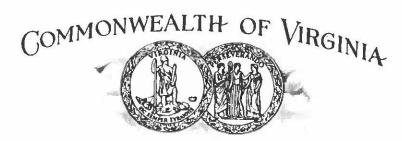
JUDITH WILLIAMS JAGDMANN COMMISSIONER

> JEHMAL T. HUDSON COMMISSIONER



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

STATE CORPORATION COMMISSION

September 30, 2022

The Honorable Glenn A. Youngkin Governor, Commonwealth of Virginia

The Honorable Richard L. Saslaw Chair, Senate Committee on Commerce and Labor

The Honorable Kathy J. Byron Chair, House Committee on Commerce and Energy

The Honorable Caren Merrick Secretary of Commerce and Trade

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

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.

Jehmal T. Hudson

Respectfully submitted,

Chairman

Judith Williams Jagdmann

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 Commerce and Energy, 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

September 30, 2022

Table of Contents

INTRODUCTION1
Statutory Background1
ENERGY EFFICIENCY PROGRAMS2
VCEA EE Programs
Previous DSM Activities6
Evaluation, Measurement, and Verification Proceeding7
FEASIBILITY OF ENERGY EFFICIENCY GOALS15
DEV17
APCo
CLOSING
Appendix 1: Glossory of Terms

Appendix 2: Pandemic-related Activities

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.

The key highlights of this report include:

- In its second DSM application pursuant to the VCEA, Dominion filed for, and received approval of, nine energy efficiency programs. In addition to its application, Dominion also presented a long-term plan to comply with the total energy savings targets in the VCEA and Dominion's investment levels in the GTSA.²
- In its second DSM application pursuant to the VCEA, APCo filed for, and received approval of, one energy efficiency program. Additionally, APCo filed for, and received approval of, permission to move to a biennial filing cadence for its energy efficiency activities.
- The calendar year 2022 is the first year that the energy efficiency targets will be in effect. As such, the Commission will not receive data related to the utilities' achievement of such targets until the 2023 evaluation, measurement, and verification ("EM&V") reports are received and reviewed. The Commission expects to be able to provide additional data related to the feasibility of achieving these energy efficiency goals in future reports.
- Based on DEV's and APCo's filings with the Commission, both utilities expect to meet the energy savings targets in 2022 on a "net" basis.

A glossary of terms is provided in Appendix 1.

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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 it has approved a requirement for Kentucky Utilities d/b/a Old Dominion Power Company ("KU/ODP") to file a comprehensive Demand-Side Management ("DSM") plan and surcharge by June 1, 2023. *Kentucky Utilities Company d/b/a Old Dominion Power Company - For an Adjustment of Electric Base Rates*, Case No. PUR-2021-00171, Doc. Con. Cen. No. 220540073, Final Order (May 5, 2022). KU/ODP's plan is required to target at least a 0.02% decrease in total jurisdictional sales.

² Grid Transformation and Security Act ("GTSA"), 2018 Va. Acts of Assembly, ch. 296. The GTSA set investment levels of \$140 million for a Phase I Utility, and \$870 million for a Phase II Utility, to design, implement, and operate energy efficiency programs over the period beginning July 1, 2018, and ending July 1, 2028. This requirement is currently codified as part of § 56-596.2 C of the Code of Virginia ("Code").

INTRODUCTION

The Commission appreciates the opportunity to provide this update to the Governor and the General Assembly on energy efficiency and DSM-related matters.³ The Commission has conducted energy efficiency and DSM-related proceedings that are detailed below. In addition, the Commission's Staff has been involved in multiple stakeholder meetings over the last year as required by recent legislation. Staff has attended these meetings as a resource to provide technical information or background on Commission procedures and proceedings. Energy efficiency meetings, required by SB 966,⁴ SB 1605,⁵ and HB 2293⁶, were held on November 8, 2021 and April 25, 2022 for APCo and on August 31, 2021, November 17, 2021, February 22, 2022, and June 21, 2022 for DEV.

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;⁷ 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 Commerce and Energy and the Senate Committee on Commerce and Labor and the Secretary of Natural and Historic Resources and the Secretary of Commerce and Trade on such feasibility.

³ The Commission provides an update on Pandemic-related activities in Appendix 2 to this Report.

⁴ 2018 Va. Acts ch. 296.

⁵ 2019 Va. Acts ch. 398.

⁶ 2019 Va. Acts ch. 397.

⁷ 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. After 2025, the Commission is directed to establish new energy efficiency targets.⁸ The targets through 2025 are as follows:

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. 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. Further, energy efficiency pilot programs 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 is cost-effective. 11

⁸ 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.

⁹ Code § 56-585.1 A 5 c.

