NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION

October 23, 2017

Ms. M. Lynn Jarvis, Chief Clerk
North Carolina Utilities Commission
Mail Service Center 4325
Raleigh, North Carolina 27699-4300

Re: Docket No. E-22, Sub 545 – Application of Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina, for Approval of Demand Side Management and Energy Efficiency Cost Recovery Rider Pursuant to N.C.G.S. 62-133.9 and Commission Rule R8-69

Dear Ms. Jarvis:

In connection with the above-referenced docket, I transmit herewith for filing on behalf of the Public Staff the following:

1. Affidavit and Exhibit of Michael C. Maness, Director, Accounting Division; and

2. Testimony of Jack L. Floyd, Utilities Engineer, Electric Division.

By copy of this letter, we are forwarding copies to all parties of record.

Sincerely,

/s/ Heather D. Fennell
Staff Attorney
heather.fennell@psncuc.nc.gov

STATE OF NORTH CAROLINA
UTILITIES COMMISSION
RALEIGH

DOCKET NO. E-22, SUB 545

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

In the Matter of		
Application by Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina, for Approval of Demand Side Management and Energy Efficiency Cost Recovery Rider Pursuant to G.S. 62-133.9 and Commission Rule R8-69	))))))	AFFIDAVIT OF MICHAEL C. MANESS

STATE OF NORTH CAROLINA

COUNTY OF WAKE

I, Michael C. Maness, first being duly sworn, do depose and say:

I am Director of the Accounting Division of the Public Staff. I am responsible for the performance, supervision, and management of the following activities: (1) the examination and analysis of testimony, exhibits, books and records, and other data presented by utilities and other parties under the jurisdiction of the Commission or involved in Commission proceedings; and (2) the preparation and presentation to the Commission of testimony, exhibits, and other documents in those proceedings. I have been employed by the Public Staff since July 12, 1982. A summary of my education and experience is attached to this affidavit as Appendix A.

The purpose of my affidavit is to present my recommendations regarding (1) the prospective Demand-Side Management / Energy Efficiency rider (DSM/EE rider or Rider C) and (2) the DSM/EE Experience Modification Factor rider (DSM/EE EMF rider or Rider CE) proposed by Virginia Electric and Power Company d/b/a Dominion Energy North Carolina (DENC or the Company) in its Application filed in this docket on August 15, 2017.[1] In addition to my filing of this affidavit, Public Staff witness Jack L. Floyd has filed testimony in this proceeding regarding DENC's DSM/EE portfolio, including certain new program and program closure matters, the cost-effectiveness of each program, and the 2017 Evaluation, Measurement, and Verification (EM&V) Report, which reported on the results of DENC's programs through December 31, 2016.

My affidavit begins with a review of the regulatory framework for DSM/EE cost recovery by electric utilities and the historical background of DENC's Application in this docket. I then discuss the Company's proposed billing rates and other aspects of its filing. Following a summary of my investigation, I present my findings, conclusions, and recommendations regarding approval of the proposed billing rates making up Riders C and CE.

Review of the Regulatory Framework

G.S. 62-133.9(d) allows a utility to petition the Commission for approval of an annual rider to recover (1) the reasonable and prudent costs of new DSM and EE measures and (2) other incentives to the utility (utility incentives) for adopting and implementing new DSM and EE measures. Additionally, G.S. 62-133.9(f) allows industrial and certain large commercial customers to opt out of participating in the power supplier's DSM/EE programs or paying the DSM/EE rider, if each such customer notifies its electric power supplier that it has

[1] Riders C and CE are each comprised of various class-based billing rates.

implemented or will implement, at its own expense, alternative DSM and EE measures. Commission Rule R8-69, which was adopted by the Commission pursuant to G.S. 62-133.9(h), sets forth the general parameters and procedures governing approval of the annual rider, including (1) provisions for both (a) a DSM/EE rider to recover the estimated costs and utility incentives applicable to the "rate period" in which that DSM/EE rider will be in effect, and (b) a DSM/EE EMF rider to recover the difference between the DSM/EE rider in effect for a given test period (plus a possible extension) and the actual recoverable amounts incurred during that test period; and (2) provisions for interest or return on amounts deferred and on refunds to customers.

In this proceeding, DENC has calculated its proposed DSM/EE and DSM/EE EMF riders (Riders C and CE, incorporating various class-specific billing rates) using two mechanisms previously approved by the Commission. To calculate the Rider CE billing rates related to DSM and EE measures installed or implemented for Vintage Year 2016, DENC has used the Cost Recovery and Incentive Mechanism for Demand-Side Management and Energy Efficiency Programs approved by the Commission in its *Order Approving Revised Cost Recovery and Incentive Mechanism and Granting Waiver*, issued in Docket No. E-22, Sub 464 on May 7, 2015 (2015 Mechanism). The 2015 Mechanism, replacing the initial mechanism approved in 2011, became effective as of the date of the May 7, 2015, Order for projected costs and utility incentives beginning January 1, 2016, and for true-ups of costs and utility incentives beginning July 1, 2014.[2] However, it also contained a provision stating that beginning with 2017, DENC would switch the calculation of the bonus incentive approved for inclusion in its DSM/EE and DSM/EE EMF riders from a Program Performance Incentive (PPI_1) to a Portfolio Performance Incentive (PPI_2), as further explained below.

