

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. G-9, SUB 743

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)

TESTIMONY OF
ZARKA H. NABA
PUBLIC STAFF – NORTH
CAROLINA UTILITIES
COMMISSION

**PIEDMONT NATURAL GAS COMPANY, INC.
DOCKET NO. G-9, SUB 743**

**TESTIMONY OF ZARKA H. NABA
ON BEHALF OF THE PUBLIC STAFF –
NORTH CAROLINA UTILITIES COMMISSION**

JULY 19, 2019

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **PRESENT POSITION.**

3 A. My name is Zarka H. Naba. My business address is 430 North
4 Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am a
5 Public Utilities Engineer with the Natural Gas Division of the Public
6 Staff – North Carolina Utilities Commission (Public Staff).

7 **Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.**

8 A. My qualifications and duties are included in Appendix A.

9 **Q. WHAT IS THE NATURE OF THE APPLICATION IN THIS RATE**
10 **CASE?**

11 A. Piedmont Natural Gas Company, Inc. (Piedmont or the Company),
12 filed an application with the Commission on April 1, 2019, in this
13 docket seeking authority to increase its rates and charges for natural
14 gas utility service in all of its service areas in North Carolina and other
15 relief.

1 Q. BRIEFLY EXPLAIN THE SCOPE OF YOUR INVESTIGATION
2 REGARDING PIEDMONT'S APPLICATION.

3 A. My areas of investigation in this proceeding have been: (1)
4 determining the appropriate volume and customer levels, (2)
5 evaluating the weather normalization for the test period, (3)
6 calculating end-of-period revenues, and (4) reviewing the
7 Company's terms and conditions.

8 The main purpose of my investigation was to normalize the
9 Company's volume of gas for weather and to evaluate and update
10 the customer growth as of May 31, 2019, the update period
11 recommended by the Public Staff.¹ To do this, I calculated weather
12 normalization and customer growth adjustments to the per books
13 number of bills and volumes of each rate schedule to determine the
14 appropriate end-of-period levels of sales and transportation bills and
15 volume. I then used the adjusted sales and transportation levels to
16 complete the end-of-period revenue calculations.

17 **WEATHER NORMALIZATION AND CUSTOMER GROWTH**

18 Weather normalization measures the impact of weather on energy
19 consumption. When evaluating a natural gas general rate case, the

¹ Piedmont's application uses an update period as of June 30, 2019, as discussed later in this testimony.

1 Public Staff runs its own weather normalization model and compares
2 the results to those produced by local distribution company.

3 **Q. PLEASE EXPLAIN HOW YOU CALCULATED YOUR WEATHER**
4 **NORMALIZATION ADJUSTMENT.**

5 A. The Public Staff calculates the weather normalization by taking the
6 test year customer data (i.e., the number of bills and consumption by
7 month) and comparing it with the monthly actual Heating Degree
8 Days (HDDs) to develop a mathematical model that computes a
9 Base Load and a Heat-Sensitive Factor (HSF). These Base Load
10 and HSF components are then applied to the normal HDDs for the
11 test year, resulting in a volume level that would have been expected
12 if the weather had been normal during the test year.

13 **Q. PLEASE EXPLAIN HEATING DEGREE DAYS AND HOW THEY**
14 **ARE UTILIZED IN YOUR MATHEMATICAL MODEL.**

15 A. HDD is a measurement used to quantify the demand for energy
16 needed to for space heating. HDDs are calculated by subtracting the
17 average daily temperature from a base or standard temperature of
18 65 degrees Fahrenheit.² For example, a low of 20 degrees and a
19 high of 40 degrees would yield an average of 30 degrees and an

² The use of 65 degrees Fahrenheit is based on an assumption that heating is not needed to be comfortable when the outside temperature is 65 degrees or more.

1 HDD of 35 degrees $(65-(20+40)/2)$. The normal HDDs are based on
2 a 30-year average.

3 A mathematical model in the form of a linear regression is used to
4 compare the average usage to the actual HDD. The accuracy of this
5 model can be determined by examining the R^2 (R Squared) value
6 that the model produces. The closer the R Squared value is to 1.000,
7 the more accurate the model is in predicting the calculated volume
8 from the HDD input. The Public Staff's model resulted in an R
9 Squared value of 0.977. Generally speaking, an R Squared value of
10 0.900 or above indicates a very good correlation between usage and
11 HDDs.