¹⁰ Id.

¹¹ *Id*.

The VCEA also directs the Commission to monitor and annually report to the General Assembly 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 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 and DEV have each filed two applications for approval of DSM programs since the effective date of the VCEA (July 1, 2020), which are discussed further below. 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 to provide all of the reporting data outlined above until at least 2023 and possibly 2024. The Commission, however, has included key metrics related to existing DSM programs from each company's most recent EM&V Report below.

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 (referred to as its Phase IX Programs), and a two-year extension of an existing demand response program.¹² Additionally, the Commission approved a rooftop solar program filed

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¹² 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").

pursuant to legislation approved during the 2019 General Assembly Session.¹³ 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. ¹⁴ 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 its approved and proposed DSM programs to facilitate participation at the levels required to achieve the VCEA targets. ¹⁵

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). ¹⁶ In addition to its 2021 DSM Update, Dominion also presented a 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 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. ¹⁷ The Commission approved Dominion's proposed reorganization and

¹³ *Id.*; 2019 Va. Acts ch. 748 (House Bill 2789).

¹⁴ See 2020 DSM Update Final Order at 11.

¹⁵ *Id.* at 11-12.

¹⁶ 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, Doc. Con. Cen. No. 220830003, Final Order (August 10, 2022) ("2021 DSM Update Final Order").

¹⁷ Low program participation has historically served as a barrier to DSM program success.

consolidations of its DSM Portfolio consistent with Dominion's long-term plan. ¹⁸ As discussed further below, as of its latest filing, Dominion projects to meet its VCEA-related savings goals in 2022.

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. Additionally, the Commission approved a five-year extension for two of APCo's existing DSM programs. The approved programs and associated cost caps are displayed later in this Report.

In its second DSM application pursuant to the VCEA, APCo filed for, and received approval of, one EE program.²⁰ Additionally, APCo requested, and received, approval to move to a biennial filing cadence for its energy efficiency 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 the 2021 case docket, an updated report on program costs, revenues, participation, 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.²¹

¹⁸ 2021 DSM Update Final Order at 6.

¹⁹ 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).

²⁰ 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. 220720034, Order Approving Rate Adjustment Clause (July 15, 2022). ("APCo's 2021 EE-RAC Final Order").

²¹ *Id.* at 2-3, 6.

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 is provided below:

Dominion Energy Cases		ved/Extended Programs	Cost Caps Approved (In Million \$)
	EE	Peak Shaving ²²	
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 ²³
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
Totals	63	9	1,037.5MM ²⁴
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
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
Totals	24	3	$188.0 MM^{25}$

²² 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."

²³ 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, and the Commission reapproved them.

²⁴ 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 \$1,037.5MM shown in the table includes cost caps for peak shaving and energy efficiency programs from the time DEV first began offering such programs.

²⁵ 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 \$188.0MM shown in the table includes cost caps for peak shaving and energy efficiency programs from the time APCo first began offering such programs.

Evaluation, Measurement, and Verification Proceeding

On August 28, 2020, the Commission issued an Order Initiating Proceeding to address Dominion's methodologies for conducting evaluation, measurement, and verification of energy savings of approved energy efficiency measures.²⁶ The EM&V Proceeding was also designed to address the creation of a "dashboard" to standardize the presentation of energy savings found in the utility's annual DSM EM&V reporting. Following a public hearing and the issuance of a Hearing Examiner's Report, the Commission issued its Final Order in the EM&V Proceeding on October 27, 2021.²⁷ The EM&V Proceeding Final Order adopted EM&V guidelines for Dominion's EE programs and implemented a dashboard that will provide a one-page overview of, among other things, Dominion's progress towards the goals of the GTSA and VCEA, and its data concerning customer participation, energy savings, and customer bill savings. Additionally, the Commission required Dominion to evaluate the baselines used in the EM&V savings formulas and to increase coordination between Dominion's EM&V contractor and energy efficiency program designers. The EM&V Proceeding will be applicable to Dominion's currently approved and operating DSM programs, as well as to any future DSM programs filed by Dominion pursuant to the VCEA.

Pursuant to the EM&V Proceeding Final Order, Dominion included a one-page dashboard overview of its DSM activities as part of its 2021 DSM Update. Additionally, on January 25, 2022, DEV and Commission Staff filed a joint letter regarding DEV's intent to conduct a study on

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²⁶ Commonwealth of Virginia ex rel. State Corporation Commission, Ex Parte: In the matter of baseline determination, methodologies for evaluation, measurement, and verification of existing demand-side management programs, and the consideration of a standardized presentation of summary data for Virginia Electric and Power Company, Case No. PUR-2020-00156, Doc. Con. Cen. No. 200830148, Order Initiating Proceeding (August 28, 2020) ("EM&V Proceeding").

