JEHMAL T. HUDSON
COMMISSIONER

SAMUEL T. TOWELL
COMMISSIONER

KELSEY A. BAGOT
COMMISSIONER

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

BERNARD LOGAN
CLERK OF THE COMMISSION
P.O. BOX 1197
RICHMOND, VIRGINIA 23218-1197

October 1, 2024

The Honorable Glenn Youngkin
Governor, Commonwealth of Virginia

The Honorable R. Creigh Deeds
Chair, Senate Committee on Commerce and Labor

The Honorable Jeion A. Ward
Chair, House Committee on Labor and Commerce

The Honorable Travis A. Voyles
Secretary of Natural and Historic Resources

The Honorable Caren Merrick
Secretary of Commerce and Trade

Members of the Virginia General Assembly

Ladies and Gentlemen:

Please find enclosed the Virginia State Corporation Commission's Annual Report on Energy Efficiency Programs and the Annual Report on the Feasibility of Achieving Energy Efficiency Goals pursuant to Chapter 1193 of the 2020 Virginia Acts of Assembly.

Please let us know if we may be of further assistance.

Respectfully submitted,

Jehmal T. Hudson
Chairman

Samuel T. Towell
Commissioner

Kelsey A. Bagot
Commissioner

Enclosure

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

Reports to the Governor of the Commonwealth of Virginia,
the Chair of the Senate Committee on Commerce and Labor,
the Chair of the House Committee on Labor and Commerce,
the Secretary of Natural and Historic Resources, and
the Secretary of Commerce and Trade

COMBINED REPORTS

INCLUDING:

Annual Report on Energy Efficiency Programs
Pursuant to Chapter 1193 of the 2020 Virginia Acts of Assembly

Annual Report on the Feasibility of Achieving Energy Efficiency Goals
Pursuant to Chapter 1193 of the 2020 Virginia Acts of Assembly

October 1, 2024

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EXECUTIVE SUMMARY

This document contains the combined reports ("Report") of the Virginia State Corporation Commission ("Commission") pursuant to Chapter 1193 of the 2020 Virginia Acts of Assembly.[1]

The key highlights of this report include:

- In its fourth DSM application pursuant to the VCEA, Dominion filed for, and received approval of, three new energy efficiency programs and one demand response program. In addition, Dominion received approval to update two existing programs. In its application, Dominion also presented its progress towards achieving the energy efficiency savings goals of the VCEA and the required proposed investment levels of the GTSA.[2]

- In its third DSM application pursuant to the VCEA, APCo filed for, and received approval of, two new energy efficiency programs. In addition, APCo received approval for an extension of five existing energy efficiency programs. In its application, APCo presented its progress towards achieving the energy efficiency savings goals of the VCEA and the required proposed investment levels of the GTSA.[3]

- Each Company's 2023 DSM proceeding was the first opportunity for the Commission to evaluate the Company's performance in meeting the 2022 energy savings target pursuant to Code § 56-596.2. The Commission concluded that "net" savings, which removes free ridership from total gross savings, is the appropriate measurement of the total annual savings required by § 56-596.2.

[1] Virginia Clean Economy Act ("VCEA"), 2020 Va. Acts chs. 1193, 1194. The VCEA explicitly references Phase I and Phase II utilities. For purposes of this report, the Commission will focus on Appalachian Power Company ("APCo") as a Phase I utility and Dominion Energy Virginia ("DEV" or "Dominion") as a Phase II utility. The Commission further notes that in 2023, Kentucky Utilities d/b/a Old Dominion Power Company ("KU/ODP") filed a comprehensive Demand-Side Management ("DSM") plan targeting at least a 0.02% decrease in total jurisdictional sales. The Commission, having not reached a majority decision in the matter, did not issue an order approving or rejecting KU/ODP's application. *Application of Kentucky Utilities Company d/b/a Old Dominion Power Company for Implementation of a Demand-Side Management Program and Cost-Recovery Adjustment Clause*, Case No. PUR-2023-00096, Doc. Con. Cen. No. 240320158, Order Closing Case (March 12, 2024).

[2] *Petition of Virginia Electric and Power Company, For approval of its 2023 DSM Update pursuant to § 56-585.1 A 5 of the Code of Virginia*, Case No. PUR-2023-00217, Doc. Con. Cen. No. 240740067, Final Order (July 26, 2024) ("2023 DSM Update Final Order"). Case No. PUR-2023-00217 is referred to herein as "2023 DSM Update."

[3] *Petition of Appalachian Power Company, For Approval to continue rate adjustment clause, the EE-RAC, and for approval of new energy efficiency programs pursuant to §§ 56-585.1 A 5 c and 56-596.2 of the Code of Virginia*, Case No. PUR-2023-00169, Doc. Con. Cen. No. 240750015, Final Order (July 26, 2024) ("2023 EE-RAC Final Order"). Case No. PUR-2023-00169 is referred to herein as "2023 EE-RAC Proceeding."

- Dominion had total combined net savings of 839,243 megawatt-hour ("MWh") in 2022, which represents 1.23% of 2019 total annual sales and is less than Dominion's 2022 total annual savings target of 1.25%, or 852,892 MWh.

- APCo had total combined net savings of 219,036 MWh in 2022, which represents 1.52% of 2019 total annual sales, and is more than APCo's 2022 total annual energy savings target of 0.5% or 72,260 MWh. The Commission awarded a margin on energy efficiency program operating expenses to APCo pursuant to Code § 56-585.1 A 5 c.

- Calendar year 2023 was the second year in which the VCEA's energy efficiency targets were in effect pursuant to Code § 56-596.2. The Commission received data related to the utilities' achievement of such targets in each Company's DSM application, as noted above, and in each utility's evaluation, measurement, and verification ("EM&V") report.[4]

- According to its 2024 EM&V Report, Dominion anticipates falling short of the 2023 energy savings target (1.8% achieved compared to the 2.50% target) as measured on a "net"[5] basis.[6]

- According to its 2024 EM&V Report, APCo anticipates meeting the 2023 energy savings target (2.41% compared to the 1.0% target) as measured on a net basis.[7]

- The Companies' 2023 EM&V results and whether either utility met their respective 2023 energy savings targets has not yet been subject to Commission review. The Commission will review these EM&V results as a part of each utility's future energy efficiency proceedings and will provide additional data related to the feasibility of achieving these energy efficiency goals in future reports.

A glossary of terms is provided in Appendix 3.

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[4] APCo filed its most recent EM&V Report on May 1, 2024, in Case No. PUE-2014-00039 ("APCo's 2024 EM&V Report"). Dominion filed its most recent EM&V Report ("DEV's 2024 EM&V Report") on June 12, 2024, in Case No. PUR-2022-00210. Please note that the 2024 EM&V Reports contain data on the 2023 program year. The public version of documents filed with the Commission may be located on the Commission's website, scc.virginia.gov/pages/Case Information, by clicking "Docket Search," then clicking "Search by Case Information," and entering the appropriate case number in the appropriate box.

[5] "Net" generally refers to changes in energy use that are induced by a particular energy efficiency program, *i.e.,* exclusive of free riders. A "free rider" is someone who would have installed an energy-efficiency measure absent any program incentive but receives the incentive anyway.

[6] DEV'S 2024 EM&V Report at iii.

[7] APCo's 2024 Commercial and Industrial EM&V Report at 9 and APCo's 2024 Residential EM&V Report at 8.

INTRODUCTION

The Commission appreciates the opportunity to provide this update to the Governor and the General Assembly on energy efficiency and DSM-related matters. The Commission has conducted energy efficiency and DSM-related proceedings that are detailed below. In addition, the Commission's Staff has participated in multiple stakeholder meetings over the last year as required by recent legislation and Commission Order.[8] Energy efficiency meetings, required by SB 966,[9] SB 1605,[10] and HB 2293,[11] were held on October 23, 2023, March 22, 2024, and June 4, 2024, for DEV, and on September 9, 2023, March 27, 2024, and June 25, 2024, for APCo.

Statutory Background

The statutory bases for this Report of the Commission on energy efficiency and DSM-related matters are the following:

- Energy Efficiency Programs: The VCEA added language to Code § 56-585.1 A 5 c directing the Commission to monitor and report to the General Assembly annually on the performance of all programs approved pursuant to Code § 56-585.1 A 5 c;[12] and,

- Feasibility of Energy Efficiency Goals: The VCEA added subsection B 3 to Code § 56-596.2. This subsection, among other things, directs that beginning October 1, 2022, and each year thereafter, the Commission shall review the feasibility of the energy efficiency program savings in Code § 56-596.2 and report to the Chairs of the House Committee on Labor and Commerce, the Senate Committee on Commerce and Labor, the Secretary of Natural and Historic Resources, and the Secretary of Commerce and Trade on such feasibility.