To calculate the Rider C billing rates related to DSM and EE measures projected to be installed or implemented for Vintage Year 2018, DENC has used the Cost Recovery and Incentive Mechanism for Demand-Side Management and Energy Efficiency Programs approved by the Commission in its *Order Approving Revised Cost Recovery and Incentive Mechanism*, issued in Docket No. E-22, Sub 464 on May 22, 2017 (2017 Mechanism). The 2017 Mechanism became effective as of May 22, 2017, for projected costs and utility incentives beginning January 1, 2018, and for true-ups of costs and utility incentives beginning January 1, 2017. In the following paragraphs, I will summarize certain essential characteristics of each Mechanism.

Both the 2015 and 2017 Mechanisms include many provisions that indirectly influence the ratemaking process for DSM and EE costs and utility incentives, including provisions that address program approval, various procedural matters, revisions to the test periods, reporting requirements, and future review of the Mechanism itself. Additionally, the provisions of the 2015 Mechanism that most directly address the determination of the annual DSM/EE and DSM/EE EMF riders include the following:

[2] For the levelization run-out of the trued-up PPI_1 for measures installed or implemented prior to July 1, 2014, the Company carried forward the bonus incentives as calculated pursuant to the 2011 mechanism.

(1) Special jurisdictional allocation procedures will be evaluated for programs that operate in only either the Virginia or North Carolina retail jurisdictions, or that are limited in their operation in either jurisdiction.

(2) In general, DENC shall be allowed to recover, through the DSM/EE and the DSM/EE EMF riders, all reasonable and prudent costs of Commission-approved DSM/EE programs. However, any of the Stipulating Parties may propose a procedure for the deferral and amortization of all or a portion of DENC's non-capital program costs to the extent those costs are intended to produce future benefits. For program costs not deferred for amortization in future DSM/EE riders, the accrual of a return on any under-recoveries or over-recoveries of cost will follow the requirements of Commission Rule R8-69(b), subparagraphs (3) and (6), unless the Commission determines otherwise.

(3) DENC shall be allowed to recover net lost revenues (NLR) as a utility incentive (with the exception of those amounts related to research and development or the promotion of general awareness and education of EE and DSM activities), but shall be limited for each measurement unit installed in a given vintage year to those dollar amounts resulting from kilowatt-hour (kWh) sales reductions experienced during the first 36 months after the installation of the measurement unit. NLR related to pilot programs are subject to additional qualifying criteria. Recoverable NLR shall ultimately be based on kWh sales reductions and kilowatt (kW) savings verified through the evaluation, measurement, and verification (EM&V) process and approved by the Commission. The eligibility of kWh sales reductions to generate recoverable NLR during the applicable 36-month period will cease upon the implementation of a Commission-approved alternative recovery mechanism that accounts for the otherwise eligible NLR, or new rates approved by the Commission in a general rate case or comparable proceeding that account for the NLR.

(4) NLR will be reduced by net found revenues, as defined in the 2015 Mechanism, that occur in the same 36-month period. Net found revenues will be determined according to the "Decision Tree" process included in the 2015 Mechanism.

(5) For vintage years 2014, 2015, and 2016, subject to certain exceptions, DENC shall be allowed to collect a bonus utility incentive, the Program Performance Incentive (PPI), for each DSM or EE program approved and in effect during a given vintage year, so long as the program is cost effective under the Total Resource Cost (TRC) Test and Utility Cost Test (UCT) for that vintage year, as ultimately verified through EM&V analysis. The PPI is based on the net savings of each program or measure as calculated using the UCT, and is equal to 8% of the present value of net savings for DSM programs and measures and 13% of the present value of

net savings for EE programs and measures. The PPI shall be converted into a stream of no more than 10 levelized annual payments. In determining the initial estimate of the PPI to be included in the DSM/EE rider, DENC may utilize a reasonable and appropriate estimation accomplished by a simpler and conservative method.

The 2017 Mechanism leaves many of these provisions in place. However, as noted previously, the 2017 Mechanism replaces the PPI_1 with the PPI_2, which is defined as follows:

> *Portfolio Performance Incentive* ... means a payment to [DENC] as a bonus or reward for adopting and implementing new EE or DSM Programs. Upon implementation, the [Portfolio Performance Incentive] shall be based on the sharing of avoided cost savings, net of Program Costs and allocated Common Costs, achieved by those DSM and EE Programs <u>in the aggregate</u> (subject to certain exclusions). The Portfolio Performance Incentive excludes the impacts and costs from Low Income Programs or Low Income Measures, and Net Lost Revenues for all Programs and measures not otherwise excluded from the [Portfolio Performance Incentive]. (Emphasis added.)