12 **Q. WHAT DATA SOURCES DID YOU USE FOR YOUR HEATING**
13 **DEGREE DAY CALCULATIONS?**

14 A. The temperatures used to calculate the HDDs were obtained from
15 the State Climate Office of North Carolina – North Carolina State
16 University. The Company has historically used weather data
17 obtained on an hourly basis, whereas the Public Staff uses a daily
18 average $(\text{high temperature} + \text{low temperature} / 2)$. Because
19 Piedmont's service territory is so geographically dispersed,
20 temperature data from multiple weather stations are used. Weighting
21 percentages for the weather stations provided by the Company
22 through a response to a data request were applied to the normal and

1 actual degree days. The weighting percentages are determined by
2 heat-sensitive customer population, i.e., residential and commercial
3 customers who need more security of service during peak (cold)
4 days than do non-heat-sensitive customers. The final numbers for
5 the normal HDDs and actual HDDs are the combined weighted
6 normal HDDs and actual HDDs used to perform the linear regression
7 analysis for the test period of the 12 months ended December 31,
8 2018.

9 **Q. DOES THE COMPANY'S WEATHER NORMALIZATION**
10 **ADJUSTMENT AGREE WITH THAT OF PUBLIC STAFF?**

11 A. The results do not agree exactly, but they are very similar. The
12 difference in the adjustments is likely due to the fact that the
13 Company uses hourly weather data, whereas the Public Staff uses
14 daily averages, as explained above. Based on my review of the
15 Company's weather normalization analysis, I believe it is accurate
16 and should be used in this case.

17 **Q. WHAT DATE DID YOU USE TO ADJUST FOR CUSTOMER**
18 **GROWTH?**

19 A. Due to the Public Staff's need to update plant in service and
20 expenses and comply with its deadline to file its testimony, the
21 Public Staff reflected customer growth through May 31, 2019, in its

1 adjustment, whereas the Company reflected growth through June
2 30, 2019.

3 **END OF PERIOD VOLUME AND CUSTOMER DETERMINATION**

4 **Q. WHAT ARE THE TOTAL SALES AND TRANSPORTATION BILLS**
5 **AND VOLUME THAT YOU HAVE USED TO CALCULATE END-**
6 **OF-PERIOD REVENUES?**

7 A. I have determined that the appropriate end-of-period level of sales
8 and transportation bills is 8,970,571 and volume is 483,296,485
9 dekatherms (dts). The derivation of this volume level, made to arrive
10 at the Public Staff's total adjusted end-of-period level, is shown in
11 Naba Exhibit 1.

12 **Q. PLEASE PROVIDE AN EXPLANATION FOR YOUR**
13 **ADJUSTMENTS SHOWN IN NABA EXHIBIT 1?**

14 A. Columns (4) and (5) of Naba Exhibit 1 show the per books number
15 of bills and the per books sales and transportation volume level
16 segmented by rate schedule for the test year ended December 31,
17 2018. Adjustment for the effect of weather normalization, which is
18 shown in Column (6), adjusts the volumes for the heat-sensitive
19 market (Rate Schedules 101, 102, and 152) by (2,733,638). The
20 Public Staff and the Company are in agreement on the weather
21 normalization calculation methodology. Due to the similarity of the

1 adjustments of the Public Staff and the Company, the Public Staff is
2 not proposing an adjustment to pro forma revenue.

3 **END-OF-PERIOD REVENUE CALCULATIONS**

4 **Q. WHAT RATES DID YOU USE FOR PURPOSES OF**
5 **CALCULATING THE END-OF-PERIOD PRO FORMA REVENUE**
6 **LEVEL?**

7 A. I used the April 1, 2019 rates approved by the Commission in Docket
8 No. G-9, Sub 746, Piedmont's Application for Approval of Bi-Annual
9 Adjustment of Rates Under Appendix C of its Service Regulations,
10 to calculate the end-of-period pro forma revenue level. These rates
11 exclude any temporary increments or decrements (temporaries)
12 which were included in rates at that point in time. This calculation
13 produces what are known as "clean rates."

