2017	(2.0)	7.55	10.20	52.00	NA	10/26/2017	Settled	(2.0)	No	No	7.55	10.20	52.00	12/2018	NA	NA	0
California	Southern California Gas Co.	SRE	Advice No. 5192	Natural Gas	Distribution	9/29/2017	(35.1)	7.34	10.05	52.00	NA	10/30/2017	Settled	(35.1)	No	No	7.34	10.05	52.00	12/2018	NA	NA	1
Virginia	Washington Gas Light Co.	ALA	C-PUR-2017-00102 (SAVE)	Natural Gas	Limited-Issue F	7/26/2017	18.2	7.35	9.50	59.63	93.34	11/21/2017	Fully Litigated	16.4	No	No	7.35	9.50	59.63	12/2018	93.34	Average	3
Washington	Puget Sound Energy Inc.		D-UG-170034	Natural Gas	Distribution	1/13/2017	22.8	7.74	9.80	48.50	1,760.69	12/5/2017	Settled	16.8	No	No	7.60	9.50	48.50	09/2017	1,765.44	Average	10
Wisconsin	Northern States Power Co - WI	XEL	D-4220-UR-123 (Gas)	Natural Gas	Distribution	5/4/2017	12.0	7.84	10.00	52.53	138.45	12/7/2017	Fully Litigated	9.9	No	No	7.56	9.80	51.45	12/2018	137.66	Average	7
Connecticut	Southern Connecticut Gas Co.	IBE	D-17-05-42	Natural Gas	Distribution	5/30/2017	19.2	7.79	9.95	52.19	633.88	12/13/2017	Settled	11.2	Yes	No	7.42	9.25	52.19	12/2018	617.78	Average	5
Idaho	Avista Corp.	AVA	C-AVU-G-17-01	Natural Gas	Distribution	6/9/2017	5.6	7.81	9.90	50.00	146.45	12/28/2017	Settled	2.3	Yes	No	7.61	9.50	50.00	12/2016	145.94	Year-end	6
Illinois	Northern Illinois Gas Co.	SO	D-17-0124	Natural Gas	Distribution	3/10/2017	184.5	7.87	10.70	54.50	2,516.69	1/31/2018	Fully Litigated	93.5	No	No	7.26	9.80	52.00	12/2018	2,422.25	Average	10
Missouri	Missouri Gas Energy	SR	C-GR-2017-0216	Natural Gas	Distribution	4/11/2017	52.2	7.50	10.35	54.20	843.68	2/21/2018	Fully Litigated	15.2	No	No	7.20	9.80	54.16	12/2016	807.35	Year-end	10
Missouri	Spire Missouri Inc.	SR	C-GR-2017-0215	Natural Gas	Distribution	4/11/2017	60.5	7.50	10.35	54.20	1,315.95	2/21/2018	Fully Litigated	18.0	No	No	7.20	9.80	54.16	12/2016	1,220.58	Year-end	10
Maine	Northern Utilities Inc.	UTL	D-2017-00065	Natural Gas	Distribution	5/31/2017	3.5	8.01	10.30	51.70	180.10	2/28/2018	Fully Litigated	(0.1)	No	No	7.53	9.50	50.00	12/2016	170.90	Average	9
New York	Niagara Mohawk Power Corp.	NG	C-17-G-0239	Natural Gas	Distribution	4/28/2017	69.7	6.93	9.79	48.00	1,222.04	3/15/2018	Settled	46.5	Yes	No	6.53	9.00	48.00	03/2019	1,231.78	Average	10
Florida	Pivotal Utility Holdings Inc.	NEE	20170179-GU	Natural Gas	Distribution	10/23/2017	12.3	6.57	11.25	41.23	303.22	3/26/2018	Settled	15.3	Yes	Yes	NA	10.19	48.00	12/2018	NA	NA	5
Washington	Avista Corp.	AVA	D-UG-170486	Natural Gas	Distribution	5/26/2017	7.6	7.76	9.90	50.00	319.54	4/26/2018	Fully Litigated	(2.1)	No	No	7.50	9.50	48.50	12/2016	310.10	Average	11
New Hampshire	Liberty Utilities EnergyNorth	AQN	D-DG-17-048	Natural Gas	Distribution	4/28/2017	14.5	7.36	9.40	50.00	252.00	4/27/2018	Fully Litigated	8.1	Yes	Yes	6.80	9.30	49.21	12/2016	244.39	Year-end	12
New Hampshire	Northern Utilities Inc.	UTL	D-DG-17-070	Natural Gas	Distribution	6/5/2017	4.7	8.30	10.30	51.70	131.49	5/2/2018	Settled	0.9	Yes	Yes	7.59	9.50	51.70	12/2016	131.66	Year-end	11
Kentucky	Atmos Energy Corp.	ATO	C-2017-00349	Natural Gas	Distribution	9/28/2017	1.8	7.72	10.30	52.57	427.15	5/3/2018	Fully Litigated	(1.8)	No	No	7.41	9.70	52.57	03/2019	427.65	Average	7
Montana	MDU Resources Group Inc.	MDU	D2017.9.79	Natural Gas	Distribution	9/25/2017	1.6	7.47	9.90	51.62	53.74	5/29/2018	Settled	1.0	No	No	NA	9.40	NA	NA	NA	NA	8
Missouri	Liberty Utilities (Midstates)	AQN	C-GR-2018-0013	Natural Gas	Distribution	9/29/2017	7.1	7.64	10.25	53.00	104.97	6/6/2018	Settled	4.6	No	No	NA	9.80	NA	06/2017	97.82	Year-end	8