The 2017 Mechanism also makes significant changes in how the PPI_2 is calculated. Under the 2017 Mechanism, paragraph no. 5 as set forth above can be restated:

(5) Subject to certain exceptions, DENC shall be allowed to collect a bonus utility incentive, the Portfolio Performance Incentive, for each DSM or EE program approved and in effect during a given vintage year. The Portfolio Performance Incentive is based on the net savings of each program or measure as calculated using the UCT, and is equal to <u>9.08%</u> of the present value of net savings for DSM programs and measures and <u>14.76%</u> of the present value of net savings for EE programs and measures. <u>The 9.08% and 14.76% factors shall be subject to review in each annual rider proceeding to ensure the continued reasonableness of the Portfolio Performance Incentive as a whole.</u> The Portfolio Performance Incentive shall be converted into a stream of no more than 10 levelized annual payments. In determining the initial estimate of the Portfolio Performance Incentive to be included in the DSM/EE rider, DENC may utilize a reasonable and appropriate estimation accomplished by a simpler and conservative method. (Emphasis added.)

The 2017 Mechanism also added several provisions regarding the measurement of avoided costs in program approval applications and continuing tests of cost-effectiveness, similar in structure to those added to Duke Energy Carolinas, LLC's mechanism, as amended earlier this year in Docket No. E-7, Sub 1130.

Additionally, the 2017 Mechanism added the following provision regarding the determination of avoided transmission and distribution costs:

> The per kW avoided transmission and avoided distribution (avoided T&D) costs used to calculate net savings for a Vintage Year shall be based on a study updated at least every five years, or as appropriate and agreed to by the Company and the Public Staff.

The above are some of the provisions of the two Mechanisms that are most relevant to the determination of the DSM/EE and DSM/EE EMF riders. For more details and additional provisions, please see the Mechanisms themselves.

The Company's Proposed DSM/EE Revenue Requirements and Billing Rates

The rate period for this proceeding is the twelve-month period from January 1, 2018, through December 31, 2018. This is the period over which the DSM/EE and DSM/EE EMF riders set herein will be charged, and is also the period for which the estimated revenue requirements supporting the DSM/EE rider are determined. The test period applicable to this proceeding (the presumptive period for which the under- or overrecoveries of DSM/EE costs and NLR are measured) is the twelve months ended December 31, 2016.[3]

In its Application, DENC requested approval of class-specific DSM/EE billing rates (Rider C) based on a North Carolina retail revenue requirement of $3,542,469 [excluding any revenue adder for the North Carolina Regulatory Fee (NCRF)]. Likewise, the Company requested approval of class-specific decrement DSM/EE EMF billing rates (Rider CE) based on a North Carolina retail true-up revenue requirement increment of $202,430, excluding the NCRF. These revenue requirements are made up of the following components, as set forth in the testimony of the DENC witnesses and their accompanying exhibits:

RIDER C

Program costs (including common costs)	$3,228,866
PPI	313,603
Total Rider C revenue requirement	$3,542,469

RIDER CE

Program costs (including common costs)	$ 2,694,181
NLR	500,942
PPI	270,150
Test period Rider C revenues	(3,222,514)
Net revenue requirement before carrying costs and interest	242,759
Carrying costs	(15,776)
Interest on EMF refund	(24,552)
Total Rider CE revenue requirement	$ 202,431[3][4]

---

[3] DENC has not requested in this proceeding to incorporate in its DSM/EE EMF rider calculations the under- or overrecovery of DSM/EE costs experienced up to 30 days prior to the hearing, as would be permitted by Commission Rule R8-69(b)(2).

[4] Immaterial rounding differences of $1 on Rider CE from amounts shown in witness Stephens' exhibits are due to internal rounding in Company exhibits.

As in the 2014-2016 proceedings, DENC did not request NLR as part of Rider C. Also, consistent with the 2017 Mechanism, the Company calculated the PPI amount included in Rider C using a simplified approach. As explained in the testimony of Company witness Bates and set forth in his exhibits, the Company calculated the estimated PPI for Vintage Year 2018 by adding (a) the verified levelized amounts related to Vintage Years 2016 and prior that are due to be collected in 2018 to (b) a conservative estimate of the levelized PPI_2 amounts related to Vintage Years 2017 and 2018 (2017 is included because the EM&V process for that year has not yet been completed). The 2017 estimate is based on the amount calculated by the Company in the 2016 proceeding for the 2017 rate year. The 2018 estimate is based on 1.00% (the ratio used in the 2017 proceeding) of the Company's estimates of 2018 DSM/EE operating expenses, with certain programs excluded altogether.