[8] *Petition Of Virginia Electric and Power Company, For approval of its 2021 DSM Update pursuant to § 56-585.1 A 5 of the Code of Virginia* Case No. PUR-2021-00247, 2022 S.C.C. Ann. Rept. 384, Final Order (August 10, 2022) ("2021 DSM Update Final Order").

[9] 2018 Va. Acts ch. 296.

[10] 2019 Va. Acts ch. 398.

[11] 2019 Va. Acts ch. 397.

[12] Prior to 2022, the Commission previously included this annual report as part of its December 1 Combined Reports.

ENERGY EFFICIENCY PROGRAMS

The VCEA establishes energy efficiency savings targets for Phase I and Phase II utilities through 2025.[13] After 2025, the Commission is directed to establish new energy efficiency targets.[14] The targets through 2025 are as follows, expressed as a percentage of the average annual energy jurisdictional retail sales by that utility in 2019.

Year	Phase I Utility	Phase II Utility
2022	0.5%	1.25%
2023	1.0%	2.5%
2024	1.5%	3.75%
2025	2.0%	5.0%

The VCEA directs the Commission to award a margin for recovery on operating expenses for energy efficiency programs and pilot programs prior to January 1, 2022.[15] After January 1, 2022, the VCEA directs the Commission to award a margin on energy efficiency program operating expenses in the applicable year if a Phase I or Phase II utility achieves total savings equal to the energy efficiency savings targets set forth above.[16] Further, energy efficiency pilot programs

[13] Subject to certain conditions, the Commission is prohibited from approving construction of any new utility-owned generating facilities that emit carbon dioxide as a by-product of combusting fuel to generate electricity unless the utility has already met the energy savings goals prescribed above and the Commission finds that supply-side resources are more cost-effective than demand-side or energy storage resources. Code § 56-585.1 A 5.

[14] For this purpose, the Commission established Case No. PUR-2023-00227 to set Dominion's targets and Case No. PUR-2024-00134 to set APCo's targets.

[15] Code § 56-585.1 A 5 c.

[16] *Id*.

are to be found in the public interest if they are of a limited scope, cost, and duration and intended to determine whether a new or substantially revised program would be cost-effective.[17]

The VCEA also directs the Commission to monitor and annually report to the General Assembly on the performance of all energy efficiency programs approved pursuant to Code § 56-585.1 A 5 c, including each utility's compliance with the total annual savings required by Code § 56-596.2, as well as the annual and lifecycle net and gross[18] energy and capacity savings, related emissions reductions, and other quantifiable benefits of each program; total customer bill savings that the programs produce; utility spending on each program, including any associated administrative costs; and each utility's avoided costs and cost-effectiveness results.

In this regard, the Commission notes that APCo has filed three applications for approval of DSM programs since the effective date of the VCEA (July 1, 2020) and DEV has filed four applications, which are discussed further below. For 2022, Dominion had total combined net MWh savings of 839,243 MWh, which represents 1.23% of 2019 total annual sales and is less than Dominion's 2022 total annual savings target of 1.25%, or 852,892 MWh. APCo had total combined net MWh savings of 219,036 MWh, in 2022, which represents 1.52% of 2019 total annual sales, and is more than APCo's 2022 total annual energy savings target of 0.5% or 72,260 MWh. The Commission awarded a margin on energy efficiency program operating expenses to APCo pursuant to Code § 56-585.1 A 5 c.

Due to the time involved for DEV and APCo to prepare and file applications, for the Commission to conduct associated proceedings, and for each utility to roll out and implement the DSM programs and subsequently collect EM&V data, the Commission does not expect to be able

[17] *Id.*

[18] "Gross" refers to savings that are expected to occur independent of an energy efficiency program's implementation, *i.e.,* inclusive of free riders.

to verify all of the 2023 reporting data outlined above until the conclusion of the next energy efficiency proceeding for Dominion and APCo. The Commission has included key metrics related to existing DSM programs from each utility's most recent EM&V Report in Appendices 1 and 2.

VCEA EE PROGRAMS

DEV

In its first DSM application pursuant to the VCEA ("2020 DSM Update"), Dominion filed for, and received approval of, nine energy efficiency ("EE") programs, one demand response program (collectively referred to as Dominion's "Phase IX Programs"), and a two-year extension of an existing demand response program.[19] Additionally, the Commission approved a rooftop solar program application filed pursuant to legislation approved during the 2019 General Assembly Session.[20] The approved programs and associated cost caps are discussed below.

According to analysis provided by DEV in its 2020 DSM Update, DEV initially did not anticipate achieving the VCEA's energy savings targets beginning in 2023.[21] As such, the Commission directed DEV to file, among other things, a long-term plan that included proposed program savings and budgets for the five-year period beginning January 1, 2022, sufficient to comply with the total energy savings targets in the VCEA and investment levels in the GTSA. The Commission also directed DEV to file a proposed plan and framework for consolidating, streamlining, and marketing the public-facing aspects of DEV's approved and proposed DSM programs to facilitate participation at the levels required to achieve the VCEA targets.[22]

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[19] *Petition of Virginia Electric and Power Company, For approval of its 2020 DSM Update pursuant to § 56-585.1 A 5 of the Code of Virginia*, Case No. PUR-2020-00274, 2021 S.C.C. Ann. Rept. 350, Final Order (September 7, 2021) ("2020 DSM Update Final Order").

[20] *Id.*; 2019 Va. Acts ch. 748 (House Bill 2789).

[21] *See* 2020 DSM Update Final Order at 11.

[22] *Id*. at 11-12.

In its second DSM application pursuant to the VCEA ("2021 DSM Update"), Dominion filed for, and received approval of, nine EE programs (referred to as its Phase X Programs).[23] In addition to its 2021 DSM Update, Dominion also presented a long-term plan ("Long-Term Plan") to comply with the total energy savings targets in the VCEA and investment levels in the GTSA, among other things, as required by the 2020 DSM Update Final Order. As part of that Long-Term Plan, Dominion proposed restructuring its DSM portfolio and programs into approximately seven major programs, with seven sub-categories for distinct components and pathways. Dominion also committed to an annual investment of $2.5 million from 2022 to 2026 directed toward improving customer awareness and marketing.[24] The Commission approved Dominion's proposed reorganization and consolidations of its DSM Portfolio consistent with Dominion's Long-Term Plan.[25]

In its third DSM application pursuant to the VCEA ("2022 DSM Update"), Dominion filed for, and received approval of, five EE programs (referred to as its Phase XI Programs), as well as four "program bundles."[26] Dominion presented program bundles as a way to consolidate programs and program measures that would provide qualifying customers the opportunity to implement a wider variety of EE measures, with its goal being to provide a better customer experience and optimize participation in DEV's EE programs. Dominion also received approval to expand the eligibility of its Phase IX Agricultural Program to residential customers.

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[23] *Petition of Virginia Electric and Power Company, For approval of its 2021 DSM Update pursuant to § 56-585.1 A 5 of the Code of Virginia*, Case No. PUR-2021-00247, 2022 S.C.C. Ann. Rept. 384, Final Order (August 10, 2022) ("2021 DSM Update Final Order").

[24] Low program participation has historically served as a barrier to DSM program success.

[25] 2021 DSM Update Final Order at 6.

[26] 2022 DSM Update Final Order at 9-10.

Regarding the implementation of the Long-Term Plan, the Commission directed Dominion to provide an annual Project Management Plan detailing what DSM tasks were completed in the last twelve months, what tasks would be completed in the next twelve months, and what tasks remain to be completed, to fully implement the Long-Term Plan.

In its fourth DSM application pursuant to the VCEA ("2023 DSM Update"), DEV filed for, and received approval of, three energy efficiency programs, one demand response program (referred to as the Phase XII programs), as well as modifications to two existing programs. The Commission denied the Company's request to close the Non-Residential Distributed Generation program. Further, the Commission required the Company to continue providing Long-Term Plan reporting and stakeholder progress reporting. In the 2023 DSM Update, the Company proposed approximately $102 million in energy efficiency programs. In total, the Company has now proposed approximately $797 million of the $870 million required by the GTSA.

Regarding the Company's progress in meeting the 2022 VCEA energy savings target, the Commission made two findings. First, the Commission determined that net savings is the appropriate measurement of the total annual savings required by Code § 56-596.2.[27] Second, the Commission determined that DEV had a total combined net savings of 839,243 MWh, which is less than DEV's 2022 total annual savings target of 1.25%, or 852,892 MWh.[28] As such, the Commission did not approve the recovery of a bonus margin on the Company's spending, pursuant to Code § 56-585.1 A 5 c. As discussed further below, as of its latest DSM proceeding, Dominion projected that it would not meet its 2023 VCEA-related savings goal on a net basis.

[27] 2023 DSM Update Final Order at 15.

[28] 2023 DSM Update Final Order at 16.

APCo

In its first DSM application pursuant to the VCEA, APCo filed for, and received approval of, four EE programs, a demand response program, and a three-year voltage conservation pilot program.[29] Additionally, the Commission approved a five-year extension for two of APCo's existing DSM programs. The approved programs and associated cost caps are provided later in this Report.