New York	Central Hudson Gas & Electric	FTS	C-17-G-0460	Natural Gas	Distribution	7/28/2017	22.2	6.99	9.50	50.00	380.37	6/14/2018	Settled	6.7	Yes	No	6.44	8.80	48.00	06/2019	368.52	Average	10
Wyoming	Black Hills	BKH	D-30011-97-GR-17	Natural Gas	Distribution	11/17/2017	1.2	8.00	10.20	54.00	13.03	7/16/2018	Settled	1.0	No	No	7.75	9.60	54.00	06/2017	12.91	Year-end	8
Washington	Northwest Wyoming Cascade Natural Gas Corp.	MDU	D-UG-170929	Natural Gas	Distribution	8/31/2017	(1.7)	7.60	9.90	50.00	311.36	7/20/2018	Settled	(2.9)	No	No	7.31	9.40	49.00	12/2016	280.73	Average	10
Virginia	Virginia Natural Gas Inc.	SO	C-PUR-2018-00079 (SAVE)	Natural Gas	Limited-Issue F	5/31/2018	3.2	6.86	9.50	48.74	51.81	8/15/2018	Fully Litigated	3.2	No	No	6.86	9.50	48.74	06/2019	51.81	Average	2
Rhode Island	Narragansett Electric Co.	NG	D-4770 (gas)	Natural Gas	Distribution	11/27/2017	15.5	7.67	10.10	50.97	765.22	8/24/2018	Settled	17.4	Yes	No	7.15	9.28	50.95	06/2017	788.69	Average	9
Michigan	Consumers Energy Co.	CMS	C-U-18424	Natural Gas	Distribution	10/31/2017	82.6	6.17	10.75	40.91	5,437.58	8/28/2018	Settled	10.6	No	No	5.86	10.00	40.91	06/2019	NA	Average	10
Michigan	DTE Gas Co.	DTE	C-U-18999	Natural Gas	Distribution	11/22/2017	38.1	5.75	10.50	38.30	4,256.67	9/13/2018	Fully Litigated	9.0	No	No	5.56	10.00	38.30	09/2019	4,236.43	Average	9
Wisconsin	Wisconsin Power and Light Co	LNT	D-6680-UR-121 (Gas)	Natural Gas	Distribution	5/24/2018	0.0	6.97	10.00	NA	386.92	9/14/2018	Settled	0.0	No	No	6.97	10.00	52.00	12/2020	386.92	Average	3
Indiana	Northern IN Public Svc Co.	NI	Ca-44988	Natural Gas	Distribution	9/27/2017	138.1	6.90	10.70	46.88	1,520.21	9/19/2018	Settled	107.3	Yes	No	6.50	9.85	46.88	12/2018	1,520.21	Year-end	11
Wisconsin	Madison Gas and Electric Co.	MGEE	D-3270-UR-122 (Gas)	Natural Gas	Distribution	7/17/2018	4.1	7.10	9.80	56.06	250.74	9/20/2018	Settled	4.1	Yes	No	7.10	9.80	56.06	12/2020	250.74	Average	2
North Dakota	MDU Resources Group Inc.	MDU	C-PU-17-295	Natural Gas	Distribution	7/21/2017	3.6	7.54	10.00	51.00	136.86	9/26/2018	Settled	2.5	No	Yes	7.24	9.40	51.00	12/2018	NA	Average	14
South Carolina	Piedmont Natural Gas Co.	DUK	D-2018-7-G	Natural Gas	Distribution	6/15/2018	(4.0)	8.87	NA	53.00	341.63	9/26/2018	Settled	(13.9)	No	No	7.60	10.20	53.00	03/2018	341.42	Year-end	3
Massachusetts	Boston Gas Co.	NG	DPU-17-170 (Boston Gas)	Natural Gas	Distribution	11/15/2017	136.5	7.54	10.50	53.04	1,733.50	9/28/2018	Fully Litigated	100.8	No	No	7.01	9.50	53.04	12/2018	1,727.44	Year-end	10
Massachusetts	Colonial Gas Co.	NG	DPU-17-170 (Colonial Gas)	Natural Gas	Distribution	11/15/2017	25.6	7.71	10.50	53.04	411.48	9/28/2018	Fully Litigated	17.8	No	No	7.18	9.50	53.04	12/2018	410.44	Year-end	10
Arkansas	Black Hills Energy Arkansas	BKH	D-17-071-U	Natural Gas	Distribution	12/15/2017	18.5	6.06	10.20	42.46	547.72	10/5/2018	Settled	22.6	No	No	5.62	9.61	40.43	12/2017	546.16	Year-end	9
Tennessee	Chattanooga Gas Co.	SO	D-18-00017	Natural Gas	Distribution	2/15/2018	6.2	7.83	11.25	49.23	157.80	10/15/2018	Settled	1.4	NA	NA	7.12	9.80	49.23	06/2019	149.74	Average	8
Oregon	Northwest Natural Gas Co.	NWN	D-UG-344	Natural Gas	Distribution	12/29/2017	37.8	7.62	10.00	50.00	1,214.90	10/26/2018	Settled	24.9	No	No	7.32	9.40	50.00	10/2019	1,201.79	Average	10
New Jersey	Public Service Electric Gas	PEG	D-GR18010030	Natural Gas	Distribution	1/12/2018	246.8	7.36	10.30	54.00	4,242.98	10/29/2018	Settled	123.1	No	No	6.99	9.60	54.00	06/2018	4,035.00	Year-end	9

