NORTH CAROLINA
PUBLIC STAFF
UTILITIES COMMISSION

October 26, 2021

Ms. A. Shonta Dunston, Chief Clerk
North Carolina Utilities Commission
4325 Mail Service Center
Raleigh, North Carolina 27699-4300

Re: Docket No. E-22, Sub 604
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

Dear Ms. Dunston:

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

- Thomas C. Williamson, Jr. – Utilities Engineer, Energy Division
- Michael C. Maness – Director, Accounting Division

By copy of this letter, I am forwarding a copy of the testimony and exhibits to all parties of record by electronic delivery.

Sincerely,

Electronically submitted
s/ John Little
Staff Attorney
john.little@psncuc.nc.gov

Attachments

Executive Director (919) 733-2435 | Accounting (919) 733-4279 | Consumer Services (919) 733-9277 | Economic Research (919) 733-2267
Energy (919) 733-2267 | Legal (919) 733-6110 | Transportation (919) 733-7766 | Water/Telephone (919) 733-5610

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BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-22, SUB 604

October 26, 2021

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 under N.C. Gen. Stat. § 62-133.9 and Commission Rule R8-69	)	TESTIMONY OF THOMAS C. WILLIAMSON, JR. On Behalf of the Public Staff – North Carolina Utilities Commission

BEFORE THE NORTH CAROLINA UTILITIES COMMISSION

DOCKET NO. E-22, SUB 604

TESTIMONY OF THOMAS C. WILLIAMSON JR.

ON BEHALF OF THE PUBLIC STAFF

NORTH CAROLINA UTILITIES COMMISSION

OCTOBER 26, 2021

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

A. My name is Thomas C. Williamson, Jr. My business address is 430 North Salisbury Street, Dobbs Building, Raleigh, North Carolina. I am a Utilities Engineer with the Energy 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 demand side management (DSM) and energy efficiency (EE) programs for which Virginia Electric and Power Company (VEPCO), d/b/a Dominion Energy North Carolina (DENC or the Company) is seeking cost recovery through the DSM/EE rider; 2) the cost-effectiveness of each DSM and EE

program; and 3) the evaluation, measurement, and verification (EM&V) support data for the approved DSM and EE programs.

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

A. During my investigation, I reviewed: 1) the application, testimony, and exhibits for approval of cost recovery for DSM and EE measures filed by DENC pursuant to N.C. Gen. Stat. § 62-133.9 and Commission Rule R8-69 on August 10, 2021; 2) the DSM/EE cost recovery mechanism approved by the Commission on May 27, 2015 (2015 Mechanism); 3) the DSM/EE cost recovery mechanism approved by the Commission on May 22, 2017 (2017 Mechanism); 4) responses to Public Staff data requests and follow-up conference calls with Company personnel; 5) the 2021 EM&V Report;[1] 6) recent Virginia legislation that directly impacts the operation and availability of DSM/EE programs in North Carolina; and 7) previous Commission orders related to the Company's DSM and EE programs and cost recovery rider proceedings.

[1] "Evaluation, Measurement, and Verification Report for Dominion Virginia Power," dated May 14, 2021, filed in Docket No. E-22, Sub 589 (EM&V Report). The report provides the participation and program savings related to the DSM/EE programs for Dominion Virginia Power (DVP) and DENC through December 31, 2020. DVP and DENC are both business operating names of 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 incurred and/or utility incentives for the DSM and EE programs in Table 1.

Table 1 – DSM and EE Programs Seeking Recovery

Program	Sub	Focus	DSM Phase	Program Name
1	465	Res	1	Residential Air Conditioner Cycling
2	507	Non-Res	3	Non-Residential Heating and Cooling Efficiency
3	508	Non-Res	3	Non-Residential Lighting Systems and Controls
4	509	Non-Res	3	Non-Residential Window Film
5	523	Res	4	Income and Age Qualifying Home Improvement
6	538	Non-Res	5	Non-Residential Small Business Improvement Program
7	543	Non-Res	6	Non-Residential Prescriptive Program
8	567	Res	7	Residential Home Energy Assessment
9	568	Res	7	Residential Efficient Products Marketplace
10	569	Res	7	Residential Appliance Recycling
11	570	Non-Res	7	Non-Residential Window Film
12	571	Non-Res	7	Non-Residential Small Manufacturing
13	572	Non-Res	7	Non-Residential Office
14	573	Non-Res	7	Non-Residential Lighting Systems and Controls
15	574	Non-Res	7	Non-Residential Heating and Cooling Efficiency Program
16	591	Non-Res	8	Non-Residential New Construction
17	592	Res	8	Residential EE Kits
18	593	Res	8	Residential Home Retrofit
19	594	Res	8	Residential Smart Thermostat DR
20	595	Res	8	Residential Smart Thermostat EE
21	596	Non-Res	8	Non-Residential Small Business Improvement Enhanced

The above table includes both active and retired programs. Retired programs are still eligible for cost recovery to handle amortized costs that were generated while they were offered to North Carolina customers.