14 **Q. WHY ARE TEMPORARIES REMOVED FROM RATES FOR RATE**
15 **CASE ANALYSIS?**

16 A. Temporaries are usually associated with deferred account activities
17 and are not related to revenue generation for the Company. The
18 margins associated with various rate schedules are not affected by
19 temporaries, except when temporaries are associated with fixed gas
20 costs. Temporaries are removed when calculating end-of-period
21 rates and proposed rates to achieve consistency and for ease of

1 understanding. After the Commission determines the proper rates in
2 this case, the new billing rates will be adjusted for the then current
3 temporaries.

4 **Q. WHAT IS YOUR END-OF-PERIOD REVENUE CALCULATION**
5 **FOR THE COMPANY?**

6 A. The total revenue level for the sale and transportation of gas,
7 including other operating revenues, is \$899,592,143.

8 **Q. HOW DID YOU CALCULATE THIS END-OF-PERIOD REVENUE**
9 **FOR THE COMPANY?**

10 A. This figure was calculated by multiplying the number of bills, by the
11 facilities charge per bill, to arrive at the total facilities charges.
12 Similarly, the demand (for certain rate schedules) was multiplied by
13 the demand charge per bill, to arrive at the total demand charges.
14 Likewise, the volume is multiplied by end-of-period rates to arrive at
15 the energy charges. The total facilities charge for a particular rate
16 schedule, plus any demand charge for that rate schedule, plus the
17 energy charge for that rate schedule, plus Integrity Management
18 Rider revenues for that rate schedule, plus any Minimum Margin
19 Agreement payments or Compression Charges for that rate
20 schedule equals the total revenue received from that class of

1 customer. The addition of all these rate schedule totals calculates to
2 the total end-of-period revenue level.

3 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

4 **A.** Yes, it does.

QUALIFICATIONS AND EXPERIENCE

ZARKA H. NABA

I am a graduate of The City University of New York with a Bachelor of Engineering degree in Environmental Engineering.

I began working in the environmental field in June 2016 as an Environmental Engineering Intern. I've worked with the New York City Department of Sanitation's Vehicle Acquisition Warranty Division (DSNY) to assist in several fuel usage tracking projects installed in their fleet vehicles. While employed at DSNY, I was responsible for reporting installation projects, as well as researching environmental and safety impacts of various new technologies introduced.

I joined the Public Staff in September of 2017 as a member of the Natural Gas Division. My work to date includes Purchased Gas Cost Adjustment Procedures, Tariff Amendments, Fuel Tracker & Power Cost Adjustments, CNG Contracts, Annual Review of Gas Costs, Margin Decoupling Trackers, Peak Day Demand and Capacity Calculations, and Customer Complaint Resolutions.