Illinois	Ameren Illinois	AEE	D-18-0463	Natural Gas	Distribution	1/31/2018	38.2	7.14	9.87	50.00	1,595.54	11/1/2018	Settled	31.7	No	No	7.14	9.87	50.00	12/2019	1,588.06 Average	9
Delaware	Delmarva Power & Light Co.	EXC	D-17-0978	Natural Gas	Distribution	8/17/2017	3.8	6.98	10.10	50.20	355.93	11/8/2018	Settled	(3.5)	No	Yes	6.78	9.70	50.52	12/2017	NA NA	14
Minnesota	Minnesota Energy Resources	WEC	D-G-011/GR-17-563	Natural Gas	Distribution	10/13/2017	4.7	7.00	10.30	50.90	284.29	11/8/2018	Fully Litigated	3.1	No	Yes	6.70	9.70	50.90	12/2018	284.30 Average	13
Maryland	Washington Gas Light Co.	ALA	C-9481	Natural Gas	Distribution	5/15/2018	56.8	7.60	10.30	51.69	1,097.13	12/11/2018	Fully Litigated	29.1	No	No	7.30	9.70	51.69	03/2018	1,011.59 Average	7
Connecticut	Yankee Gas Services Co.	ES	D-18-05-10	Natural Gas	Distribution	6/15/2018	86.1	7.57	10.25	53.76	1,573.24	12/12/2018	Settled	30.2	Yes	No	7.06	9.30	53.76	12/2017	1,446.41 Average	6
Iowa	Interstate Power & Light Co.	LNT	D-RPU-2018-0002	Natural Gas	Distribution	5/2/2018	19.8	7.49	9.80	53.00	509.02	12/13/2018	Settled	13.9	No	Yes	7.29	9.60	51.00	12/2017	491.45 Average	7
Connecticut	CT Natural Gas Corp.	IBE	D-18-05-16	Natural Gas	Distribution	6/29/2018	27.8	7.82	10.20	55.00	537.83	12/19/2018	Settled	19.7	Yes	No	7.32	9.30	55.00	12/2017	534.22 Average	5
Colorado	Public Service Co. of CO	XEL	D-17AL-0363G	Natural Gas	Distribution	6/2/2017	23.5	7.18	9.35	56.00	1,526.37	12/21/2018	Fully Litigated	22.0	No	Yes	7.12	9.35	54.60	12/2016	1,527.01 Average	18
Nevada	Southwest Gas Corp.	SWX	D-18-05031 (Southern)	Natural Gas	Distribution	5/29/2018	28.3	7.16	10.30	49.66	1,116.27	12/24/2018	Fully Litigated	9.2	No	No	6.65	9.25	49.66	01/2018	1,110.38 Year-end	6
Nevada	Southwest Gas Corp.	SWX	D-18-05031 (Northern)	Natural Gas	Distribution	5/29/2018	1.4	7.51	10.30	49.66	136.14	12/24/2018	Fully Litigated	(2.1)	No	No	6.98	9.25	49.66	01/2018	134.23 Year-end	6
Maryland	Baltimore Gas and Electric Co.	EXC	C-9484	Natural Gas	Distribution	6/8/2018	82.8	7.46	10.50	52.85	1,703.42	1/4/2019	Fully Litigated	64.9	No	No	7.09	9.80	52.85	07/2018	1,646.01 Average	7
Massachusetts	Berkshire Gas Co.	IBE	DPU 18-40	Natural Gas	Distribution	5/17/2018	4.1	8.94	10.35	61.48	95.83	1/18/2019	Settled	2.4	No	No	8.33	9.70	54.00	12/2017	NA NA	8
New York	Orange & Rockland Utils Inc.	ED	C-18-G-0068	Natural Gas	Distribution	1/26/2018	(0.5)	7.35	9.75	48.00	453.64	3/14/2019	Settled	(7.5)	Yes	No	6.97	9.00	48.00	12/2019	464.01 Average	13
Kentucky	Duke Energy Kentucky Inc.	DUK	C-2018-00261	Natural Gas	Distribution	8/31/2018	10.5	7.18	9.90	50.76	313.68	3/27/2019	Settled	7.4	No	No	7.07	9.70	50.76	03/2020	313.42 Average	6
Kentucky	Louisville Gas & Electric Co.	PPL	C-2018-00295 (gas)	Natural Gas	Distribution	9/28/2018	24.9	7.62	10.42	52.84	788.38	4/30/2019	Settled	18.6	No	No	NA	9.73	NA	04/2020	NA NA	7
Kentucky	Atmos Energy Corp.	ATO	C-2018-00281	Natural Gas	Distribution	9/28/2018	14.4	7.93	10.40	58.06	496.01	5/7/2019	Fully Litigated	(0.3)	No	No	7.49	9.65	58.06	03/2020	424.93 Average	7
Texas	Atmos Energy Corp.	ATO	D-GUD-10779 (Mid-Tex Division)	Natural Gas	Distribution	10/11/2018	4.3	8.39	10.50	60.18	2,574.00	5/21/2019	Settled	2.2	No	No	7.97	9.80	60.18	12/2017	2,572.77 Year-end	7
Average									**10.26**	**51.26**								**9.64**	**50.76**			
Median									**10.25**	**51.69**								**9.60**	**51.00**			