In its second DSM application pursuant to the VCEA, APCo filed for, and received approval of, one EE program.[30] Additionally, APCo requested, and received, approval to move to a biennial filing cadence for its energy efficiency program activities. APCo stated that it did not anticipate the immediate need to initiate any new programs in the interim. The Commission required APCo to file, in Case No. PUR-2021-00236 ("APCo's 2021 EE-RAC Proceeding"), an updated report on program costs, revenues, participation levels, and other relevant information on or before November 30, 2022, and required the same report to be filed in the next docketed EE-RAC case.[31]

As noted above, APCo received Commission approval to move to a biennial filing cadence and, thus, did not file a DSM-related application in 2022. As directed by the Commission, the Company filed an updated report on program costs, revenues, participation, and other relevant information on November 30, 2022.[32]

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[29] *Petition of Appalachian Power Company, For approval to continue rate adjustment clause, the EE-RAC, and for approval of new energy efficiency programs pursuant to §§ 56-585.1 A 5 c and 56-596.2 of the Code of Virginia*, Case No. PUR-2020-00251, 2021 S.C.C. Ann. Rept. 325, Order Approving Rate Adjustment Clause (July 29, 2021).

[30] *Petition of Appalachian Power Company, For approval to continue rate adjustment clause, the EE-RAC, and for approval of new energy efficiency programs pursuant to §§ 56-585.1 A 5 c and 56-596.2 of the Code of Virginia*, Case No. PUR-2021-00236, 2022 S.C.C. Ann. Rept. 371, Order Approving Rate Adjustment Clause (July 15, 2022) ("APCo's 2021 EE-RAC Final Order").

[31] *Id.* at 2-3, 6.

[32] *See, e.g.,* APCo witness Diebel's direct testimony, Schedule 2, filed in APCo's 2021 EE-RAC Proceeding with its Petition. Note, however, that the Commission did not make any determination regarding APCo's "achieved" savings

In its third application pursuant to the VCEA, APCo filed for, and received approval of, two new energy efficiency programs, enhancements to four existing programs, and five-year extensions of three programs. The Company proposed approximately $87 million in energy efficiency spending. APCo met the GTSA goal of proposing at least $140 million in energy efficiency programing in 2022.[33]

Regarding the Company's progress in meeting the 2022 VCEA energy savings target, the Commission made two findings. First, the Commission determined that net savings is the appropriate measurement of the total annual savings required by Code § 56-596.2.[34] Second, APCo had total combined net savings of 219,036 MWh in 2022, which represents 1.52% total annual sales, and is more than APCo's 2022 total annual energy savings target of 0.5% or 72,260 MWh.[35] The Commission awarded a margin on energy efficiency program operating expenses to APCo pursuant to Code § 56-585.1 A 5 c. As discussed further below, as of its latest DSM proceeding, APCo has projected that it would meet its 2023 VCEA savings goal on a net basis. The Commission approved APCo's request to have its next EE-RAC petition be filed on March 15, 2026.

at that time. *Petition of Appalachian Power Company, For approval to continue rate adjustment clause, the EE-RAC, and for approval of new energy efficiency programs pursuant to §§ 56-585.1 A 5 c and 56-596.2 of the Code of Virginia*, Case No. PUR-2021-00236, Doc. Con. Cen. No. 211180097, Petition (filed November 30, 2021).

[33] 2021 EE-RAC Final Order.

[34] 2023 EE-RAC Final Order at 12.

[35] *Id.* at 13.

KU/ODP

As mentioned previously, the Commission required KU/ODP to file a comprehensive DSM plan, with a required target of at least a 0.02% decrease in total jurisdictional sales.[36] As part of developing its DSM plan, KU/ODP was directed to initiate stakeholder meetings. KU/ODP held stakeholder meetings on August 10, 2022, October 13, 2022, March 15, 2023, and April 21, 2023. On June 1, 2023, KU/ODP filed for approval of a DSM pilot-program designed to benefit low-income customers, with an associated DSM rate mechanism.[37] The hearing on KU/ODP's DSM plan was held on October 11, 2023, with an opportunity for public witnesses to testify, and continued on October 12, 2023, with the evidentiary hearing. The Commission, having not reached a majority decision in the matter, did not issue an order approving or rejecting KU's application.[38]

PREVIOUS DSM ACTIVITIES

Historically, the Commission has approved, allowed for the modification of, or extended numerous DSM programs for both DEV and APCo. A brief summary of these is provided below:

[36] *Application Of Kentucky Utilities Company D/B/A Old Dominion Power Company, For an adjustment of electric base rates*, Case No. PUR-2021-00171, S.C.C. Ann. Rept. 333, Final Order (May 25, 2022).

[37] As noted above, this case has been docketed as Case No. PUR-2023-00096.

[38] *Application of Kentucky Utilities Company d/b/a Old Dominion Power Company, For implementation of a Demand-Side Management Program and Cost-Recovery Adjustment Clause*, Case No. PUR-2023-00096, Doc. Con. Cen. No. 240320158, Order Closing Case (March 12, 2024).

Table 1.			
Dominion Energy Cases	**Approved/Extended Programs**		**Cost Caps Approved (In Million $)**
	EE	**Peak Shaving[39]**	
Case No. PUE-2009-00081	4	1	$102.3
Case No. PUE-2011-00093	6	1	$149.2
Case No. PUE-2012-00100	1	1	$75.2
Case No. PUE-2013-00072	4		$71.6
Case No. PUE-2014-00071	2		$20.0
Case No. PUE-2015-00089	1	1	$23.5
Case No. PUE-2016-00111	1	1	$40.8
Case No. PUR-2017-00129	1		$12.6
Case No. PUR-2018-00168	11		$225.8[40]
Case No. PUR-2019-00201	14	2	$186.0
Case No. PUR-2020-00274	9	2	$130.5
Case No. PUR-2021-00247	9		$140.0
Case No. PUR-2022-00210	7	2	$145.0
Case No. PUR-2023-00217	4		$102.0
Totals	**74**	**11**	**$1,424.5.**[41]
Appalachian Power Cases			
Case No. PUE-2014-00026	1	1	$7.1
Case No. PUE-2014-00039	5		$27.3
Case No. PUR-2017-00094	1	1	$7.1
Case No. PUR-2017-00126	6		$39.0
Case No. PUR-2019-00122	3		$43.2
Case No. PUR-2020-00252	7	1	$57.4
Case No. PUR-2021-00236	1		$6.9
Case No. PUR-2023-00169	5		$78.0
Totals	**29**	**3**	**$266.0[42]**

[39] Pursuant to Code § 56-576, peak-shaving means "measures aimed solely at shifting time of use of electricity from peak-use periods to times of lower demand by inducing retail customers to curtail electricity usage during periods of congestion and higher prices in the electrical grid."

[40] Three programs (Smart Thermostat EE, Smart Thermostat DR, and Residential Customer Engagement) were approved for cost recovery by the Commission in Case No. PUR-2018-00168, and later withdrawn by Dominion. Dominion then reapplied for these same programs in Case No. PUR-2019-00201, which the Commission reapproved.

[41] Note that the $870 million investment level set by the GTSA applicable to DEV includes only energy efficiency programs, and only spending starting July 1, 2018. The $1,424.5 million shown in the table includes cost caps for peak shaving and energy efficiency programs from the time DEV first began offering such programs. The proposed program costs associated with the Residential Smart Thermostat EE, Smart Thermostat DR, and Residential Customer Engagement programs are only counted once in the total.

[42] Note that the $140 million investment level set by the GTSA applicable to APCo includes only energy efficiency programs, and only spending starting July 1, 2018. The $266.0MM shown in the table includes cost caps for peak shaving and energy efficiency programs from the time APCo first began offering such programs.

DEV

Dominion's currently approved and operating programs are listed below:[43]

Table 2.		
Dominion Energy Active DSM Programs		
Phase and Case No.	**Program Name**	**Program Type**
Phase II		
PUE-2011-00093	*Non-Residential Distributed Generation Program*	*Demand Response*
Phase VII		
PUR-2018-00168	*Residential Efficient Products Marketplace Program*	*Energy Efficiency*
	Non-Residential Lighting Systems & Controls Program	*Energy Efficiency*
	Non-Residential Heating & Cooling Efficiency Program	*Energy Efficiency*
Phase VIII		
PUR-2019-00201	*Residential Energy Efficiency Kits Program*	*Energy Efficiency*
	Residential Electric Vehicle Program	*Energy Efficiency*
	Residential Electric Vehicle Program	*Demand Response*
	Residential Electric Vehicle Program	*Peak Shaving*
	Residential/Non-Residential Multi-Family Program	*Energy Efficiency*
	Residential New Construction Program	*Energy Efficiency*
	Residential Home Retrofit Program	*Energy Efficiency*
	Residential HB2789 (Heating and Cooling/Health and Safety) Program[44]	*Energy Efficiency*
	Non-Residential Midstream Energy Efficiency Products Program	*Energy Efficiency*
	Non-Residential Small Business Improvement Enhanced Program	*Energy Efficiency*
	Residential Customer Engagement Program	*Energy Efficiency*
	Residential Smart Thermostat Management Program	*Energy Efficiency*
	Residential Smart Thermostat Management Program	*Peak Shaving*[45]
	Residential Manufactured Housing Program	*Energy Efficiency*
	Non-Residential New Construction	*Energy Efficiency*
Phase IX		

[43] It should be noted that there is a lag between when a new program is approved, and when EM&V reporting for the approved program becomes available.