Q. HAVE THERE BEEN ANY NEW OR DISCONTINUED PROGRAMS IN THE DENC PORTFOLIO SINCE THE LAST RIDER PROCEEDING?

A. Yes. Phase 8 added a total of six new programs. Four residential (Residential Home EE Kits, Residential Home Retrofit, Residential Smart Thermostat DR, and Residential Thermostat EE) and two non-residential (Non-Residential New Construction and Non-Residential Small Business Improvement Enhanced).

The Company in its Virginia service territory has recently been given approval by the Virginia State Corporation Commission (VSCC) of its Phase 9 collection of programs. These programs are not included in this application, but programs within the Company's Phase 9 will be filed individually in North Carolina for approval and ultimate inclusion in future DSM/EE Rider applications.

Q. HAS THE COMPANY CONTINUED TO WORK 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. PLEASE DISCUSS THE AVOIDED COSTS USED TO DETERMINE COST-EFFECTIVENESS OF THE PORTFOLIO OF PROGRAMS.

A. The Company attests that the underlying avoided cost sources for the eligible programs are consistent with the 2017 Mechanism. Paragraph 19 of the 2017 Mechanism states that:

> For purposes of program approval (new programs or modifications of existing programs submitted pursuant to Commission Rule R8-68), the per kW avoided capacity costs used to calculate cost effectiveness of programs and/or measures shall be determined at the time of DNCP's files its petition for annual cost recovery pursuant to Rule R8-69 and this Mechanism, using comparable methodologies to those used in the most recently approved biennial avoided cost proceeding. The per kWh avoided energy costs shall be those from the recommended or preferred plan reflected in or underlying the most recently filed integrated resource plan.

Through discovery, the Company stated that its assumptions associated with resource and supply costs are consistent with the assumptions used in the recommended Plan B from its 2020 Integrated Resource Plan[2] for the calculations of its avoided capacity and energy costs.

Q. PLEASE EXPLAIN HOW THE UPDATED FORECAST MODELING IMPACTS THE PORTFOLIO OF DSM/EE PROGRAMS.

A. Through discovery, the Company stated that it had updated its modeling inputs to the historical penetrations, kW savings, kWh

[2] Filed May 1, 2020 in Docket No. E-100, Sub 165.

savings, and revised load shapes for the existing portfolio to forecast cost-effectiveness. The inputs flowing from the Company's updated PJM forecast are: utilization of a winter peak (instead of the traditional summer peak), changes in underlying fuel and energy prices, and the inclusion of Virginia Clean Economy Act[3] (VCEA) requirements.

The reasoning behind this shift in modeling is because in recent VSCC proceedings, the VSCC has instructed the Company to use an updated PJM forecast that is more focused on the inputs associated with the DOM zone of PJM, as opposed to the traditional focus of the PJM system as a whole, which is historically summer peaking.

As a result of using a winter peak in the DSM and EE forecasting, it is difficult to achieve cost-effective savings for programs that produce negligible winter peak capacity benefits. However, this shift in seasonal peaking should ultimately produce more winter focused programs in the portfolio that will help customers.

[3] The VCEA, House Bill 1526, was signed into law on April 11, 2020 and became effective July 1, 2020. The VCEA is major comprehensive energy legislation that, among other things, sets a target of reaching 5% energy efficiency savings (based on 2019 jurisdictional electricity sales) by 2025.

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

A. The testimony and exhibits of DENC witness Edmund J. Hall present the Company's analysis of cost-effectiveness for each program. Company Exhibit EJH-1, Schedule 2, represents the programs eligible for inclusion in the calculation of the Portfolio Performance Incentive (PPI) in the Vintage 2022 rider, and includes the Company's calculations of the Utility Cost (UC) and the Total Resource Cost (TRC) tests. These data points provide a snapshot of program performance that is expected over the rate period. The data also provide a good comparison of the changes in cost-effectiveness from year to year. Schedule 2 also provides the UC test benefits, which are used in the determination of the PPI component of rider rates.