The components of the Company's proposed Rider C and Rider CE revenue requirements were largely calculated by DENC witnesses Bates and Moore, using jurisdictional allocation factors provided by DENC witness Lyons in accordance with the 2015 and 2017 Mechanisms. Witness Lyons indicated in her testimony that she took the jurisdictional revenue requirements and assigned or allocated them to the various North Carolina retail rate classes consistent with the Mechanisms.

In her testimony, DENC witness Stephens indicated that she took the class-specific Rider C and Rider CE revenue requirements developed by witness Lyons and converted them into per-kWh billing rates, using projected rate period kWh sales for each class, excluding estimated kWh sales related to opted-out customers. The specific billing rates proposed by the Company in its Application are set forth in witness Stephens' exhibits and in Maness Exhibit I, filed with this affidavit.

Investigation and Conclusions

Details of Investigation and Conclusions

My investigation of DENC's filing in this proceeding focused on determining whether the proposed DSM/EE and DSM/EE EMF billing rates were calculated in accordance with the 2015 and 2017 Mechanisms, and otherwise adhered to sound ratemaking concepts and principles. The procedures I and other members of the Public Staff's Accounting Division acting under my supervision utilized included a review of the Company's filing, relevant prior Commission proceedings and orders, and workpapers and source documentation used by the Company to develop the proposed billing rates. Performing the investigation required the review of responses to written and verbal data requests, as well as discussions with Company personnel. The investigation also included a review of the actual DSM/EE program costs incurred by DENC during the 12-month period ended December 31, 2016. To accomplish this, the Public Staff selects and reviews samples of source documentation for test year costs included by the Company for recovery through the DSM/EE Rider. This process, which is ongoing as of the date of my affidavit, is intended to test whether the actual costs included by the Company in the DSM/EE billing rates are either valid costs of approved DSM and EE programs or administrative (common) costs supporting those programs.

The Public Staff's investigation, including the sampling of source documentation, concentrated primarily on costs and NLR related to the test period, and verified PPIs related to the 2011-2016 period, all of which are to be included in the DSM/EE EMF billing rates approved in this proceeding. A more general review was conducted of the prospective billing rates proposed to be charged for Vintage Year 2017, which are subject to true-up in future proceedings. Based on my investigation, I am of the opinion that the Company has generally calculated its proposed DSM/EE billing rates (included in Rider C) and DSM/EE EMF billing rates (included in Rider CE) in a manner consistent with G.S. 62-133.9, Commission Rule R8-69, and the 2015 and 2017 Mechanisms. However, this conclusion is subject to the caveat that the Public Staff is still in the process of reviewing certain data responses recently received from the Company, including documentation of costs selected for review in the Public Staff's sample. If this review results in any further issues, the Public Staff will file additional information with the Commission.

Effects of Public Staff Witness Floyd's Testimony

Public Staff witness Floyd has filed testimony in this proceeding discussing several topics and issues related to the Company's filing. None of these topics and issues necessitates an adjustment to the Company's billing factor calculations in this proceeding. However, Mr. Floyd has indicated that the review that he and GDS Associates (the Public Staff's EM&V contractor) conducted of the Company's 2017 EM&V Report identified some corrections that need to be made to the EM&V analysis. As explained in more detail by Mr. Floyd, making these corrections will result in a further true-up of Vintage Year 2016 results in next year's rider proceeding.

<u>Recommendation</u>

Subject to the caveat noted above regarding completion of certain portions of its review, the Public Staff recommends approval of the Rider C and Rider CE billing rates set forth on Maness Exhibit I. The recommended billing rates should be approved subject to any true-ups in future cost recovery proceedings consistent with the 2015 and 2017 Mechanisms.

The Public Staff notes that reviewing the calculation of the DSM/EE and DSM/EE EMF riders is a process that involves reviewing numerous assumptions, inputs, and calculations, and its recommendation with regard to this proposed rider is not intended to indicate that the Public Staff will not raise questions in future proceedings regarding the same or similar assumptions, inputs, and calculations.

This completes my affidavit.

NEHA R PATEL
NOTARY
MY COMMISSION EXPIRES
11/13/2018
PUBLIC
WAKE COUNTY, NC

Michael C. Maneess

Michael C. Maness

Sworn to and subscribed before me
this the 23 day of October, 2017.

NRPatel

Neha Ramanbhai Patel

Notary Public

My Commission Expires: 11/13/2018

APPENDIX A

MICHAEL C. MANESS

I am a graduate of the University of North Carolina at Chapel Hill with a Bachelor of Science degree in Business Administration with Accounting. I am a Certified Public Accountant and a member of both the North Carolina Association of Certified Public Accountants and the American Institute of Certified Public Accountants.