[44] This Program was closed December 31, 2023.

[45] Concerning the Residential Smart Thermostat Management Program, the energy efficiency component is the smart thermostat's ability to automatically adjust heating and cooling temperature settings in the home for optimal performance. The peak shaving component provides Dominion access to cycle the thermostat off during peak load events.

PUR-2020-00274	*Residential IAQHIP Program*[46]	*Energy Efficiency*
	Residential Smart Home Program	*Energy Efficiency*
	Residential Virtual Audit Program	*Energy Efficiency*
	Residential Water Savings	*Energy Efficiency*
	Residential Water Savings	*Demand Response*
	Non-Residential Agriculture Program	*Energy Efficiency*
	Non-Residential Building Automation Program	*Energy Efficiency*
	Non-Residential Building Optimization Program	*Energy Efficiency*
	Non-Residential Engagement Program	*Energy Efficiency*
	Non-Residential Prescriptive Program	*Energy Efficiency*
	Non-Residential Distributed Generation Program Extension	*Demand Response*
Phase X		
PUR-2021-00247	*Residential Income and Age Qualifying Home Energy Report*	*Energy Efficiency*
	Non-Residential Income and Age Qualifying	*Energy Efficiency*
	Program for Health Care and Rental Property Owners	*Energy Efficiency*
	Small Business Behavioral	*Energy Efficiency*
	Non-Residential Data Centers and Server Rooms	*Energy Efficiency*
	Non-Residential Hotel and Lodging	*Energy Efficiency*
	Voltage Optimization	*Energy Efficiency*
	Enhancement of the Residential Income and Age Qualifying Home Improvement	*Energy Efficiency*
	Extension of the Non-residential Lighting Systems & Controls Program	*Energy Efficiency*
Phase XI		
PUR-2022-00210	*Residential Customer Engagement*	*Energy Efficiency*
	Residential Efficient Products Marketplace	*Energy Efficiency*
	Residential Peak Time Rebate	*Demand Response*
	Residential Electric Vehicle Telematics Program	*Demand Response*
	Non-Residential Custom	*Energy Efficiency*
	Residential Income and Age Qualifying Bundle	*Energy Efficiency*
	Residential Home Retrofit Bundle	*Energy Efficiency*
	Non-Residential Income and Age Qualified Bundle	*Energy Efficiency*
	Non-Residential Prescriptive Bundle	*Energy Efficiency*
Phase XII		
PUR-2023-00217	*Residential New Construction*	*Energy Efficiency*
	Residential Smart Thermostat Purchase	*Energy Efficiency*
	Residential Smart Thermostat	*Energy Efficiency*
	Non-Residential New Construction	*Energy Efficiency*

[46] The acronym "IAQHIP" stands for "Income and Age-Qualifying Home Improvement Program."

A summary of key findings of DEV's 2024 EM&V Report is reprinted and attached as Appendix 1 (Tables 2,3,4,5,6,7 DEV's 2024 EM&V Report). This data was provided by DEV and has not yet been reviewed or validated by the Commission.

APCo

APCo's currently approved and operating programs are listed below:

Table 3.
Appalachian Power Active DSM Programs

Case No.	Program Name	Program Type
PUR-2019-00122	*Low Income Single Family*	*Energy Efficiency*
	Low Income Multifamily	*Energy Efficiency*
PUR-2020-00252	*Business Energy Solutions*	*Energy Efficiency*
	Bring Your Own Thermostat Extension	*Demand Response*
	Home Performance	*Energy Efficiency*
	Efficient Products	*Energy Efficiency*
	Energy Efficiency Kits	*Energy Efficiency*
	Home Energy Reports	*Energy Efficiency*
	Small Business Direct Install Extension	*Energy Efficiency*
	Volt VAR Optimization Pilot Program	*Energy Efficiency*
PUR-2021-00236	*Commercial & Industrial Custom Pilot Program*	*Energy Efficiency*
PUR-2023-00169	*Residential School Kits Program*	*Energy Efficiency*
	Residential Multifamily In-Unit Program	*Energy Efficiency*

A summary of key findings of APCo's 2024 EM&V Report is reprinted and attached as Appendix 2.[47]

[47] This data was provided by APCo and has not yet been reviewed or validated by the Commission.

FEASIBILITY OF ENERGY EFFICIENCY GOALS

Pursuant to Code § 56-596.2 B, a Phase I and Phase II utility must each implement energy efficiency programs and measures to achieve the following total annual energy savings:

For a Phase I utility:

- In calendar year 2022, at least 0.5 percent of the average annual energy jurisdictional retail sales by that utility in 2019;
- In calendar year 2023, at least 1.0 percent of the average annual energy jurisdictional retail sales by that utility in 2019;
- In calendar year 2024, at least 1.5 percent of the average annual energy jurisdictional retail sales by that utility in 2019; and
- In calendar year 2025, at least 2.0 percent of the average annual energy jurisdictional retail sales by that utility in 2019.

For a Phase II utility:

- In calendar year 2022, at least 1.25 percent of the average annual energy jurisdictional retail sales by that utility in 2019;
- In calendar year 2023, at least 2.5 percent of the average annual energy jurisdictional retail sales by that utility in 2019;
- In calendar year 2024, at least 3.75 percent of the average annual energy jurisdictional retail sales by that utility in 2019; and
- In calendar year 2025, at least 5.0 percent of the average annual energy jurisdictional retail sales by that utility in 2019.

Additionally, for the time period 2026 through 2028, and for every successive three-year period thereafter, the Commission is directed to establish new energy efficiency savings targets. The VCEA further directs the Commission to annually review the feasibility of the energy efficiency program savings in Code § 56-596.2 and report on such feasibility.[48]

[48] Enactment Clause 4 of the 2021 Va. Acts of Assembly ch. 263 (Spec. Session 1) further provides that: "the State Corporation Commission may exclude energy jurisdictional retail sales related to zero-emission vehicles and hybrid electric vehicles from energy jurisdictional retail sales calculated pursuant to § 56-596.2 of the Code of Virginia."

On the issue of whether net or gross savings should be used to measure compliance with the energy efficiency targets, the Commission examined both DEV and APCo's compliance with the 2022 VCEA savings target in their respective 2023 energy efficiency proceedings. In both cases, the Commission concluded that net savings is the appropriate measurement of total annual energy saving required by Code § 56-596.2.[49]

DEV

In its most recent DSM proceeding, DEV provided data related to its achievement of the 2022 total annual savings target of 1.25%, or 852,892 MWhs. The Company reported 839,243 MWhs of net savings, or approximately 1.23% of 2019 sales. The Commission found that Dominion was not entitled to a margin pursuant to § 56-585.1 A 5 c.

DEV also presented its expected achievement of future VCEA energy efficiency goals. As demonstrated in column "DSM %," DEV does not currently project meeting the VCEA targets on a net basis in 2023-2025. That data is reproduced below:[50]

Year	VCEA Target MWh	VCEA Target %	DSM1-8 MWh	DSM 9 MWh	DSM 10 MWh	DSM 11 MWh	DSM 12 MWh	Opt-outs MWh	DSM %
2022	852,892	1.25%	776,335	4,154	-	-	-	58,754	**1.23%**
2023	1,705,783	2.50%	1,002,445	79,192	60,671	-	-	59,855	**1.80%**
2024	2,558,675	3.75%	1,160,067	165,870	178,878	37,210	-	60,955	**2.30%**
2025	3,411,567	5.00%	1,186,909	251,179	343,743	89,556	19,748	62,055	**2.90%**

APCo

In its most recent EE-RAC Proceeding, APCo provided data related to its achievement of the 2022 total annual savings target of 0.5% of 2019 jurisdictional retail sales or 72,260 MWhs.

[49] 2023 DSM Update Final Order at 16, 2023 EE-RAC Final Order at 13-14.

[50] 2023 DSM Update, Direct Testimony of Company witness David F. Walker at 13.

The Company reported 219,036 MWhs of net savings, or approximately 1.52% of 2019 sales. The Commission found that APCo was entitled to a performance incentive pursuant to Code § 56-585.1 A 5 c.