PIEDMONT NATURAL GAS COMPANY, INC.
Docket No. G-9 Sub 743
SUMMARY OF VOLUME AND BILL ADJUSTMENT
FOR END OF PERIOD

RATE SCHEDULE (1)	DESCRIPTION (2)	SEASON (3)	BILLS/ DEMAND UNITS (4)	VOLUMES (DTS) (5)	WEATHER NORMALIZATION		CUSTOMER GROWTH		TOTAL	
					ADJUSTMENT (DTS) (6)	TOTAL (DTS) (7) (5) + (6)	ADJUSTMENT (BILLS) (8)	(DTS) (9)	(BILLS) (10) (4) + (8)	(DTS) (11) (7) + (9)
101 Residential Service		W	3,356,241	31,358,694.70	(768,577)	30,585,631	42,926	395,744	3,399,167	30,981,375
101 Residential Service		S	<u>4,644,245</u>	<u>9,210,542.30</u>	<u>(1,038,575)</u>	<u>8,172,062</u>	<u>59,354</u>	<u>104,380</u>	<u>4,703,599</u>	<u>8,276,442</u>
			8,000,486	40,569,237.00	(1,807,152)	38,757,693	102,281	500,124	8,102,766	39,257,817
102 Small General Service		W	352,778	18,078,392	(200,051)	17,878,341	4,535	229,831	357,313	18,108,172
102 Small General Service		S	<u>489,883</u>	<u>9,446,837</u>	<u>(647,437)</u>	<u>8,799,400</u>	<u>6,298</u>	<u>113,119</u>	<u>496,181</u>	<u>8,912,519</u>
			842,661	27,525,229	(847,487)	26,677,741	10,833	342,950	853,494	27,020,691
143/102 Exp Mot Veh Fuel_SG Svc		W	46	5,113	171	5,284	(2)	(269)	44	5,015
143/102 Exp Mot Veh Fuel_SG Svc		S	<u>56</u>	<u>8,100</u>	<u>(11)</u>	<u>8,089</u>	<u>(3)</u>	<u>(412)</u>	<u>53</u>	<u>7,677</u>
			102	13,212	160	13,372	(5)	(681)	97	12,691
152 Medium General Service	first 500	W	2,374	1,053,649	(6,618)	1,047,031	(68)	(30,050)	2,306	1,016,981
	over 500			1,710,375	(10,742)	1,699,633		(48,779)		1,650,854
152 Medium General Service	first 500	S	3,288	1,213,822	(32,262)	1,217,425	(94)	(34,940)	3,194	1,182,485
	over 500			<u>1,105,234</u>	<u>(29,377)</u>	<u>1,108,515</u>		<u>(31,814)</u>		<u>1,076,701</u>
			5,662	5,083,080	(78,999)	5,072,604	(162)	(145,584)	5,500	4,927,022
142 Natural Gas Vehicle Fuel - Company Premise		W	0	30,503	0	30,503	0	0	0	30,503
		S	<u>0</u>	<u>47,315</u>	<u>0</u>	<u>47,315</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>47,315</u>
			0	77,818	0	77,818	0	0	0	77,818
103 Large General Service	Demand		148,524 dts				8,020 dts		156,543 dts	
	1,500	W	316	439,773	0	439,773	17	23,746	333	463,519
	3,000	W		416,993	0	416,993		22,516		439,509
	9,000	W		179,657	0	179,657		9,701		189,358
	16,500	W		36,110	0	36,110		1,950		38,060
	30,000	W		0	0	0		0		0
	60,000	W		<u>0</u>	<u>0</u>	<u>0</u>		<u>0</u>		<u>0</u>
				1,072,534		1,072,534		57,913		1,130,447

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					ADJUSTMENT (DTS) (6)	TOTAL (DTS) (7) (5) + (6)	ADJUSTMENT (BILLS) (8)	(DTS) (9)	(BILLS) (10) (4) + (8)	(DTS) (11) (7) + (9)
103 Large General Service	1500	S	457	576,369	0	576,369	25	31,121	482	607,490
	3000	S		371,464	0	371,464		20,057		391,521
	9000	S		114,445	0	114,445		6,180		120,625
	16500	S		78,270	0	78,270		4,226		82,496
	30000	S		0	0	0		0		0
	60000	S		0	0	0		0		0
					1,140,548	0	1,140,548		61,584	
			773	2,213,082		2,213,082	42	119,497	815	2,332,579
143/103 Exp Mot Veh Fuel-LGSS	Demand		7,040 dts				2,796		9,836	
	1,500	W	17	24,073	0	24,073	7	9,562	24	33,635
	3,000	W		27,014	0	27,014		10,731		37,745
	9,000	W		4,883	0	4,883		1,939		6,822
	16,500	W		0	0	0		0		0
	30,000	W		0	0	0		0		0
	60,000	W		0	0	0		0		0
				55,970		55,970		22,232		78,202
143/103 Exp Mot Veh Fuel-LGSS	1500	S	26	37,372	0	37,372	10	14,845	36	52,217
	3000	S		48,935	0	48,935		19,438		68,373
	9000	S		14,538	0	14,538		5,775		20,313
	16500	S		0	0	0		0		0
	30000	S		0	0	0		0		0
	60000	S		0	0	0		0		0
					100,845	0	100,845		40,058	
			43	156,815		156,815	17	62,290	60	219,105
104 Interruptible Service	1,500	W	81	115,234	0	115,234	(1)	(1,600)	80	113,634
	3,000	W		171,323	0	171,323		(2,379)		168,944
	9,000	W		139,386	0	139,386		(1,936)		137,450
	16,500	W		6,828	0	6,828		(95)		6,733
	30,000	W		0	0	0		0		0
	60,000	W		0	0	0		0		0
					432,771	0	432,771		(6,010)	