Since joining the Public Staff in July 1982, I have filed testimony or affidavits in several general, fuel, and demand-side management/energy efficiency rate cases of the utilities currently organized as Duke Energy Carolinas, LLC, Duke Energy Progress, LLC, and Virginia Electric and Power Company (Dominion North Carolina Power), as well as in several water and sewer general rate cases. I have also filed testimony or affidavits in other proceedings, including applications for certificates of public convenience and necessity for the construction of generating facilities, applications for approval of self-generation deferral rates, and applications for approval of cost and incentive recovery mechanisms for electric utility demand-side management and energy efficiency (DSM/EE) efforts.

I have also been involved in several other matters that have come before this Commission, including the investigation undertaken by the Public Staff into the operations of the Brunswick Nuclear Plant as part of the 1993 Carolina Power

& Light Company fuel rate case (Docket No. E-2, Sub 644), the Public Staff's investigation of Duke Power's relationship with its affiliates (Docket No. E-7, Sub 557), and several applications for business combinations involving electric utilities regulated by this Commission. Additionally, I was responsible for performing an examination of Carolina Power & Light Company's accounting for the cost of Harris Unit 1 in conjunction with the prudence audit performed by the Public Staff and its consultants in 1986 and 1987.

I have had supervisory or management responsibility over the Electric Section of the Accounting Division since 1986, and also was assigned management duties over the Water Section of the Accounting Division during the 2009-2012 time frame. I was promoted to Director of the Accounting Division in late December 2016.

Maness Exhibit I

DOMINION ENERGY NORTH CAROLINA
Docket No. E-22, Sub 545
North Carolina Retail Operations
CALCULATION OF DSM/EE AND DSM/EE EMF
BILLING FACTORS PER COMPANY
For the Rate Period January 1, 2018 - December 31, 2018

Line No.	Description	Revenue Requirement (Excluding NCRF) (a)		Applicable Rate Period kWh Sales (b)		Preliminary Billing Factor (dollars/kWh) (Excluding NCRF) [3] (c)	Preliminary Billing Factor (dollars/kWh) (Including NCRF) [4] (d)
1.	RIDER C:						
2.	Residential	$ 1,791,897	[1]	1,581,676,162	[1]	$ 0.00113	$ 0.00113
3.	Small General Service and Public Authority	1,203,229	[1]	825,316,985	[1]	$ 0.00146	$ 0.00146
4.	Large General Service	547,343	[1]	487,652,622	[1]	$ 0.00112	$ 0.00112
5.	6VP	-	[1]	-	[1]	N/A	N/A
6.	NS	-	[1]	-	[1]	N/A	N/A
7.	Outdoor Lighting	-	[1]	25,004,543	[1]	$ -	$ -
8.	Traffic Lighting	-	[1]	553,910	[1]	$ -	$ -
9.	Total (Sum of Lines 2-8)	$ 3,542,469		2,920,204,222			
10.	RIDER CE:						
11.	Residential	$ 104,662	[2]	1,581,676,162	[2]	$ 0.00007	$ 0.00007
12.	Small General Service and Public Authority	67,200	[2]	825,316,985	[2]	$ 0.00008	$ 0.00008
13.	Large General Service	30,569	[2]	487,652,622	[2]	$ 0.00006	$ 0.00006
14.	6VP	-	[2]	-	[2]	N/A	N/A
15.	NS	-	[2]	-	[2]	N/A	N/A
16.	Outdoor Lighting	-	[2]	25,004,543	[2]	$ -	$ -
17.	Traffic Lighting	-	[2]	553,910	[2]	$ -	$ -
18.	Total (Sum of Lines 11-17)	$ 202,431		2,920,204,222			

[1] Per Company Exhibit DAS-1, Schedule 1, Page 9 of 10.
[2] Per Company Exhibit DAS-1, Schedule 4, Page 1 of 2.
[3] Column (a) divided by Column (b).
[4] Column (c) divided by (1 minus the regulatory fee rate of 0.140%).

DOMINION ENERGY NORTH CAROLINA
DOCKET NO. E-22, SUB 545

TESTIMONY OF JACK L. FLOYD
ON BEHALF OF THE PUBLIC STAFF
NORTH CAROLINA UTILITIES COMMISSION

October 23, 2017

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

A. My name is Jack Floyd. My business address is 430 North Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am a Utilities Engineer with the Electric Division of the Public Staff, North Carolina Utilities Commission.

Q. BRIEFLY STATE YOUR QUALIFICATIONS AND DUTIES.

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

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to offer recommendations concerning: (1) the portfolio of DSM and EE programs for which Virginia Electric and Power Company, d/b/a Dominion Energy North Carolina (DENC or Company) is seeking cost recovery through the DSM/EE rider; (2) the cost effectiveness of each DSM and EE program; and (3) evaluation, measurement, and verification (EM&V) support data for the approved DSM and EE programs. I also assisted Public Staff witness Maness with his review of the rider calculations and inputs.