The Company's Exhibit EJH-1, Schedule 2, indicates that eight of the 16 programs are projected not to be cost-effective under both the TRC and UC tests while five of the 16 programs will be cost-effective under both tests. The Vintage 2022 Portfolio also shows to be cost-effective under both tests.

Witness Hall's Exhibit EJH-1, Schedule 4,[4] represents the prospective cost-effectiveness of DSM and EE programs as modeled by the 2020 IRP over the remaining life of each program. This perspective provides the basis for determining which programs should continue to be offered as DSM or EE programs eligible for cost recovery pursuant to the Company's DSM/EE mechanism. The Company's Exhibit EJH-1, Schedule 4, indicates that all programs except for the Residential Home Energy Assessment Program and Non-Residential Window Film Program are projected to be cost-effective under either the TRC or UC tests. The Portfolio is projected to be cost-effective under both tests.

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

The Company has historically relied on the Strategist Model to calculate and model cost-effectiveness for its portfolio of programs. However, as the Company has adopted the Plexos Model in its IRP, it is my understanding that the Company will soon begin shifting its evaluation of cost-effectiveness toward the Plexos Model. The Public

[4] Based on Mechanism Paragraph 41.

Staff has had conversations with the Company covering this transition, including a conversation regarding the Company's verification that the results of both models produce a similar result.

Q. WHAT HAS BEEN THE RECENT HISTORY OF THE PROGRAM AND PORTFOLIO COST-EFFECTIVENESS TESTS?

A. Williamson Exhibit-1 and -2 of my testimony show Program and Portfolio UCT results from Schedules 2 and 4 beginning in the E-22, Sub 545 proceeding in 2018 though the current proceeding.

In Williamson Exhibit-1 the UCT for the Residential Appliance Recycling Program has not been cost-effective in the last three vintage years and has had a steady decline over the last two vintage years with scores of 0.99, 0.71, and 0.60.

In both Williamson Exhibits 1 and 2, the Portfolio UCT has been cost-effective since 2018 with the exception of the 2021 vintage when the UCT was 0.33 in Schedule 2 and 0.98 in Schedule 4.

Q. DO YOU HAVE ANY OBESRVATIONS BASED ON THIS RECENT HISTORY OF THE COST-EFFECTIVENESS TESTS?

A. Yes. The Public Staff notes that the Vintage 2021 Portfolio UCT was negatively impacted by the Covid-19 pandemic. The Portfolio UCT has returned to cost-effectiveness in the 2022 Vintage.

The Public Staff will monitor the Residential Appliance Recycling Program to evaluate the Company's efforts to improve the Program's cost-effectiveness in the next proceeding.

Q. HAVE YOU REVIEWED THE 2021 EM&V REPORT FILED BY DENC?

A. Yes. The Public Staff contracted the services of GDS Associates, Inc. (GDS) to assist with review of EM&V. With GDS's assistance, I have reviewed the 2021 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, 2020.

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

Q. DO YOU HAVE ANY RECOMMENDATIONS REGARDING THE COMPANY'S 2021 EM&V REPORT?

A. No. Based on our review of the 2021 EM&V Report, I do not propose any adjustments to the Company's EM&V Report.

Q. HAVE YOU CONFIRMED THAT THE COMPANY'S CALCULATIONS INCORPORATE THE VERIFIED SAVINGS OF THE 2020 EM&V REPORT?

A. Yes. As in previous cost recovery proceedings, the 2021 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 a meeting with the Company and additional sampling, to confirm that the information in the 2021 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 2021 EM&V Report data used to true up program savings and participation for Vintage Year 2020 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

THOMAS C. WILLIAMSON, JR.

I am an Engineer with the Public Staff's Energy Division. I graduated from North Carolina State University with a Bachelor in Science in Electrical Engineering. I have approximately 3 years of electrical distribution design and construction experience with Florida Power & Light Company. During that time I designed distribution circuits for overhead and underground services from the substation through to end users. This was inclusive of but not limited to; customer load analysis, feeder line loading analysis, facilities construction and installation. I then served 11 years as an Engineer with General Electric Company. In this role at General Electric Company, I represented the company with electrical design engineers, industrial and commercial end customers, and installation contractors to develop technical specifications for the procurement and use of electrical distribution equipment.

Since joining the Public Staff in 2016, I have reviewed; electric customer complaints including, but not limited to, quality of service, new service line extensions, and vegetation management; electric and gas utility transmission and distribution construction projects; vegetation management procedures; and small generator interconnection applications. I have also filed testimony in general rate cases and North Carolina Interconnection Procedures (NCIP).