APCo also presented its expected achievement of future VCEA energy efficiency goals. As demonstrated in column "DSM %," APCo currently projects meeting all of the VCEA targets on a net basis in 2023-2025. That data is reproduced below:[51]

Year	VCEA Target MWh	VCEA Target %	Cumulative persistent Savings MWh	Estimated 2023-2025 Program Savings MWh	Estimated 2023 EE-RAC Program Savings MWh	Opt-outs MWh	DSM %
2022	72,260	0.50%	190,747	-	-	28,289	**1.52%**
2023	144,521	1.00%	159,942	108,648	-	28,289	**2.05%**
2024	216,781	1.50%	157,873	186,609	-	28,289	**2.58%**
2025	289,041	2.00%	156,867	203,540	68,201	28,289	**3.16%**

In APCo's 2023 EE-RAC Proceeding, the Commission approved APCo's request to have its next EE-RAC petition be filed on or before March 15, 2026.[52]

Code § 56-596.2.2 Energy Efficiency Targets

Code § 56-596.2.2. directs that:

> For the time period 2026 through 2028, the Commission shall, after notice and hearing, establish new energy efficiency savings targets measured as a percentage of the average annual energy jurisdictional retail sales by that utility in 2019.

[51] 2023 EE-RAC Proceeding, Direct Testimony of Tanner R. Brunelle at 40.

[52] 2023 EE-RAC Update Final Order at 15.

As such, the Commission has established two separate proceedings for DEV[53] and APCo's[54] respective new energy savings targets to be considered. The hearing for the DEV case is scheduled for October 15, 2024. The hearing for the APCo case is scheduled for November 4, 2024.

[53] *Commonwealth ex rel. State Corporation Commission, Ex Parte: In the matter of establishing energy efficiency savings targets for Virginia Electric and Power Company pursuant to VA Code section 56-596.2 B 3 and 56-596.2:2*, Case No. PUR-2023-00227, Order Establishing Proceeding (January 5, 2024).

[54] *Ex Parte: In the matter of establishing Energy efficiency savings targets for Appalachian Power Company Pursuant to Code § 56-596.2 B 3*, Case No. PUR-2024-00134, Order Granting Motion And Bifurcating Case (July 26, 2024).

CLOSING

The Commission appreciates the opportunity to provide this update to the Governor and the General Assembly on energy efficiency and DSM-related matters. The Commission has conducted energy efficiency and DSM-related proceedings that are detailed herein. In particular, in 2024, the Commission approved six new energy efficiency programs, three program extensions, and six program modifications, for Dominion and APCo collectively. In addition, the Commission's Staff has participated as stakeholders in multiple stakeholder meetings over the last year as required by recent legislation and Commission Order. The Commission also includes herein information related to the utilities' progress towards meeting the energy efficiency targets contained in Code § 56-596.2. The Commission will review these EM&V results during each utility's upcoming energy efficiency proceeding and will provide additional data related to the feasibility of achieving these energy efficiency goals in future reports.

The Commission will continue to monitor each of the specified areas for reporting and stands ready to provide any additional information or assistance if requested.

APPENDIX 1

DEV EM&V Tables

Table 1. Virginia program avoided costs in Program Year 2023

Avoided Costs			Avoided T&D Demand Costs					
			Transmission			Distribution		
Average ($/kWh)	Capacity ($/kW-year)	Reserve Margin Forecast Pool Requirement (FPR) (%)	Avoided Transmission Cost ($/kW-year)	Avoided Transmission Summer Split (%)	Avoided Transmission Winter Split (%)	Avoided Distribution Cost ($/kW-year)	Avoided Transmission Summer Split (%)	Avoided Transmission Winter Split (%)
$0.05	$14.87	10%	$33.12	0%	100%	$18.80	50%	50%

Table 2. Virginia summary program metrics - participation and financials of residential and income and age qualified programs (cumulative through December 31, 2023)[7, 8, 9]

DSM phase	Program	Program operation years	Participation		Financial				
			Participants (in 1,000s)	No. measures (in 1,000s)	Expenditures ($M)	Administrative expenditures ($M)	Budget ($M)	Spending as % of budget	Program cost per participant
VII	Appliance Recycling	5	6.56	6.56	$2.37	$0.12	$8.32	28%	$361
	Efficient Products Marketplace	5	14,829	14,829	$35	$1.67	$41	86%	$2.38
	Home Energy Assessment	5	23	1,225	$20	$0.97	$21	92%	$842
VIII	Customer Engagement	4	256	256	$5.08	$0.25	$5.64	90%	$20
	EV Energy Efficiency and Demand Response	4	0.64	0.64	$0.66	$0.03	$1.19	55%	$1,031
	Home Retrofit	4	0.19	0.64	$2.68	$0.14	$5.32	50%	$13,883
	Kits	4	86	156	$3.95	$0.21	$5.78	68%	$46
	Manufactured Housing	4	0.56	0.84	$2.02	$0.11	$4.69	43%	$3,605
	Multifamily	4	2.92	13	$2.20	$0.12	$6.19	36%	$755
	New Construction	4	6.50	6.50	$7.06	$0.38	$14	52%	$1,085
	Thermostat Purchase and WeatherSmart	4	19	18	$5.82	$0.14	$3.60	81%	$301
IX	Smart Home	3	0.06	0.29	$1.32	$0.07	$4.38	30%	$21,224
	Virtual Energy Audit	3	10	368	$2.17	$0.13	$7.54	29%	$213
	Water Savings	3	0.43	0.43	$0.61	$0.03	$1.88	33%	$1,429
Residential programs, total			**15,242**	**16,881**	**$91**	**$4.37**	**$130**	**70%**	**$5.95**
VIII	Residential IAQ HVAC Health and Safety	4	11	18	$31	$1.59	$33	95%	$2,900
IX	IAQ Solar	3	0.14	0.14	$4.84	$0.32	$21	23%	$35,330
	Residential IAQ Energy Efficiency	3	9.88	55	$14	$0.79	$15	95%	$1,413
X	Residential IAQ Home Improvement Enhanced	1	0.003	0.004	$0.57	$0.04	$1.29	44%	$188,703
Income and Age Qualifying programs, total			**21**	**73**	**$60**	**$2.74**	**$69**	**73%**	**$2,432**

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Table 3. Virginia summary program metrics – participation and financials of non-residential programs (cumulative through December 31, 2023)[10]

DSM phase	Program	Program operation years	Participation		Financial				
			Participants (in 1,000s)	No. measures (in 1,000s)	Expenditures ($M)	Administrative expenditures ($M)	Budget ($M)	Spending as % of budget	Program cost per participant
VII	Heating and Cooling Efficiency	5	0.15	2.36	$5.81	$0.33	$8.72	67%	$38,493
	Lighting Systems & Controls	5	1.06	155	$12	$0.60	$9.00	136%	$11,631
X	Lighting Systems & Controls	1	0.26	37	$3.32	$0.22	$9.72	34%	$12,804
VII	Office	5	0.17	1.71	$3.23	$0.17	$5.48	59%	$19,363
	Manufacturing	5	0.06	0.39	$2.84	$0.15	$5.85	49%	$45,864
	Window Film	5	0.09	126	$1.40	$0.07	$2.07	68%	$15,588
VIII	Midstream Energy Efficiency Products	4	0.20	2.23	$2.10	$0.11	$5.67	37%	$10,331
	Multifamily	4	0.03	2.39	$0.71	$0.04	$1.39	51%	$21,018
	New Construction	4	0.01	0.03	$3.35	$0.20	$5.15	65%	$418,837
	Small Business Improvement Enhanced	4	1.85	30	$11	$0.59	$11	99%	$5,879
IX	Agricultural Energy Efficiency	3	0.01	19	$1.38	$0.08	$1.77	78%	$125,183
	Building Automation System	3	0	0	$0.79	$0.04	$1.84	43%	N/A
	Building Optimization	3	0.05	1.15	$1.76	$0.11	$2.12	83%	$39,185
	Engagement	3	0	0	$1.16	$0.06	$2.99	39%	N/A
	Prescriptive Enhanced	3	0.96	44	$16	$0.92	$8.25	192%	$16,450
Non-Residential programs, total			4.89	421	$67	$3.70	$81	83%	$13,654
All programs, total			15,268	17,375	$208	$11	$281	74%	$14

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Table 4. Virginia summary program metrics – B/C ratios of residential and income and age qualified programs (cumulative through December 31, 2023)[11]