Q. WHAT STATUTES, COMMISSION RULES, OR ORDERS HAVE YOU REVIEWED IN YOUR INVESTIGATION OF DENC'S PROPOSED DSM/EE RIDER?

A. In preparing my testimony I reviewed the application, testimony, and exhibits for approval of cost recovery for demand-side management (DSM) and energy efficiency (EE) measures filed by DENC pursuant to G.S. 62-133.9 and Commission Rule R8-69 on August 15, 2017, the DSM/EE cost recovery mechanism approved by the Commission on May 27, 2015 (2015 Mechanism), the DSM/EE cost recovery mechanism approved by the Commission on May 22, 2017 (2017 Mechanism), and responses to Public Staff data requests. I also reviewed the 2017 EM&V Report[1] and previous Commission orders related to the Company's DSM and EE programs and cost recovery rider proceedings. I also assisted Public Staff witness Michael Maness with his review of the rider calculations and inputs underlying the riders proposed by DENC in this proceeding.

[1] "Evaluation, Measurement, and Verification Report for Virginia Electric and Power Company (Dominion)," dated May 1, 2017, filed in Docket No. E-22, Sub 536. The report provides the participation and program savings related to participation in the DSM/EE programs for Dominion Energy Virginia (DEV) and DENC through December 31, 2016. DEV and DENC are both business operating names of Virginia Electric and Power Company (VEPCO).

Q. PLEASE IDENTIFY THE DSM AND EE PROGRAMS FOR WHICH DENC IS SEEKING COST RECOVERY THROUGH THE DSM/EE RIDER IN THIS PROCEEDING.

A. The Company is seeking recovery of costs and/or utility incentives incurred for the following DSM and EE programs:

- Residential Air Conditioner (AC) Cycling Program (Sub 465)
- Residential Low Income Program (Sub 463)[2]
- Residential Lighting Program (Sub 468)
- Residential Home Energy Check Up Program (Sub 498)
- Residential Duct Testing Program (Sub 497)
- Residential Heat Pump Tune-Up Program (Sub 499)
- Residential Heat Pump Upgrade Program (Sub 500)
- Residential Income and Age Qualifying Home Improvement Program (Sub 523)
- Commercial Lighting Program (Sub 469)
- Commercial HVAC Upgrade Program (Sub 467)
- Non-Residential Energy Audit Program (Sub 495)
- Non-Residential Duct Testing and Sealing Program (Sub 496)
- Non-Residential Heating and Cooling Efficiency Program (Sub 507)
- Non-Residential Lighting Systems and Controls Program (Sub 508)
- Non-Residential Window Film Program (Sub 509)
- Small Business Improvement Program (Sub 538)
- Residential LED Lighting Program (Sub 539)

[2] The Residential Low Income Program was replaced by the Residential Income and Age Qualifying Program (Sub 523) beginning in January 2016.

- Non-Residential Prescriptive Program (Sub 543)[3]

The Residential Low Income, Residential Lighting, Commercial HVAC, and Commercial Lighting programs have been closed for some time. They are nonetheless appropriately included in the proposed Rider CE. More specifically, DENC has included program costs[4], net lost revenues, and PPI for the Residential Low Income, Commercial HVAC, and Commercial Lighting programs. Commission orders[5] related to the North Carolina-only versions of these programs, allow DENC to seek recovery of program costs, net lost revenues, and PPI. The Residential Lighting Program was allowed to conclude as initially designed. However, for the purposes of this proceeding PPI for measures installed under the Residential Lighting Program continue to be included in the 2018 DSM/EE rider.

Q. HAVE THERE BEEN ANY PROGRAMS IN THE DENC PORTFOLIO THAT HAVE DISCONTINUED OPERATION IN ITS NORTH CAROLINA SERVICE TERRITORY SINCE THE LAST RIDER FILING?

[3] DENC has included revenue requirement for this Program in its proposed Rider C. This program was approved as a new EE program by Commission order issued on October 16, 2017, in docket E-22, Sub 543.

[4] This includes operational expenses for the Residential Low Income, and EM&V costs for all three programs offered on a North Carolina-only basis, as described in Company Exhibit CAG-1, Schedule 2, page 3 of 8.

[5] Orders issued September 9, 2014, in Sub 463, and December 16, 2013, in Subs 467 and 469.

A. Yes. On November 29, 2016, the Commission approved the Company's request to close the Commercial (Non-Residential) Energy Audit, Commercial (Non-Residential) Duct Testing and Sealing, Residential Home Energy Check-Up, Residential Heat Pump Tune-Up, and the Residential Duct Testing programs, and to suspend the Residential Heat Pump Upgrade, effective February 7, 2017. Program costs, net lost revenues, and PPI associated with measures already installed through February 7, 2017, or pending applications remaining through March 31, 2017, are also eligible for cost recovery pursuant to the 2015 and 2017 Mechanisms.