Schedule 2 - Vintage Year UCT						DSM EE Docket / Vintage Year				
						545	556	577	589	604
Prgm. Count	Prgm. Sub	Focus	DSM Phase	Program Name	Prgm. Life	2018	2019	2020	2021	2022
1	465	Res	1	Residential Air Conditioner Cycling	15	0.73	0.59	0.49		
2	507	Non-Res	3	Non-Residential Heating and Cooling Efficiency	15	30.73				
3	508	Non-Res	3	Non-Residential Lighting Systems and Controls	9	4.29				
4	509	Non-Res	3	Non-Residential Window Film		12.30				
5	523	Res	4	Income and Age Qualifying Home Improvement	15	0.19	0.19	0.16	0.16	
6	538	Non-Res	5	Non-Residential Small Business Improvement Program	14	0.80	0.96	1.42	1.04	1.05
7	543	Non-Res	6	Non-Residential Prescriptive Program	6	1.97	1.98	2.00	0.09	0.31
8	567	Res	7	Residential Home Energy Assessment	12			1.45	1.98	0.83
9	568	Res	7	Residential Efficient Products Marketplace	16			4.65	0.00	3.61
10	569	Res	7	Residential Appliance Recycling	8			0.99	0.71	0.60
11	570	Non-Res	7	Non-Residential Window Film	10			2.00	1.28	0.26
12	571	Non-Res	7	Non-Residential Small Manufacturing	12			1.44	0.99	1.08
13	572	Non-Res	7	Non-Residential Office	7			1.12	1.50	0.17
14	573	Non-Res	7	Non-Residential Lighting Systems and Controls	11		4.11	2.18	1.08	2.72
15	574	Non-Res	7	Non-Residential Heating and Cooling Efficiency Program	15		2.26	3.11	6.24	5.03
16	591	Non-Res	8	Non-Residential New Construction	20					0.84
17	592	Res	8	Residential EE Kits	15					1.35
18	593	Res	8	Residential Home Retrofit	24					0.89
19	594	Res	8	Residential Smart Thermostat DR	10					3.77
20	595	Res	8	Residential Smart Thermostat EE	10					0.95
21	596	Non-Res	8	Non-Residential Small Business Improvement Enhanced	11					1.03
				PORTFOLIO	20	3.96	1.19	2.42	0.33	2.05

Public Staff
Williamson, T Exhibit 1

Schedule 4 - Prospective UCT						DSM EE Docket / Vintage Year				
						545	556	577	589	604
Prgm. Count	Prgm. Sub	Focus	DSM Phase	Program Name	Prgm. Life	2018	2019	2020	2021	2022
1	465	Res	1	Residential Air Conditioner Cycling	15	0.72	0.60	0.70	0.01	
2	507	Non-Res	3	Non-Residential Heating and Cooling Efficiency	15					
3	508	Non-Res	3	Non-Residential Lighting Systems and Controls	9					
4	509	Non-Res	3	Non-Residential Window Film		11.94				
5	523	Res	4	Income and Age Qualifying Home Improvement	15	0.21	0.22	0.19	0.58	1.36
6	538	Non-Res	5	Non-Residential Small Business Improvement Program	14		1.05	1.43	2.08	1.62
7	543	Non-Res	6	Non-Residential Prescriptive Program	6			2.33	0.20	1.19
8	567	Res	7	Residential Home Energy Assessment	12					0.70
9	568	Res	7	Residential Efficient Products Marketplace	16					4.43
10	569	Res	7	Residential Appliance Recycling	8					
11	570	Non-Res	7	Non-Residential Window Film	10					0.22
12	571	Non-Res	7	Non-Residential Small Manufacturing	12					
13	572	Non-Res	7	Non-Residential Office	7					
14	573	Non-Res	7	Non-Residential Lighting Systems and Controls	11	3.12	4.03			2.78
15	574	Non-Res	7	Non-Residential Heating and Cooling Efficiency Program	15	27.37	2.12			
16	591	Non-Res	8	Non-Residential New Construction	20					
17	592	Res	8	Residential EE Kits	15					
18	593	Res	8	Residential Home Retrofit	24					
19	594	Res	8	Residential Smart Thermostat DR	10					
20	595	Res	8	Residential Smart Thermostat EE	10					
21	596	Non-Res	8	Non-Residential Small Business Improvement Enhanced	11					
				PORTFOLIO	20	2.86	1.15	1.16	0.98	2.47

Public Staff
Williamson, T Exhibit 2