²⁷ Commonwealth of Virginia ex rel. State Corporation Commission, Ex Parte: In the matter of baseline determination, methodologies for evaluation, measurement, and verification of existing demand-side management programs, and the consideration of a standardized presentation of summary data for Virginia Electric and Power Company, Case No. PUR-2020-00156, 2021 S.C.C. Ann. Rept. 260, Final Order (October 27, 2021) ("EM&V Proceeding Final Order").

the baseline savings assumptions used for measures included in two of its DSM programs. DEV retained its EM&V contractor, DNV,²⁸ to conduct a study of the Phase VII Non-Residential Lighting Systems & Controls program and the Phase VII Residential New Construction program. Dominion anticipates providing the results of that study as part of its 2023 EM&V Report.

DEV

Dominion's currently approved and operating programs are listed below:²⁹

Dominion Energy Active DSM Programs

Phase and Case No.	Program Name	Program Type
Phase I PUE-2009-00081	Residential AC Cycling Program	Peak Shaving
Phase II PUE-2011-00093	Non-Residential Distributed Generation Program	Demand Response
Phase IV PUE-2017-00071	Residential Income and Age Qualifying Program	Energy Efficiency
Phase V PUE-2015-00089	Non-Residential Small Business Improvement Program	Energy Efficiency
Phase VI PUE-2016-00111	Non-Residential Prescriptive Program	Energy Efficiency
Phase VII PUR-2018-00168	Residential Appliance Recycling Program Residential Efficient Products Marketplace Program Residential Home Energy Assessment Program Non-Residential Lighting Systems & Controls Program Non-Residential Heating & Cooling Efficiency Program Non-Residential Window Film Program Non-Residential Small Manufacturing Program	Energy Efficiency Energy Efficiency Energy Efficiency Energy Efficiency Energy Efficiency Energy Efficiency Energy Efficiency

²⁸ DNV is an energy consulting firm contracted to provide Dominion with DSM portfolio and program design services as well as to conduct EM&V for Dominion's DSM programs.

²⁹ 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.

Phase	VIII
т паэс	V 111

1 111100 / 111		
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	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 ³⁰
	Residential Manufactured Housing Program	Energy Efficiency
	Non-Residential New construction	Energy Efficiency
	AC Cycling Extension	Peak Shaving
Phase IX		
PUR-2020-00274	Residential IAQHIP Program ³¹	Energy Efficiency
	Residential Smart Home Program	Energy Efficiency

ase IA		
R-2020-00274	Residential IAQHIP Program ³¹	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

³⁰ 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 allows Dominion access to cycle the thermostat off during peak load events.

³¹ The acronym "IAQHIP" stands for "Income and Age-Qualifying Home Improvement Program."

Voltage Optimization	Energy Efficiency
Enhancement of the Residential Income and Age Qualifying Home	Energy Efficiency
Improvement	
Extension of the Non-residential Lighting Systems & Controls	Energy Efficiency
Program	

DEV filed its most recent EM&V Report on June 15, 2022 ("DEV's 2022 EM&V Report"), the public version of which is available on the Commission's website.³² A summary of key findings is reprinted below (Tables 1-3 and 1-4 of DEV's 2022 EM&V Report):³³

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³² The public version of this report 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 case number, PUR-2020-00274, in the appropriate box.

³³ This data was provided by DEV and has not yet been reviewed or validated by the Commission.