The Commission subsequently granted the Company's request to close the Residential Heat Pump Upgrade program effective September 5, 2017. The Public Staff worked with the Company to see if a North Carolina-only version of this program could be offered. However, it was determined that a cost-effective North Carolina-only version was not possible. Costs related to these programs are appropriately included in Rider C and CE for measures installed prior to their closure or suspension.

I also note that the Company filed a request October 2, 2017 to suspend its Residential Income and Age Qualifying Program. I have reviewed data provided by the Company that indicates this program is significantly cost-ineffective and that a North Carolina-only version of this program cannot be cost-effectively offered. The Public Staff intends to present this matter to the Commission at a future Staff Conference. However, costs related to this program are also appropriately included in both for Riders C and CE.

Q. HAS THE COMPANY WORKED WITH THE PUBLIC STAFF TO EVALUATE THE POSSIBILITY OF OFFERING DSM AND EE PROGRAMS ON A NORTH CAROLINA-ONLY BASIS WHEN IT PLANS TO CANCEL THEM IN VIRGINIA?

A. Yes.

Q. HAS THE COMPANY PROPOSED ANY NEW DSM AND EE PROGRAMS?

A. The Company filed an application on July 28, 2017, for approval of its new Non-Residential Prescriptive Program as a new EE program. The program was approved by the Commission on October 16, 2017, in docket E-22, Sub 543 and is therefore eligible for cost recovery.

Q. PLEASE DISCUSS THE COST EFFECTIVENESS OF THE PORTFOLIO OF PROGRAMS.

A. The testimony and exhibits of DENC witness Deanna Kesler present the Company's analysis of cost effectiveness for each program. Company Exhibit DRK-1, Schedule 2, represents the programs eligible for PPI in the vintage 2018 rider, and includes the Company's calculations of the Utility Cost Test (UCT) and the Total Resource Cost (TRC) Test. This data provides a snapshot of program performance that is expected over the rate period. The data also provides a good comparison of the changes in cost effectiveness from year to year. Schedule 2 also provides the UCT benefits, which are used in the determination of the PPI component of rider rates.

With the exception of the Income and Age Qualifying Home Improvement Program and the Small Business Improvement Program, each program included in Schedule 2 is estimated to be cost effective in 2018 under the TRC test. With the exception of the Residential AC Cycling, Income and Age Qualifying Home Improvement, and Small Business Improvement programs, each program is also estimated to be cost effective in 2018 under the UCT.

Witness Kesler's Company Exhibit DRK-1, Schedule 4, represents the ongoing cost effectiveness of DSM and EE programs that have been implemented for at least 12 months as modeled in the Integrated Resource Plan (IRP) over the remaining life of each program.[6] This perspective provides the basis for which programs

[6] Pursuant to paragraph 39 of the 2017 Mechanism.

should or should not continue to be approved as a DSM or EE program eligible for cost recovery pursuant to the 2017 Mechanism.

Company Exhibit DRK-1, Schedule 4, indicates that with the exception of the Income and Age Qualifying Home Improvement Program, the Company's active programs are projected to be cost effective under the TRC test. Schedule 4 also indicates that with the exception of the AC Cycling and the Income and Age Qualifying Home Improvement programs, the remaining active programs are projected to be cost effective under the UCT.

My review of witness Kesler's calculations of cost effectiveness indicate that the calculations for Company Exhibit DRK-1, Schedules 2 and 4, have been performed in accordance with the 2017 Mechanism.

Q. HAVE YOU REVIEWED THE 2017 EM&V REPORT FILED BY DENC?

A. Yes. The Public Staff contracted the services of GDS Associates, Inc., to assist it with review of EM&V. With GDS's assistance, I have reviewed the 2017 EM&V Report. This report evaluated the participation and savings for each DSM and EE program approved in both Virginia and North Carolina through December 31, 2016.

I also reviewed previous Commission orders to determine if DENC complied with provisions regarding EM&V contained in those orders.

Q. DID DEC AND ITS EM&V CONSULTANT ADOPT YOUR RECOMMENDATIONS?

A. Yes. To the extent these recommendations are applicable to this proceeding, the 2017 EM&V Report incorporated my recommendations.

Q. DO YOU HAVE ANY NEW RECOMMENDATIONS REGARDING THE COMPANY'S 2017 EM&V REPORT?

A. Yes. Our review of the 2017 EM&V Report concluded that several of the algorithms used to calculate vintage year savings contained input data that were either misapplied or input incorrectly in the calculation itself. Those inputs are related to the temperature differences related to low flow showerhead, waste heat factors for non-residential lighting applications, and full load heating hours of heat pumps. By correcting these inputs, the savings associated with vintage year 2016 will likely need to be adjusted in the next rider proceeding. The impacted programs include the Residential Home Energy Check Up, Non-Residential Energy Audit Program, Non-Residential Duct Testing and Sealing Program, Non-Residential Heating and Cooling Efficiency Program, and the Non-Residential

Lighting Systems and Controls Program. DENC's third party EM&V evaluator has acknowledged that corrections need to be made and they propose to make them in the next EM&V report due to be filed in the spring of 2018.