Piedmont Wolridge Cross Ex. 2
I/A

S&P Global
Market Intelligence

Source: S&P Global Market Intelligence

Table 5: Electric and gas utility decisions

Electric utility decisions

Date	Company	State	ROR (%)	ROE (%)	Common equity as % of capital	Test year	Rate base	Rate change amount ($)	Footnotes
1/2/19	Appalachian Power Company	VA	7.76	10.40	—	2/20	Average	7.2	B, LIR,1
1/2/19	Monongahela Power Company	WV	—	—	—	6/18	—	-100.9	B, LIR,2
1/9/19	Consumers Energy Company	MI	—	10.00	—	12/19	Average	-24.0	B
2/21/19	Puget Sound Energy Inc.	WA	—	—	—	6/18	Year-end	0.0	B,3
2/27/19	Virginia Electric and Power Company	VA	6.87	9.20	51.37	3/20	—	-4.0	LIR,4
2/27/19	Virginia Electric and Power Company	VA	6.87	9.20	51.37	3/20	Average	38.4	LIR,5
2/27/19	Virginia Electric and Power Company	VA	7.38	10.20	51.37	3/20	Average	-8.6	LIR,6
2/27/19	Virginia Electric and Power Company	VA	7.38	10.20	51.37	3/20	Average	-3.5	LIR,7
2/27/19	Virginia Electric and Power Company	VA	7.38	10.20	51.37	3/20	Average	-4.3	LIR,8
2/27/19	Appalachian Power Company	WV	7.28	9.75	50.16	12/17	Average	44.2	B
3/6/19	Oklahoma Gas and Electric Company	AR	5.27	—	37.31	3/20	Year-end	3.3	B,9,*
3/13/19	Atlantic City Electric Company	NJ	7.08	9.60	49.94	12/18	Year-end	70.0	B, D
3/14/19	Orange and Rockland Utilities Inc.	NY	6.97	9.00	48.00	12/19	Average	13.4	B, D, Z
3/14/19	Public Service Company of Oklahoma	OK	6.97	9.40	—	3/18	—	46.0	B
3/22/19	Potomac Edison Company	MD	7.15	9.65	52.82	6/18	Average	6.2	D
2019	**1st quarter: averages/total**		**7.03**	**9.73**	**49.51**			**83.5**	
	Observations		**12**	**12**	**10**			**15**	
4/2/19	Duke Energy Florida LLC	FL	—	10.50	—	—	—	29.2	B, LIR,10
4/15/19	Virginia Electric and Power Company	VA	6.87	9.20	51.37	2/20	Average	10.4	LIR,11
4/23/19	Emera Maine	ME	—	—	—	—	—	—	D,12
4/30/19	Kentucky Utilities Company	KY	—	9.73	—	4/20	—	55.9	B
4/30/19	Louisville Gas and Electric Company	KY	—	9.73	—	4/20	—	2.1	B
5/1/19	Duke Energy Carolinas LLC	SC	7.16	9.50	53.00	12/17	Year-end	106.9	
5/2/19	DTE Electric Company	MI	5.48	10.00	37.94	4/20	Average	273.3	*
5/2/19	Appalachian Power Company	VA	—	9.42	—	6/20	—	0.0	LIR,13
5/2/19	Virginia Electric and Power Company	VA	6.87	9.20	51.37	6/20	—	17.9	LIR,14
5/8/19	Duke Energy Progress LLC	SC	6.99	9.50	53.00	12/17	Year-end	41.5	
5/14/19	Otter Tail Power Company	SD	7.09	8.75	52.92	12/17	Average	4.8	I
5/16/19	Southern California Edison Company	CA	7.43	—	—	12/18	Average	-523.0	Z
5/16/19	Maui Electric Company Ltd.	HI	7.43	9.50	57.02	12/18	Average	12.2	I
5/23/19	Upper Peninsula Power Company	MI	6.91	9.90	—	12/19	Average	1.8	B
5/29/19	Southern Indiana Gas and Electric Company	IN	—	—	—	10/18	Year-end	4.1	LIR,15
6/12/19	Northern Indiana Public Service Company	IN	—	—	—	11/18	Year-end	16.7	LIR,15
6/18/19	MDU Resources Group Inc.	MT	—	—	—	12/17	—	9.3	B, I,Z
	2nd quarter: averages/total		**6.91**	**9.58**	**50.95**			**62.9**	
	Observations		**9**	**12**	**7**			**16**	
2019	**1st half: averages/total**		**6.98**	**9.66**	**50.10**			**146.4**	
	Observations		**21**	**24**	**17**			**31**	

Gas utility decisions

Date	Company	State	ROR (%)	ROE (%)	Common equity as % of capital	Test year	Rate base	Rate change amount ($)	Footnotes

1/4/19	Baltimore Gas and Electric Company	MD	7.09	9.80	52.85	7/18	Average	64.9	
1/8/19	Oklahoma Natural Gas Company	OK	—	—	—	12/17	—	-5.9	B,16
1/18/19	Berkshire Gas Company	MA	8.33	9.70	54.00	12/17	—	2.4	B
1/29/19	Indiana Gas Company, Inc.	IN	—	—	—	6/18	Year-end	-13.1	LIR,17
1/29/19	Southern Indiana Gas and Electric Company	IN	—	—	—	6/18	Year-end	-0.8	LIR,17
2/5/19	Kansas Gas Service Company, Inc.	KS	—	—	—	12/17	—	21.5	B
2/21/19	Puget Sound Energy, Inc.	WA	—	—	—	6/18	Year-end	21.5	B,3
3/14/19	Orange and Rockland Utilities, Inc.	NY	6.97	9.00	48.00	12/19	Average	-7.5	B, Z
3/27/19	Duke Energy Kentucky, Inc.	KY	7.07	9.70	50.76	3/20	Average	7.4	B
2019	**1st quarter: averages/total**		**7.37**	**9.55**	**51.40**			**90.4**	
	Observations		**4**	**4**	**4**			**9**	
4/23/19	Atmos Energy Corporation	KS	—	—	—	12/18	—	1.6	LIR,18
4/30/19	Delta Natural Gas Company, Inc.	KY	—	—	—	12/18	Year-end	2.7	LIR,19
4/30/19	Louisville Gas and Electric Company	KY	—	9.73	—	4/20	—	18.6	B
5/3/19	Missouri Gas Energy	MO	—	—	—	11/18	—	6.8	LIR,20
5/3/19	Spire Missouri Inc.	MO	—	—	—	11/18	—	6.4	LIR,20
5/7/19	Atmos Energy Corporation	KY	7.49	9.65	58.06	3/20	Average	-0.3	
5/20/19	Atmos Energy Corporation	TN	7.79	—	58.38	5/20	Average	0.0	B,21
5/21/19	Atmos Energy Corporation	TX	7.97	9.80	60.18	12/17	Year-end	2.2	B
6/12/19	Columbia Gas of Virginia, Incorporated	VA	—	—	—	12/17	—	9.5	B, I,22
	2nd quarter: averages/total		**7.75**	**9.73**	**58.87**			**47.6**	
	Observations		**3**	**3**	**3**			**9**	
2019	**1st half: averages/total**		**7.53**	**9.63**	**54.60**			**137.9**	
	Observations		**7**	**7**	**7**			**18**	