DSM phase	Program	Benefit cost ratios				Filing year
		Participant	Utility	TRC	RIM	
Residential (energy efficiency)						
VII	Appliance Recycling	19.22	0.98	0.90	0.22	2023
	Efficient Products Marketplace	++	15.83	18.74	0.27	2023
	Home Energy Assessment	25.06	8.46	5.94	0.35	2023
VIII	Customer Engagement	12.87	1.80	1.41	0.40	2023
	EV Energy Efficiency and Demand Response	0.57	0.15	0.08	0.10	2024
	Home Retrofit	7.05	2.48	1.92	0.44	2023
	Kits	++	0.74	3.34	0.20	2024
	Manufactured Housing	1.08	0.11	0.10	0.09	2024
	Multifamily	1.17	0.65	0.34	0.29	2024
	New Construction	5.62	4.42	2.61	0.46	2024
	Thermostat Purchase and WeatherSmart	6.00	2.28	1.59	0.39	2024
IX	Smart Home	1.30	0.41	0.25	0.18	2024
	Virtual Energy Audit	38.26	4.11	7.97	0.26	2024
	Water Savings	4.13	1.35	1.16	0.30	2024
Residential (demand response)						
VIII	Smart Thermostat Rewards	9.37	0.67	2.61	0.46	2024
	EV Rewards	22.64	0.23	0.33	0.22	2024
IX	Water Savings Demand Response	4.99	1.79	1.60	0.33	2020
Income and Age Qualifying (energy efficiency)						
VIII	IAQ HVAC Health and Safety	2.34	0.29	0.37	0.18	2023
IX	IAQ Solar	++	0.38	0.38	0.22	2024
	Residential IAQ Energy Efficiency	++	0.73	0.73	0.27	2023
X	Residential IAQ Home Improvement Enhanced	55.72	0.03	0.03	0.03	2021

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Table 5. Virginia summary program metrics – B/C ratios of non-residential programs (cumulative through December 31, 2023)[12]

DSM phase	Program	Benefit cost ratios				Filing year
		Participant	Utility	TRC	RIM	
Non-Residential (energy efficiency)						
VII	Heating and Cooling Efficiency	18.92	39.23	18.27	1.14	2023
	Lighting Systems & Controls	29.77	11.09	9.12	0.56	2022
X	Lighting Systems & Controls	9.90	14.55	6.42	0.66	2024
VII	Office	10.55	1.46	1.56	0.30	2023
	Manufacturing	20.59	6.16	5.76	0.48	2023
	Window Film	2.97	0.80	0.59	0.32	2023
VIII	Midstream Energy Efficiency Products	2.23	4.54	1.97	0.90	2024
	Multifamily	4.48	2.12	1.69	0.48	2024
	New Construction	10.7	4.8	4.7	0.6	2024
	Small Business Improvement Enhanced	3.28	1.44	1.16	0.42	2024
IX	Agricultural Energy Efficiency	7.68	3.05	2.40	0.61	2024
	Building Automation System	7.91	5.83	4.92	1.27	2020
	Building Optimization	9.82	4.76	4.31	0.76	2024
	Engagement	++	1.90	3.07	0.85	2020
	Prescriptive Enhanced	4.88	2.21	2.21	0.62	2023
Non-Residential (demand response)						
II	Distributed Generation	++	0.58	1.64	0.55	2024

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Table 6. Virginia summary program metrics – energy impacts of residential and income and age qualified programs (cumulative through December 31, 2023)

DSM phase	Program	Energy impacts							
		Gross				Net			
		Total annualized gross energy savings (MWh/yr)	Cumulative gross energy savings (MWh)	Lifetime gross energy savings (MWh)	Total summer gross peak demand reductions (MW)	Total annualized net energy savings (MWh/yr)	Cumulative net energy savings (MWh)	Lifetime net energy savings (MWh)	Total summer net peak demand reductions (MW)
VII	Appliance Recycling	4,580	11,304	36,653	0.69	2,748	6,782	21,992	0.41
VII	Efficient Products Marketplace	446,246	1,184,524	7,403,792	41	253,744	711,593	4,210,248	23
VII	Home Energy Assessment	45,311	96,677	566,515	3.41	13,389	25,907	167,404	1.05
VIII	Customer Engagement	114,261	107,157	115,394	0	15,635	14,422	15,822	0
VIII	EV Energy Efficiency and Demand Response	83	85	830	0	66	68	664	0
VIII	Home Retrofit	442	677	10,166	0.13	398	609	9,149	0.11
VIII	Kits	10,604	14,238	60,843	0.93	6,363	8,543	36,506	0.56
VIII	Manufactured Housing	120	50	655	0.04	108	45	590	0.04
VIII	Multifamily	661	704	5,572	0.12	595	633	5,015	0.11
VIII	New Construction	14,430	15,864	360,787	6.17	12,554	13,802	313,884	5.37
VIII	Thermostat Purchase and WeatherSmart	4,745	6,540	29,059	1.09	3,955	5,366	23,406	1.03
IX	Smart Home	31	18	193	0.002	26	15	164	0.001
IX	Virtual Energy Audit	7,933	4,885	81,121	0.74	4,760	2,931	48,673	0.44
IX	Water Savings	611	365	6,980	0.10	550	329	6,282	0.09
Residential programs, total		**650,059**	**1,443,089**	**8,678,560**	**55**	**314,891**	**791,046**	**4,859,800**	**33**
VIII	IAQ HVAC Health and Safety	3,137	4,760	42,378	0.54	2,509	3,808	33,902	0.43
IX	IAQ Solar	857	394	21,438	0.31	686	315	17,151	0.25
IX	Residential IAQ Energy Efficiency	7,186	5,639	155,089	1.83	5,749	4,511	124,071	1.46
X	Residential IAQ Home Improvement Enhanced	1.66	0.27	33	0.001	1.64	0.27	33	0.001
Income and Age Qualifying programs, total		**11,182**	**10,793**	**218,938**	**2.67**	**8,946**	**8,635**	**175,157**	**2.14**

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Table 7. Virginia summary program metrics – energy impacts of non-residential programs (cumulative through December 31, 2023)

DSM phase	Program	Energy impacts							
		Gross				Net			
		Total annualized gross energy savings (MWh/yr)	Cumulative gross energy savings (MWh)	Lifetime gross energy savings (MWh)	Total summer gross peak demand reductions (MW)	Total annualized net energy savings (MWh/yr)	Cumulative net energy savings (MWh)	Lifetime net energy savings (MWh)	Total summer net peak demand reductions (MW)
VII	Heating and Cooling Efficiency	29,529	28,613	442,967	5.51	20,670	20,029	310,077	3.85
	Lighting Systems & Controls	81,064	192,418	825,218	12	44,144	106,339	449,395	5.53
X	Lighting Systems & Controls	20,831	4,305	211,840	3.48	18,748	3,875	190,656	3.13
VII	Office	12,633	11,745	88,456	0.09	11,370	10,571	79,611	0.08
	Manufacturing	12,691	10,445	156,555	1.53	11,422	9,400	140,899	1.38
	Window Film	584	1,374	5,838	0.08	467	1,099	4,670	0.06
VIII	Midstream Energy Efficiency Products	3,910	3,415	70,235	2.66	3,519	3,073	63,211	2.39
	Multifamily	377	229	3,232	0.02	340	206	2,909	0.02
	New Construction	28,750	11,099	431,362	3.22	25,875	9,989	388,226	2.89
	Small Business Improvement Enhanced	12,711	16,174	129,484	2.72	10,604	13,932	108,041	2.14
IX	Agricultural Energy Efficiency	5,896	5,776	64,998	0.85	5,720	5,603	63,048	0.82
	Building Automation System	0	0	0	0	0	0	0	0
	Building Optimization	15,657	8,600	78,965	0.36	14,091	7,740	71,069	0.33
	Engagement	0	0	0	0	0	0	0	0
	Prescriptive Enhanced	23,199	20,751	150,914	20	20,879	18,676	135,822	18.29
Non-Residential programs, total		247,832	314,945	2,660,064	53	187,848	210,533	2,007,635	41
All programs, total		909,073	1,768,827	11,557,562	110	511,685	1,010,214	7,042,592	76

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Table 8. Virginia summary program metrics – other impacts of residential and income and age qualified programs (cumulative through December 31, 2023)

DSM phase	Program	Bill savings ($M/year)	Carbon emissions avoided (metric tons CO_2/yr)	O&M NEIs ($M/year)	Water savings (Mgal/year)
VII	Appliance Recycling	$0.12	2,608	N/A	N/A
	Efficient Products Marketplace	$0.32	257,591	N/A	44
	Home Energy Assessment	$0.63	25,772	$2.18	3.49
VIII	Customer Engagement	$4.02	64,449	N/A	N/A
	EV Energy Efficiency and Demand Response	$0.01	47	N/A	N/A
	Home Retrofit	$0.01	250	$0	0.01
	Kits	$0.46	6,293	$0.06	3.31
	Manufactured Housing	$0.01	68	$0.01	0.06
	Multifamily	$0.03	374	$0.06	N/A
	New Construction	$0.92	8,261	N/A	N/A
	Thermostat Purchase and WeatherSmart	$0.17	2,775	N/A	N/A
IX	Smart Home	$0.002	18	$0.0002	N/A
	Virtual Energy Audit	$0.72	4,712	$1.94	34
	Water Savings	$0.06	356	N/A	N/A
Residential programs, total		$7.48	373,572	$4.25	85
VIII	IAQ HVAC Health and Safety	$0.10	1,769	-$0.01	N/A
IX	IAQ Solar	$0.10	497	N/A	N/A
	Residential IAQ Energy Efficiency	$0.50	4,115	$0.03	4.07
X	Residential IAQ Home Improvement Enhanced	N/A	0.95	N/A	N/A
Income and Age Qualifying programs, total		$0.70	6,383	$0.03	4.07