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					ADJUSTMENT (DTS) (6)	TOTAL (DTS) (7) (5) + (6)	ADJUSTMENT (BILLS) (8)	(DTS) (9)	(BILLS) (10) (4) + (8)	(DTS) (11) (7) + (9)	
104 Interruptible Service	1500	S	114	153,542	0	153,542	(2)	(2,133)	112	151,409	
	3000	S		163,040	0	163,040		(2,264)		160,776	
	9000	S		136,804	0	136,804		(1,900)		134,904	
	16500	S		4,370	0	4,370		(61)		4,309	
	30000	S		0	0	0		0		0	
	60000	S		0	0	0		0		0	
					457,755	0	457,755		(6,358)		451,397
			195	890,525		890,525	(3)	(12,368)	192	878,158	
113 Large General Transportation Service			1,661,230 dts				(44,620)		1,616,610		
	1,500	W	1,512	2,010,192	0	2,010,192	(41)	(53,992)	1,471	1,956,200	
	3,000	W		2,840,512	0	2,840,512		(76,294)		2,764,218	
	9,000	W		2,910,877	0	2,910,877		(78,184)		2,832,693	
	30,000	W		1,933,655	0	1,933,655		(51,937)		1,881,718	
	46,500	W		1,701,371	0	1,701,371		(45,698)		1,655,673	
	60,000	W		2,782,340	0	2,782,340		(74,732)		2,707,608	
					14,178,947		14,178,947		(380,837)		13,798,110
	1,500	S	2,099	2,712,613	0	2,712,613	(56)	(72,859)	2,043	2,639,754	
	3,000	S		3,343,969	0	3,343,969		(89,817)		3,254,152	
	9,000	S		3,388,085	0	3,388,085		(91,002)		3,297,083	
	16,500	S		2,360,563	0	2,360,563		(63,403)		2,297,160	
	30,000	S		2,129,656	0	2,129,656		(57,201)		2,072,455	
	60,000	S		3,196,566	0	3,196,566		(85,858)		3,110,708	
				17,131,451		17,131,451		(460,140)		16,671,311	
			3,611	31,310,398		31,310,398	(97)	(840,977)	3,514	30,469,421	

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					ADJUSTMENT (DTS) (6)	TOTAL (DTS) (7) (5) + (6)	ADJUSTMENT (BILLS) (8)	(DTS) (9)	(BILLS) (10) (4) + (8)	(DTS) (11) (7) + (9)
143/113	Exp Mot Veh Fuel-LGTS		30,916 dts				6,982 dts		37,898 dts	
	1,500	W	35	50,571	0	50,571	8	11,421	43	61,992
	3,000	W		63,605	0	63,605		14,365		77,970
	9,000	W		52,755	0	52,755		11,915		64,670
	30,000	W		82,500	0	82,500		18,632		101,132
	46,500	W		24,655	0	24,655		5,568		30,223
	60,000	W		0	0	0		0		0
				274,085		274,085		61,901		335,986
143/113	Exp Mot Veh Fuel-LGTS		51	75,802	0	75,802	12	17,119	63	92,921
	3,000	S		93,471	0	93,471		21,110		114,581
	9,000	S		72,153	0	72,153		16,295		88,448
	16,500	S		115,500	0	115,500		26,085		141,585
	30,000	S		24,690	0	24,690		5,576		30,266
	60,000	S		0	0	0		0		0
				381,615		381,615		86,185		467,800