Data compiled July 19, 2019.

Source: Regulatory Research Associates, a group within S&P Global Market Intelligence

Footnotes

A- *Average.*

B- *Order followed stipulation or settlement by the parties. Decision particulars not necessarily precedent-setting or specifically adopted by the regulatory body.*

CWIP- *Construction work in progress.*

D- *Applies to electric delivery only.*

DCt *Date certain rate base valuation.*

E- *Estimated.*

F- *Return on fair-value rate base.*

Hy- *Hypothetical capital structure utilized.*

I- *Interim rates implemented prior to the issuance of final order, normally under bond and subject to refund.*

LIR *Limited-issue rider proceeding.*

M- *"Make-whole" rate change based on return on equity or overall return authorized in previous case.*

R- *Revised.*

Te- *Temporary rates implemented prior to the issuance of final order.*

Tr- *Applies to transmission service.*

U- *Double leverage capital structure utilized.*

YE- *Year-end.*

Z- *Rate change implemented in multiple steps.*

* *Capital structure includes cost-free items or tax credit balances at the overall rate of return.*

1 *This case addresses the company's investment in the Dresden Generating Plant.*

2 *Relates to company's expanded net energy cost proceeding.*

3 *Rates were established under an expedited rate filing.*

4 *Rate change was approved under Rider B, which is the mechanism through which the company recovers the costs associated with the conversion of the Altavista, Hopewell and Southampton power stations to burn biomass fuels.*

5 *Rate change was approved under Rider GV, which is the mechanism through which the company recovers its investment in the Greensville County generation facility.*

6 *Rate change was approved under Rider R, which is the mechanism through which the company recovers its investment in the Bear Garden power plant.*

7 *Rate change was approved under Rider S, which is the mechanism through which the company recovers its investment in the Virginia City Hybrid Energy Center.*

8 *Rate change was approved under Rider W, which is the mechanism through which the company recovers its investment in the Warren County generation facility.*

9 *Rate change pursuant to company's formula rate plan.*

10 *Reflects recovery of two solar projects, a 74.9-MW facility in Hamilton County, Fla., and a 74.9-MW facility in Columbia County, Fla.*

11 *Reflects recovery of two utility-scale solar generation facilities, the 142-MW Colonial Trail West Solar Facility and the 98-MW AC Spring Grove 1 Solar Facility.*

12 *Rate case withdrawn at company request.*

13 *Modest revenue requirement increase authorized under company's energy efficiency rider.*

14 *Rate change was approved under Rider DSM, which is the mechanism through which the company is permitted to collect a cash return on demand-side management program costs.*

15 *Case involves company's transmission, distribution and storage system improvement charge, or TDSIC, rate adjustment mechanism.*

16 *Rate change pursuant to company's performance-based regulation plan.*

17 *Case established the rates to be charged to customers under the company's compliance and system improvement adjustment, or CSIA, mechanism.*

18 *Case involves company's gas system reliability surcharge.*

19 *Case involves the company's pipe replacement program rider.*

20 *Case involves the company's infrastructure system replacement surcharge rider.*

21 *Rate change under company's annual rate mechanism.*

22 *While settlement is silent with respect to the ROE underlying the rate increase, a 9.7% ROE is to be used for future non-base-rate revenue requirement changes and for the annual earnings test.*

Piedmont Wooldridge Gross Ex. 3
F/A

S&P Global
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July 22, 2019
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RRA Regulatory Focus
Major Rate Case Decisions — January-June 2019

For Detailed Data

Click here to see supporting data tables.

Average authorized electric and gas ROEs moved up sligthly overall in the first half of 2019 versus calendar 2018.

Notably, the average authorized ROE was flat or increased in all case subcategories except vertically integrated electric rate cases.

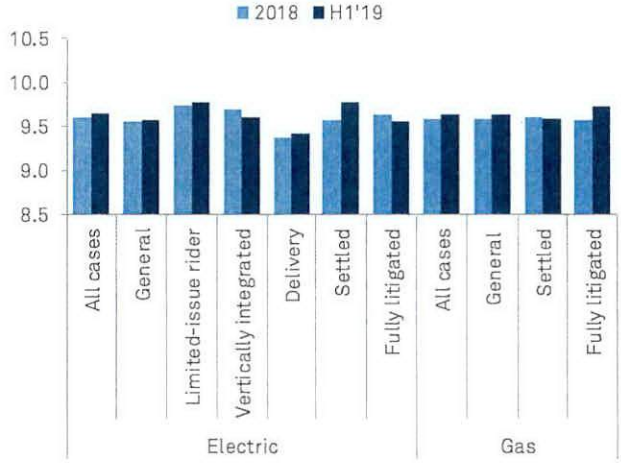
The average ROE authorized electric utilities was 9.66% in rate cases decided during the first half of 2019, versus the 9.60% average for cases decided in calendar-2018. There were 24 electric ROE determinations in the first half of 2019 versus 48 in the full year 2018.