The Company's practice regarding changes to its EM&V algorithms has been to recalculate the savings with the corrected data. Any change in the reported program savings resulting from the recalculation is then reported with the next vintage year's savings. In other words, any corrections made to vintage 2016 in this proceeding, will be added to the savings identified for 2017 and reported in the EM&V report to be filed in the spring of 2018 as 2017 savings.

The Public Staff has not had an issue with this approach and does not anticipate any issues going forward. However, I believe it would be appropriate for DENC and its third party EM&V evaluator to include a separate table or provide a separate determination of the corrected savings applicable to 2016, from any data applicable solely to 2017. Therefore, I recommend that future EM&V reports clearly identify any corrections to previous vintage year savings separate from the savings associated with the test year that is the subject of the EM&V report. The evaluator may report the total savings for the test year in the EM&V report, but it should also separately identify any changes or corrections. This is consistent with recommendations I made in previous rider proceedings regarding changes to programs and program inputs, which the Company adopted and has incorporated in the 2017 EM&V Report as Table 2-1.

With respect to the waste heater factors associated with non-residential lighting measures, to the extent that DENC can implement the necessary changes to affected Company and implementation vendor IT systems in a timely manner and it is not cost-prohibitive, I recommend that DENC begin collecting data in its participant application process, to determine the type of heating and cooling equipment used by the participant. This data would provide a better foundation for determining the values of waste heat factors in the algorithms associated with lighting measures. DENC's current practice does not collect data on the type of heating and cooling equipment. As a result, the third party evaluator must make assumptions on the type of heating and cooling equipment used. If the data cannot be collected due to difficulty in implementing this change in data collection procedures in a timely manner (i.e. in time to be included in the next program evaluation cycle), then I recommend that these changes be incorporated in any future programs or extensions of the Non-Residential Lighting Systems and Controls Program.

Furthermore, if the data cannot be collected due to difficulty in implementing this change in data collection procedures in time for the next program evaluation cycle, I recommend that DENC's evaluator develop default waste heat factor assumptions that accounts for the mix in HVAC system types in North Carolina among non-residential customers.

Q. DOES THE COMPANY AGREE WITH YOUR EM&V RECOMMENDATIONS?

A. Yes. I have discussed these recommendations with DENC and its third party evaluation, and I believe they do not object to these recommendations.

Q. HAVE YOU CONFIRMED THAT THE COMPANY'S CALCULATIONS INCORPORATE THE VERIFIED SAVINGS OF THE 2017 EM&V REPORT?

A. Yes. The 2017 EM&V Report provided gross and net savings from the portfolio of programs for the Virginia and North Carolina jurisdictions separately. However, the methodologies and assumptions used in the evaluations of the programs were consistently applied to both jurisdictions.

As in previous cost recovery proceedings, the 2017 EM&V Report provided gross and net savings from the portfolio of programs for the Virginia and North Carolina jurisdictions separately. However, the methodologies and assumptions used in the evaluations of the programs were consistently applied to both jurisdictions. I was able, through sampling, to confirm that the information in the 2017 EM&V Report flows into the PPI calculations of both Riders C and CE, and the net lost revenue calculations included in Rider CE. Based on this information and my observations, I believe DENC is appropriately incorporating the results of its EM&V efforts into the DSM/EE rider calculations.

For purposes of this and previous DSM/EE cost recovery proceedings for DENC, the 2017 EM&V Report data used to true up program savings and participation for vintage year 2016 and earlier vintages are sufficient to consider those vintage years to be complete for all programs operating in those years.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

APPENDIX A

JACK L. FLOYD

I am a graduate of North Carolina State University with a Bachelor of Science Degree in Chemical Engineering. I am licensed in North Carolina as a Professional Engineer. I have more than 17 years of experience in the water and wastewater treatment field, nine of which have been with the Public Staff's Water Division. In addition, I have been with the Electric Division for almost 14 years.

Prior to my employment with the Public Staff, I was employed by the North Carolina Department of Natural Resources, Division of Water Quality as an Environmental Engineer. In that capacity, I performed various tasks associated with environmental regulation of water and wastewater systems, including the drafting of regulations and general statutes.

In my capacity with the Public Staff's Water Division, I investigated the operations of regulated water and sewer utility companies and prepared testimony and reports related to those investigations.

Currently, my duties with the Public Staff include evaluating the operation of regulated electric utilities, including rate design, cost-of-service, and demand side management and energy efficiency resources. My duties also include assisting in the preparation of reports to the Commission; preparing testimony regarding my investigation activities; reviewing Integrated Resource Plans; and making recommendations to the Commission concerning the level of service for electric utilities.