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Table 9. Virginia summary program metrics – other impacts of non-residential programs (cumulative through December 31, 2023)

DSM phase	Program	Bill savings ($M/year)	Carbon emissions avoided (metric tons CO_2/yr)	O&M NEIs ($M/year)	Water savings (Mgal/year)
VII	Heating and Cooling Efficiency	$0.85	16,737	-$0.27	N/A
	Lighting Systems & Controls	$1.13	47,197	-$0.12	N/A
X	Lighting Systems & Controls	$2.14	12,232	$0.25	N/A
VII	Office	$0.63	7,137	N/A	N/A
	Manufacturing	$0.67	7,402	N/A	N/A
	Window Film	$0.01	345	N/A	N/A
VIII	Midstream Energy Efficiency Products	N/A	2,240	-$0.13	3.25
	Multifamily	$0.03	214	-$0.02	N/A
	New Construction	$1.74	16,165	N/A	N/A
	Small Business Improvement Enhanced	$0.60	8,405.54	$0.07	N/A
IX	Agricultural Energy Efficiency	$0.10	3,358	$0.005	N/A
	Building Automation System	N/A	N/A	N/A	N/A
	Building Optimization	$0.75	8,755	N/A	N/A
	Engagement	N/A	N/A	N/A	N/A
	Prescriptive Enhanced	$1.51	13,416	N/A	N/A
Non-Residential programs, total		$10	143,604	-$0.22	3.25
All programs, total		$18	523,559	$4.06	92

APPENDIX 2

APCO EM&V TABLES

APCo Commercial and Industrial Programs:

Table 1-4 Summary of C&I Portfolio Energy Savings

Program Name	*Ex Ante Annual kWh Savings*	*Ex Post Annual Gross kWh Savings*	*Gross Realization Rate*	*Ex Post Annual Net kWh Savings*	*Net-to-Gross Ratio*	*Lifetime Gross Ex Post kWh Savings*	*Lifetime Net Ex Post kWh Savings*
Business Energy Solutions Program	17,896,444	19,028,531	106%	15,129,753	80%	284,862,539	226,496,713
Small Business Direct Install Program	2,684,887	2,024,128	75%	2,024,128	100%	25,262,198	25,262,198
Custom C&I Pilot Program	370,968	368,855	99%	293,280	80%	5,022,905	3,993,756
Opt Out Customers	129,072,308	129,072,308	100%	129,072,308	100%	129,072,308	129,072,308
C&I Portfolio Totals	**150,024,607**	**150,493,822**	**100%**	**146,519,469**	**97%**	**444,219,950**	**384,824,975**

Table 1-5 Summary of C&I Portfolio Peak Demand Impacts

Program Name	*Expected kW Savings*	*Gross Realized kW Savings*	*Gross Realization Rate*	*Net Realized kW Savings*	*Net-to-Gross Ratio*
Business Energy Solutions Program	3,661.85	4,234.44	116%	3,450.45	81%
Small Business Direct Install Program	530.17	808.65	153%	808.65	100%
Custom C&I Pilot Program	77.18	66.60	86%	54.27	81%
Opt Out Customers	-	-	N/A	-	N/A
C&I Portfolio Totals	**4,269.21**	**5,109.69**	**120%**	**4,313.37**	**84%**

Table 6-2 Business Energy Solutions Program – Lighting Cost Effectiveness Test Results

Variable	*PCT*		*UCT*		*RIM*		*TRC*	
	Benefit	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*	*Benefit*	*Cost*
Incentives	$ 866,230			$ 866,230		$ 866,230		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 18,625,248							
Lost Revenue (NPV)						$ 18,625,248		
Avoided Energy Costs (NPV)			$ 6,231,537		$ 6,231,537		$ 6,231,537	
Avoided Capacity Costs (NPV)			$ 3,690,533		$ 3,690,533		$ 3,690,533	
Avoided T&D Costs (NPV)			$ 5,126,597		$ 5,126,597		$ 5,126,597	
Incremental Costs		$ 2,116,613						$ 2,116,613
Program Overhead Costs				$ 637,784		$ 637,784		$ 637,784
Total Benefits	$ 19,491,478		$ 15,048,667		$ 15,048,667		$ 15,048,667	
Total Costs	$ 2,116,613		$ 1,504,014		$ 20,129,262		$ 2,754,397	
Test Score	9.21		10.01		0.75		5.46	

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Table 6-3 Business Energy Solutions Program – Non-Lighting Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 65,188			$ 65,188		$ 65,188		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 1,152,835							
Lost Revenue (NPV)						$ 1,152,835		
Avoided Energy Costs (NPV)			$ 383,314		$ 383,314		$ 383,314	
Avoided Capacity Costs (NPV)			$ 117,493		$ 117,493		$ 117,493	
Avoided T&D Costs (NPV)			$ 165,047		$ 165,047		$ 165,047	
Incremental Costs		$ 134,536						$ 134,536
Program Overhead Costs				$ 183,045		$ 183,045		$ 183,045
Total Benefits	$ 1,218,024		$ 665,854		$ 665,854		$ 665,854	
Total Costs	$ 134,536		$ 248,234		$ 1,401,069		$ 317,581	
Test Score	9.05		2.68		0.48		2.10	

Table 6-4 Business Energy Solutions Program - Total Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 931,419			$ 931,419		$ 931,419		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 19,778,083							
Lost Revenue (NPV)						$ 19,778,083		
Avoided Energy Costs (NPV)			$ 6,614,851		$ 6,614,851		$ 6,614,851	
Avoided Capacity Costs (NPV)			$ 3,808,027		$ 3,808,027		$ 3,808,027	
Avoided T&D Costs (NPV)			$ 5,291,644		$ 5,291,644		$ 5,291,644	
Incremental Costs		$ 2,251,148						$ 2,251,148
Program Overhead Costs				$ 820,829		$ 820,829		$ 820,829
Total Benefits	$ 20,709,502		$ 15,714,521		$ 15,714,521		$ 15,714,521	
Total Costs	$ 2,251,148		$ 1,752,248		$ 21,530,331		$ 3,071,978	
Test Score	9.20		8.97		0.73		5.12	

Table 6-5 Small Business Direct Install Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 434,809			$ 434,809		$ 434,809		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 2,258,705							
Lost Revenue (NPV)						$ 2,258,705		
Avoided Energy Costs (NPV)			$ 738,644		$ 738,644		$ 738,644	
Avoided Capacity Costs (NPV)			$ 894,310		$ 894,310		$ 894,310	
Avoided T&D Costs (NPV)			$ 1,242,305		$ 1,242,305		$ 1,242,305	
Incremental Costs		$ 838,448						$ 838,448
Program Overhead Costs				$ 286,032		$ 286,032		$ 286,032
Total Benefits	$ 2,693,514		$ 2,875,259		$ 2,875,259		$ 2,875,259	
Total Costs	$ 838,448		$ 720,841		$ 2,979,546		$ 1,124,480	
Test Score	3.21		3.99		0.96		2.56	

Table 7-1 Avoided Carbon Emissions (Metric Tons)

Program Name	MWh Savings Referenced			
	Annual Ex Post Gross	Annual Ex Post Net	Lifetime Ex Post Gross	Lifetime Ex Post Net
Business Energy Solutions Program	11,947	9,499	178,848	142,203
Small Business Direct Install Program	1,271	1,271	15,861	15,861
Custom C&I Pilot Program	232	184	3,154	2,507
Opt Out Customers	81,037	81,037	81,037	81,037
C&I Portfolio Totals	**94,486**	**91,991**	**278,898**	**241,608**

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APCo Residential Programs:

Table 1-3 Summary of Residential Portfolio Energy Savings

Program Name	*Ex Ante kWh Savings*	*Ex Post Gross kWh Savings*	*Gross kWh Savings Realization Rate*	*Ex Post Net kWh Savings*	*Estimated Net-to-Gross Ratio*	*Lifetime Gross Ex Post kWh Savings*	*Lifetime Net Ex Post kWh Savings*
Home Performance Program	3,994,280	2,694,520	67%	2,148,128	80%	34,196,631	28,102,957
Low-Income Single-Family Program	1,824,555	1,459,126	80%	1,459,126	100%	14,977,607	14,977,607
Low-Income Multifamily Program	564,565	320,034	57%	320,034	100%	3,798,382	3,798,382
Efficient Products Program	10,287,307	6,681,231	65%	3,614,889	54%	91,100,817	49,197,581
Energy Efficiency Kits Program	1,332,164	1,071,855	80%	1,062,492	99%	11,037,166	10,849,568
Home Energy Reports Program	31,578,044	31,578,044	100%	31,578,044	100%	31,578,044	31,578,044
Bring Your Own Thermostat Program	90,101	90,101	100%	161,312	179%	90,101	161,312
Residential Portfolio Totals	**49,671,016**	**43,894,911**	**88%**	**40,344,025**	**92%**	**186,778,749**	**138,665,452**