This data includes several limited-issue rider cases. Excluding these cases, the average authorized ROE was 9.57% in electric rate cases decided in the first half of 2019, largely in line with the 9.56% average observed in 2018. The difference between the ROE averages including rider cases and those excluding the rider cases is largely driven by ROE premiums of up to 200 basis points approved by the Virginia State Corporation Commission in riders related to certain generation projects (see the Virginia Commission Profile).

The average ROE authorized gas utilities was 9.63% in cases decided during the first half of 2019, just above the 9.59% in full-year 2018. There were only seven gas cases that included an ROE determination in the first six months of 2019, versus 40 in 2018. In the first six months of 2019, the median authorized ROE for all electric utilities was 9.63% versus 9.58% in full-year 2018. For gas utilities, the median authorized ROE in the first six months of 2019 was 9.70% versus 9.60% in 2018.

From a longer-term perspective, interest rates, as measured by the 30-year U.S. Treasury bond yield, fell almost steadily from the early 1980s until 2015 or so, placing downward pressure on authorized ROEs. Even though the decline has been less dramatic in the period since 1990, average authorized ROEs fell below 10% for gas utilities in 2011 and for electric utilities in 2014.

Average authorized return on equity (%)
Dashboard



Electric average	2018	H1'19	
All cases	9.60	9.66	▲
General rate cases	9.56	9.57	▲
Limited-issue rider cases	9.74	9.77	▲
Vertically integrated cases	9.70	9.61	▼
Delivery cases	9.38	9.42	▲
Settled cases	9.57	9.77	▲
Fully litigated cases	9.63	9.56	▼
Gas average	**2018**	**H1'19**	
All cases	9.59	9.63	▲
General rate cases	9.59	9.63	▲
Settled cases	9.60	9.59	▼
Fully litigated cases	9.57	9.73	▲
U.S. Treasury	**2018**	**H1'19**	
30-year bond yield	3.11	2.89	▼

Data compiled July 19, 2019.
Source: Regulatory Research Associates, a group within S&P Global Market Intelligence

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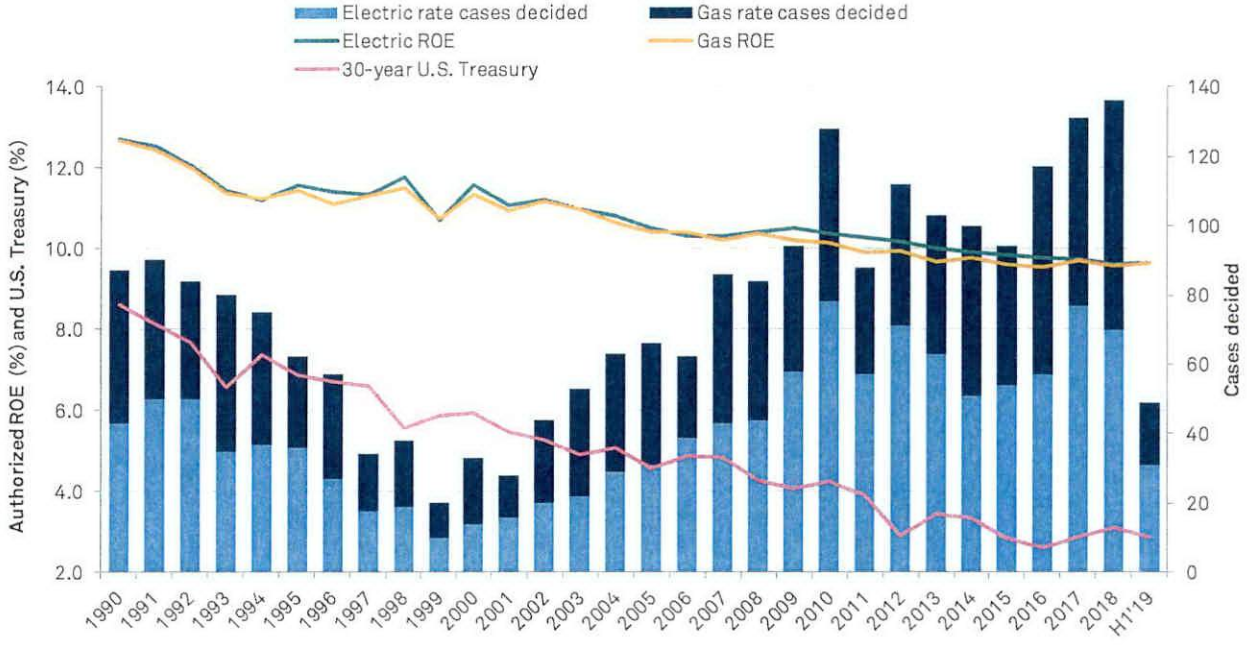
Average electric and gas authorized ROEs and number of rate cases decided



Data compiled July 19, 2019.
Source: Regulatory Research Associates, a group within S&P Global Market Intelligence

After reaching an almost 30-year high in 2018, when almost 140 cases were decided, rate case activity has moderated thus far in 2019, with only 49 electric and gas cases resolved in the first half. Since 2010, rate case activity has been robust, with 100 or more cases adjudicated in seven of the last nine calendar years. This count includes electric and gas cases where no ROEs have been specified; however, withdrawn cases are not included. With more than 110 cases currently pending, it appears that the tally for 2019 will again top 100 cases decided.