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					ADJUSTMENT (DT) (6)	TOTAL (DT) (7)	ADJUSTMENT (BILLS) (8)	(DT) (9)	(BILLS) (10)	(DT) (11)	
						(5) + (6)			(4) + (8)	(7) + (9)	
114 Interruptible Transportation Service	1,500	W	1,229	1,593,934	0	1,593,934	(4)	(5,450)	1,225	1,588,484	
	3,000	W		2,420,506	0	2,420,506		(8,276)		2,412,230	
	9,000	W		3,101,909	0	3,101,909		(10,606)		3,091,303	
	16,500	W		2,221,916	0	2,221,916		(7,597)		2,214,319	
	30,000	W		1,991,676	0	1,991,676		(6,810)		1,984,866	
	60,000	W		<u>1,678,837</u>	<u>0</u>	<u>1,678,837</u>		<u>(5,740)</u>		<u>1,673,097</u>	
				13,008,778		13,008,778		(44,479)		12,964,299	
114 Interruptible Transportation Service	1500	S	1,709	2,298,148	0	2,298,148	(6)	(7,858)	1,703	2,290,290	
	3000	S		3,358,393	0	3,358,393		(11,483)		3,346,910	
	9000	S		3,955,977	0	3,955,977		(13,526)		3,942,451	
	16500	S		2,590,797	0	2,590,797		(8,859)		2,581,938	
	30000	S		2,332,451	0	2,332,451		(7,975)		2,324,476	
	60000	S		<u>1,610,935</u>	<u>0</u>	<u>1,610,935</u>		<u>(5,508)</u>		<u>1,605,427</u>	
					16,146,700			16,146,700			(55,209)
			<u>2,938</u>	<u>29,155,477.90</u>		<u>29,155,478</u>		<u>(10)</u>	<u>(99,688)</u>	<u>2,928</u>	<u>29,055,790</u>
105 Outdoor Gaslight Service	Fixtures	W	5,537				(296)		5,241		
		S	313	3,694	0	3,694	(17)	(197)	296	3,497	
			<u>431</u>	<u>5,165</u>	0	<u>5,165</u>	<u>(23)</u>	<u>(276)</u>	<u>408</u>	<u>4,889</u>	
			744	8,859		8,859		(40)	(473)	704	8,386

PIEDMONT NATURAL GAS COMPANY, INC.
0
SUMMARY OF VOLUME AND BILL ADJUSTMENT
FOR END OF PERIOD

RATE SCHEDULE (1)	DESCRIPTION (2)	SEASON (3)	BILLS/ DEMAND UNITS (4)	VOLUMES (DT) (5)	WEATHER NORMALIZATION		CUSTOMER GROWTH		TOTAL	
					ADJUSTMENT (DT) (6)	TOTAL (DT) (7) (5) + (6)	ADJUSTMENT (BILLS) (8)	(DT) (9)	(BILLS) (10) (4) + (8)	(DT) (11) (7) + (9)
T-10 Transportation for Rate 10	Demand	W	84,000	835,938	0	835,938	0	20,932	5	856,870
T-10 Transportation for Rate 10		S		<u>479,521</u>	0	<u>479,521</u>	0	<u>6,932</u>	7	<u>486,453</u>
				12	1,315,459		1,315,459		27,864	12
Special Contracts-Military		W	7	414,340	0	414,340	3	63,350	10	477,690
Special Contracts-Military		S	13	<u>336,223</u>	0	<u>336,223</u>	1	<u>66,297</u>	14	<u>402,520</u>
				20	750,564		750,564	4	129,647	24
Special Contracts-Lg Volume		W	62	2,066,166	0	2,066,166	7	0	69	2,066,166
Special Contracts-Lg Volume		S	85	<u>2,655,109</u>	0	<u>2,655,109</u>	7	0	92	<u>2,655,109</u>
				147	4,721,275		4,721,275	14	0	161
Power Generation Contracts		W	72	123,110,706	0	123,110,706	(5)	5,037,620	67	128,148,326
Power Generation Contracts		S	101	<u>194,333,184</u>	0	<u>194,333,184</u>	(7)	<u>11,464,976</u>	94	<u>205,798,160</u>
				173	317,443,890		317,443,890	(12)	16,502,596	161
Special Contracts-Munis		W	16	4,656,388	0	4,656,388	0	0	16	4,656,388
Special Contracts-Munis		S	21	<u>2,685,539</u>	0	<u>2,685,539</u>	0	0	21	<u>2,685,539</u>
				37	7,341,927		7,341,927		0	37
SUBTOTAL			4,071	360,737,451		360,737,451	(44)	16,559,946	4,027	377,297,397
Total Throughput			8,857,690	469,232,548	(2,733,478)	466,563,200	112,881	16,733,284	8,970,571	483,296,485
Subtotal Without Power Generation			8,857,517	151,788,657	(2,733,478)	149,119,310	112,893	230,688	8,970,410	149,349,999
Total			8,857,690	469,232,548	(2,733,478)	466,563,200	112,881	16,733,284	8,970,571	483,296,485