Table 1-4 Summary of Residential Portfolio Peak Demand Impacts

Program Name	*Ex Ante Gross kW Savings*	*Ex Post Gross kW Savings*	*Gross Realization Rate*	*Ex Post Net kW Savings*	*Net-to-Gross Ratio*
Home Performance Program	3,259.62	455.56	14%	399.71	88%
Low-Income Single Family-Program	514.55	259.58	50%	259.58	100%
Low-Income Multifamily Program	78.36	98.79	126%	98.79	100%
Efficient Products Program	1,002.60	727.82	73%	395.48	54%
Energy Efficiency Kits Program	78.66	90.00	114%	89.15	99%
Home Energy Reports Program	6,690.44	6,690.44	100%	6,690.44	100%
Bring Your Own Thermostat Program	5,790.53	5,790.53	100%	5,790.53	100%
Residential Portfolio Totals	**17,414.77**	**14,112.72**	**81%**	**13,723.68**	**97%**

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Table 9-2 Home Performance Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 946,785			$ 946,785		$ 946,785		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 3,398,119							
Lost Revenue (NPV)						$ 3,398,119		
Avoided Energy Costs (NPV)			$ 815,635		$ 815,635		$ 815,635	
Avoided Capacity Costs (NPV)			$ 412,684		$ 412,684		$ 412,684	
Avoided T&D Costs (NPV)			$ 579,069		$ 579,069		$ 579,069	
Incremental Costs		$ 536,830						$ 536,830
Program Overhead Costs				$ 846,823		$ 846,823		$ 846,823
Total Benefits	$ 4,344,904		$ 1,807,389		$ 1,807,389		$ 1,807,389	
Total Costs	$ 536,830		$ 1,793,607		$ 5,191,726		$ 1,383,653	
Test Score	8.09		1.01		0.35		1.31	

Table 9-3 Efficient Products Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 843,672			$ 843,672		$ 843,672		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 6,012,638							
Lost Revenue (NPV)						$ 6,012,638		
Avoided Energy Costs (NPV)			$ 1,430,486		$ 1,430,486		$ 1,430,486	
Avoided Capacity Costs (NPV)			$ 401,083		$ 401,083		$ 401,083	
Avoided T&D Costs (NPV)			$ 565,287		$ 565,287		$ 565,287	
Incremental Costs		$ 354,099						$ 354,099
Program Overhead Costs				$ 831,041		$ 831,041		$ 831,041
Total Benefits	$ 6,856,310		$ 2,396,855		$ 2,396,855		$ 2,396,855	
Total Costs	$ 354,099		$ 1,674,713		$ 7,687,351		$ 1,185,140	
Test Score	19.36		1.43		0.31		2.02	

Table 9-4 Energy Efficiency Kits Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 155,271			$ 155,271		$ 155,271		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 1,423,654							
Lost Revenue (NPV)						$ 1,423,654		
Avoided Energy Costs (NPV)			$ 321,833		$ 321,833		$ 321,833	
Avoided Capacity Costs (NPV)			$ 71,710		$ 71,710		$ 71,710	
Avoided T&D Costs (NPV)			$ 106,135		$ 106,135		$ 106,135	
Incremental Costs		$ -						$ -
Program Overhead Costs				$ 78,879		$ 78,879		$ 78,879
Total Benefits	$ 1,578,925		$ 499,677		$ 499,677		$ 499,677	
Total Costs	$ -		$ 234,149		$ 1,657,804		$ 78,879	
Test Score	N/A		2.13		0.30		6.33	

Table 9-5 Home Energy Reports Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ -			$ -		$ -		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 5,112,422							
Lost Revenue (NPV)						$ 5,112,422		
Avoided Energy Costs (NPV)			$ 1,076,128		$ 1,076,128		$ 1,076,128	
Avoided Capacity Costs (NPV)			$ 123,601		$ 123,601		$ 123,601	
Avoided T&D Costs (NPV)			$ 937,450		$ 937,450		$ 937,450	
Incremental Costs		$ -						$ -
Program Overhead Costs				$ 727,919		$ 727,919		$ 727,919
Total Benefits	$ 5,112,422		$ 2,137,178		$ 2,137,178		$ 2,137,178	
Total Costs	$ -		$ 727,919		$ 5,840,341		$ 727,919	
Test Score	N/A		2.94		0.37		2.94	

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Table 9-6 Bring Your Own Thermostat Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 253,583			$ 253,583		$ 253,583		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 26,116							
Lost Revenue (NPV)						$ 26,116		
Avoided Energy Costs (NPV)			$ 6,228		$ 6,228		$ 6,228	
Avoided Capacity Costs (NPV)			$ 106,976		$ 106,976		$ 106,976	
Avoided T&D Costs (NPV)			$ 811,356		$ 811,356		$ 811,356	
Incremental Costs		$ -						$ -
Program Overhead Costs				$ 593,589		$ 593,589		$ 593,589
Total Benefits	$ 279,699		$ 924,560		$ 924,560		$ 924,560	
Total Costs	$ -		$ 847,172		$ 873,288		$ 593,589	
Test Score	N/A		1.09		1.06		1.56	

Table 9-7 Low-Income Single-Family Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 3,110,912			$ 3,110,912		$ 3,110,912		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 1,890,157							
Lost Revenue (NPV)						$ 1,890,157		
Avoided Energy Costs (NPV)			$ 430,838		$ 430,838		$ 430,838	
Avoided Capacity Costs (NPV)			$ 311,472		$ 311,472		$ 311,472	
Avoided T&D Costs (NPV)			$ 426,323		$ 426,323		$ 426,323	
Incremental Costs		$ -						$ -
Program Overhead Costs				$ 1,914,238		$ 1,914,238		$ 1,914,238
Total Benefits	$ 5,001,070		$ 1,168,633		$ 1,168,633		$ 1,168,633	
Total Costs	$ -		$ 5,025,151		$ 6,915,308		$ 1,914,238	
Test Score	N/A		0.23		0.17		0.61	

Table 9-8 Low-Income Multifamily Program Cost Effectiveness Test Results

Variable	PCT		UCT		RIM		TRC	
	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost
Incentives	$ 2,439,836			$ 2,439,836		$ 2,439,836		
Program Installation Costs				$ -		$ -		$ -
Bill Savings (NPV)	$ 460,906							
Lost Revenue (NPV)						$ 460,906		
Avoided Energy Costs (NPV)			$ 108,536		$ 108,536		$ 108,536	
Avoided Capacity Costs (NPV)			$ 121,584		$ 121,584		$ 121,584	
Avoided T&D Costs (NPV)			$ 165,656		$ 165,656		$ 165,656	
Incremental Costs		$ -						$ -
Program Overhead Costs				$ 975,360		$ 975,360		$ 975,360
Total Benefits	$ 2,900,742		$ 395,777		$ 395,777		$ 395,777	
Total Costs	$ -		$ 3,415,196		$ 3,876,102		$ 975,360	
Test Score	N/A		0.12		0.10		0.41	

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Table 10-1 Avoided Carbon Emissions (Metric Tons)

Program Name	*MWh Savings Referenced*			
	Annual Ex Post Gross	*Annual Ex Post Net*	*Lifetime Ex Post Gross*	*Lifetime Ex Post Net*
Home Performance Program	1,692	1,349	21,470	17,644
Low-Income Single Family Program	916	916	9,404	9,404
Low-Income Multifamily Program	201	201	2,385	2,385
Efficient Products Program	4,195	2,270	57,197	30,888
Energy Efficiency Kits Program	673	667	6,930	6,812
Home Energy Reports Program	19,826	19,826	19,826	19,826
Bring Your Own Thermostat Program	57	101	57	101
Residential Portfolio Totals	**27,559**	**25,330**	**117,267**	**87,060**

APPENDIX 3

GLOSSARY OF TERMS

APCo	Appalachian Power Company
Code	Code of Virginia
Commission	Virginia State Corporation Commission
DEV	Virginia Electric and Power Company d/b/a Dominion Energy Virginia
DNV	An energy consulting firm under contract with Dominion
Dominion	Virginia Electric and Power Company d/b/a Dominion Energy Virginia
DSM	Demand Side Management
EE	Energy Efficiency
EM&V	Evaluation, Measurement and Verification
General Assembly	Virginia General Assembly
GTSA	Grid Transformation and Security Act, Chapter 296 of the 2018 Acts of Assembly
IAQHIP	Income and Age-Qualifying Home Improvement Program
MWh	Megawatt-hour
Staff	State Corporation Commission Staff
VCEA	Virginia Clean Economy Act, Chapters 1193 and 1194 of the 2020 Acts of Assembly