Increased costs associated with environmental compliance, generation and delivery infrastructure upgrades and expansion, renewable generation mandates, storm and disaster recovery, cybersecurity and employee benefits have contributed to an active rate case agenda over the last decade. In the last couple of years, the need to address the impacts of the 2017 federal tax reform has caused rate case agendas to be more active than previously expected. Regulatory Research Associates, a group within S&P Global Market Intelligence, expects this trend to continue for the foreseeable future in light of the utilities' robust capital spending plans.

Rising interest rates over the past several years also likely contributed to the increased rate case activity. In 2015, the Federal Reserve began to gradually raise the federal funds rate. Subsequent to that hike, the Fed has increased rates by 25 basis points eight times, with the most recent hike occurring in December 2018, bringing the federal funds rate to the range of 2.25% to 2.5%. Additional increases were initially anticipated in 2019. However, with concerns of slowing growth and the impact of U.S.-China trade tensions negatively weighing on the U.S. economy, the Fed is expected to cut rates for the first time since late 2008. Analysts now expect a quarter-basis point reduction in the federal funds rate by the end of July, with the potential for additional cuts by year-end.

While increases in the federal funds rate do not move in lockstep with longer-term treasuries and authorized ROEs do not move in lockstep with interest rates, the expectation is that as interest rates change, authorized ROEs would also begin to change in similar fashion. However, several factors impact the timing and magnitude of this anticipated shift. Normal regulatory lag, i.e., the amount of time it takes for a utility to put together a rate case filing and tender it to the

commission and then for the commission to process the case, would without any other influences delay a change in average authorized ROEs relative to interest rates.

It is also worth noting that while both interest rates and authorized ROEs have generally been declining since 1990, the gap between authorized ROEs and interest rates widened somewhat over this period, largely as a result of an often-unstated understanding by regulators that the drop in interest rates caused by Federal Reserve intervention was unusual. Consequently, regulators may wait to see authorized ROEs return to a more "normal" premium above prevailing interest rates before embracing higher equity returns.

Capital structure trends

To offset the negative cash flow impact of federal tax reform, many utilities sought higher common equity ratios, and the average authorized equity ratios adopted by utility commissions in the first six months of 2019 were modestly higher than the levels observed in 2018 and 2017. The average authorized equity ratio for electric utility cases nationwide was 50.10% in the first six months of 2019, 49.02% in full-year 2018 and 48.90% in 2017. The average allowed equity ratio for gas utilities nationwide was 54.60% in the first six months of 2019, 50.09% in 2018 and 49.88% in 2017.

The aforementioned averages include allowed equity ratios adopted by utility commissions in Arkansas, Florida, Indiana and Michigan — jurisdictions that authorize capital structures that include cost-free items or tax credit balances. Excluding these jurisdictions, the average authorized equity ratio for electric utilities nationwide was 51.76% for the first six months of 2019, 50.53% in cases decided during 2018 and 50.02% in 2017. For gas utilities, there were no determinations from the aforementioned states thus far in 2019, however, excluding these jurisictions from prior years, the average allowed equity ratio was 51.47% in 2018 versus 51.13% in 2017.

Taking a longer-term view, equity ratios have generally increased over the last 15 years — the average equity ratio approved in electric rate cases decided during 2004 was 46.96%, while the average for gas utilities was 45.81%. Many commissions began approving more equity-rich capital structures in the wake of the 2008 financial crisis.

A more granular look at ROE trends

The discussion thus far has looked broadly at trends in authorized ROEs; the sections that follow provide a more granular view based upon the types of proceedings/decisions in which these ROEs were established.

RRA has observed that there can be significant differences between the ROE averages from one subcategory of cases to another.

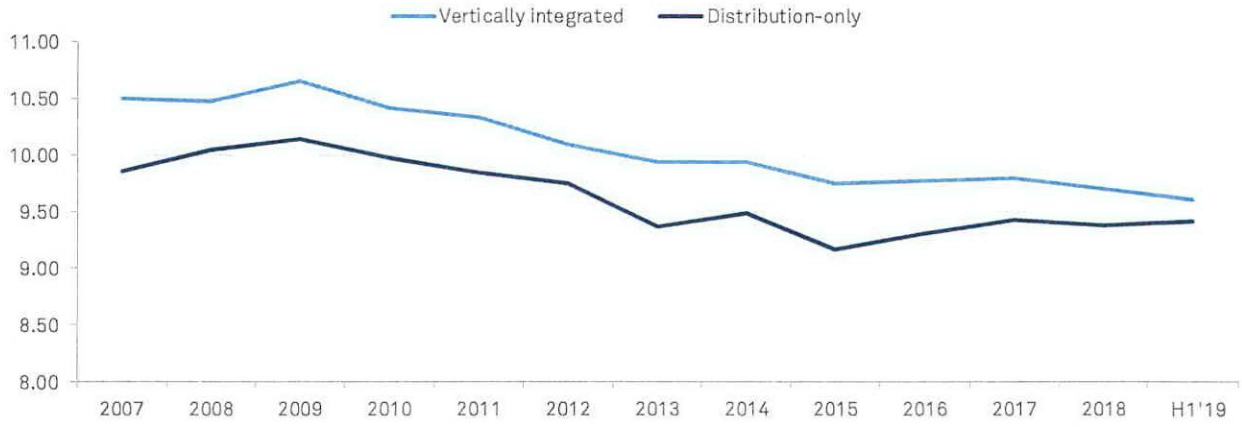
As a result of electric industry restructuring, certain states unbundled electric rates and implemented retail competition for generation. Commissions in those states now have jurisdiction only over the revenue requirement and return parameters for delivery operations.

Comparing electric vertically integrated cases versus delivery-only proceedings over the past 12 years, RRA finds that the annual average authorized ROEs in vertically integrated cases typically are about 30 to 65 basis points higher than in delivery-only cases, arguably reflecting the increased risk associated with ownership and operation of generation assets.

The industry average ROE for vertically integrated electric utilities was 9.61%, based on rate cases concluded in the first half of 2019, versus 9.70% in full-year 2018. For electric distribution-only utilities, the industry average ROE authorized in the first half of 2019 was 9.42% versus 9.38% in 2018.

Settlements have frequently been used to resolve rate cases over the last several years, and in many cases, these settlements are "black box" in nature and do not specify the ROE and other typical rate case parameters underlying the stipulated rate change. However, some states preclude this type of treatment, and so, settlements must specify these values, if not the specific adjustments from which these values were derived.

Average authorized electric ROEs (%)



Data compiled July 19, 2019.
Source: Regulatory Research Associates, a group within S&P Global Market Intelligence

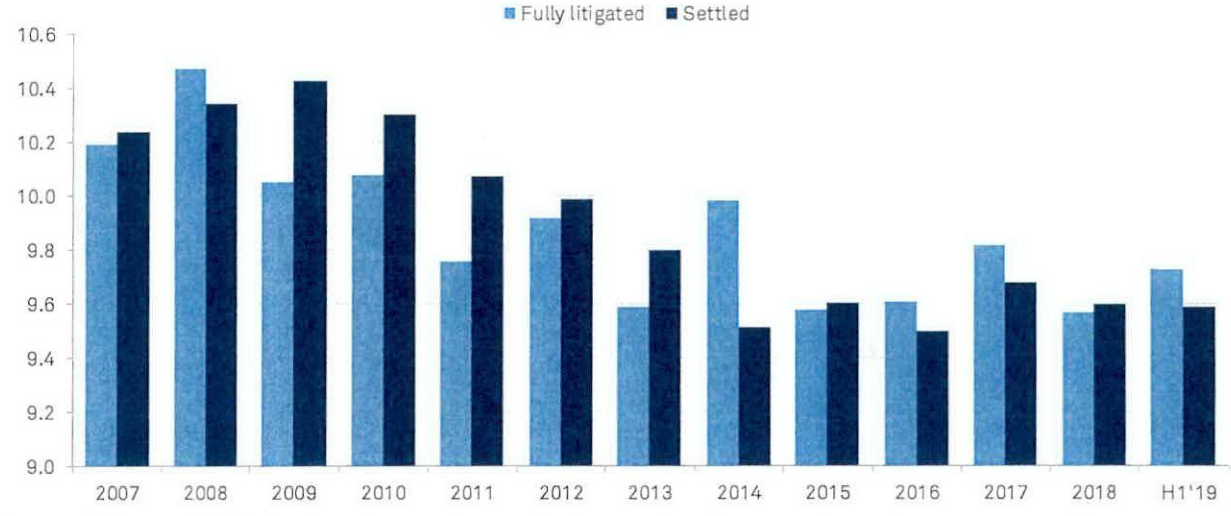
For both electric and gas cases, RRA has found no discernible pattern in the average authorized ROEs in cases that were settled versus those that were fully litigated. In some years, the average authorized ROE was higher for fully litigated cases, in others, it was higher for settled cases, and in a handful of years, the authorized ROE was similar for both fully litigated and settled cases.

Over the last several years, the annual average authorized ROEs in electric cases that involve limited-issue riders were typically meaningfully higher than those approved in general rate cases, driven by the ROE premiums authorized in Virginia. Limited-issue rider cases in which a separate ROE is determined have had limited use in the gas industry, as most of the gas riders rely on ROEs approved in a previous base rate case.

Average authorized electric ROEs, settled versus fully litigated cases (%)

Data compiled July 19, 2019
Source: Regulatory Research Associates, a group within S&P Global Market Intelligence

Average authorized gas ROEs, settled versus fully litigated cases (%)



Data compiled July 19, 2019.
Source: Regulatory Research Associates, a group within S&P Global Market Intelligence

The following discussion focuses on the corresponding tables available here.

Table 1 shows the average ROE authorized in major electric and gas rate decisions annually since 1990 and by quarter since 2015, followed by the number of observations in each period. **Table 2** indicates the composite electric and gas industry data for all major cases, summarized annually since 2004 and by quarter for the past six quarters.

Included in **Tables 3 and 4** of the spreadsheet are comparisons since 2007 of average authorized ROEs for settled versus fully litigated cases, general rate cases versus limited-issue rider proceedings and vertically integrated cases versus delivery-only cases for electric and gas utilities, respectively.

The individual electric and gas cases decided in 2019 are listed in **Table 5** of the spreadsheet, with the decision date shown first, followed by the company name, the abbreviation for the state issuing the decision, the authorized rate of return, the ROE and the percentage of common equity in the adopted capital structure. Next, RRA indicates the month and year in which the adopted test year ended, whether the commission utilized an average or a year-end rate base and the amount of the permanent rate change authorized. The dollar amounts represent the permanent rate change ordered at the time decisions were rendered. Fuel adjustment clause rate changes are not reflected in this study.

The simple mean is utilized for the return averages. In addition, the average equity returns indicated in this report reflect the ROEs approved in cases that were decided during the specified time periods and are not necessarily representative of either the average currently authorized ROEs for utilities industrywide or the returns actually earned by the utilities.

Please note: In an effort to align data presented in this report with data available in S&P Global Market Intelligence's online database, earlier historical data provided in previous reports may not match historical data in this report due to certain differences in presentation, including the treatment of cases that were withdrawn or dismissed.

Subsequent to the publication of our year-end 2018 report, the New Mexico Public Regulation Commission issued a revised decision in an electric rate case decision, the outcome of which impacted several of our electric ROE statistics for 2018. The instant report reflects the revised numbers.

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