	Table 1-3. Virginia Summary Pro	ia Summary Pro	ogram Metri	cs – Participa	tion, Financia	gram Metrics – Participation, Financial, and Benefit Cost (programinception to year-end of 2021)	ost (progra	minception	to year-enc	d of 2021)				
Program			Participation		Financial					Benefit Co	st Ratios[1]			
		Program operation years	Participants[2]] (in 1,000's)	No. Measures[3] (in 1,000's)	Expenditures (\$M)[4]	Administrative Expenditures (\$M)[5]	Budget (\$M)	Spending as % of Budget	Program cost pe r participant	Participant Utility	Utility	TRC	RIM	
٨	Appliance Recycling	2.5	2.55	2.55	\$1.08	\$0.05	\$ 4.71	23%	\$423.71	11.04	0.70	0.64		0.24
uerg	Home Energy Assessment	2.5	13	721	\$11.35	\$0.54	\$11.34	100%	\$897	12.98	2.89	2.37		0.28
	Customer Engagement	-	314	314	\$2.18	\$0.10	\$1.90	114%	2\$	10.13	1.95	1.54		0.49
itnə viə8	Home Retrofit	_	0.10	0.31	\$0.92	\$0.04	\$1.31	%02	\$9,318	4.90	2.20		1.76 0	0.52
	Manufactured Housing	_	0.00	0.03	\$0.69	\$0.03	\$1.13	61%	\$230,711	4.84	1.47		1.38 0	0.44
Ы	Multifamily	_	0.01	0.01	\$0.66	\$0.03	\$1.68	39%	\$73,170	3.29	3.12		1.85 0	0.61
etoi	Efficient Products Marketplace	2.5	8,687	8,687	\$21.16	\$0.97	\$20.64	103%	\$2.44	18.44	3.37	3.96		0.30
ential Produ	Electric Vehicle Energy Efficiency and Demand Response	_	0.00	0.09	\$0.30	\$0.01	\$0.35	85%	\$3,192	1.62	1.36	1.37		0.95
	Kits	_	28	49	\$1.35	\$0.06	\$1.95	%69	\$48	274.38	1.86	8.35		0.35
	Smart Thermostat Purchase and WeatherSmartTM	1	4.4	8.3	\$1.10	\$0.05	\$1.18	94%	\$250	5.97	1.13	1.04		0.35
Residential	New Construction	_	1.0	1.0	\$1.23	\$0.06	\$4.22	29%	\$1,212	1.73	2.11	1.25		0.69
	Residential Sub-Total		9,049	9,783	\$42.02	\$1.95	\$50.4	83%	\$4.64	N/A	N/A	N/A		A/N
Income & Age	Income and Age Qualifying Home Improvement	7	26	40	\$22.31	\$0.86	\$26.74	83%	\$863	0.00	1.57	1.6	.57 0	0.32
Qualitying	Residential HVAC Health and Safety	-	3.3	6.5	\$9.14	\$0.43	\$10.82	84%	\$2,730	N/A	0.54	0.54		0.31
	Income and Age Qualifying Home Improvement Sub-Total		29.2	46.2	\$31.45	\$1.28	\$37.6	84%	\$1,077.3	N/A	N/A	N/A		N/A
	Small Business Improvement	5	2	190	\$14.94	\$0.71	\$31.36	48%	\$6,196	3.13	2.08	1.74		0.57
•	Small Business Improvement Enhanced		0.31	5	\$2.50	\$0.12	\$3.56	%02	\$8,143	2.41	1.68	1.34		0.63
suoii	Prescriptive	5	က	521	\$32.99	\$1.67	\$28.79	115%	\$11,694	1.08	0.20	0.15		0.14
ınjo	Heating and Cooling Efficiency	2	0.07	_	\$1.65	\$0.08	\$4.92	33%	\$22,275	8.56	19.63	9.10		1.23
s s	Lighting Systems & Controls	2	0.79	96	\$8.12	\$0.39	\$6.73	121%	\$10,226	9.48	3.24	2.66		0.48
səui	Office	2	0.07	_	\$1.62	\$0.07	\$3.12	92%	\$24,900	2.60	0.20	0.21		0.12
sng	Small Manufacturing	2	0.00	0	\$0.98	\$0.04	\$3.33	78%	\$979,634	3.11	1.37	1.27		0.53
	Window Film	2	0.04	84	\$0.87	\$0.04	\$1.20	73%	\$21,330	1.49	0.47	0.35		0.29
	Midstream Energy Efficiency Products		0.01	0.02	\$0.53	\$0.02	\$1.92	28%	\$76,403	1.02	2.50	1.13		1.00
Non-Residentia	Ion-Residential New Construction		0.00	0.00	\$0.63	\$0.03	\$1.14	22%	•	2.84	1.22	1.21		0.50
	Non-Residential Sub-Total		6.5	897.2	\$64.8	\$3.2	\$86.1	75%	\$9,942	N/A	N/A	N/A		N/A
TOTAL			9,085	10,726	\$138	\$6.41	\$174	462	\$ 15.22	N/A	N/A	N/A		N/A

	Table 1-4. Virginia Summary P	inia Summar	v Program I	Metrics – Parti	cipation, Fir	nancial, and	Benefit Cost	program ince	rogram Metrics – Participation, Financial, and Benefit Cost (program inception to year-end of 2021)	end of 2021)			
					Energ	Energy Impacts					2450	opera	
			Gross	Gross Impacts			Net	Net Impacts			Omer impacts	pacts	
	Program	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 Lifetime Net Energy Savings Energy Savings (MWh)	Lifetime Net Energy Savings (MWh)	Total Summer Net Peak De mand Reductions (MW)	Bill Savings (\$M/year)	Carbon Emissions Avoided (Metric Tons CO2/yr)	O&M NEIS (\$M/year)	Water Savings (Mgal/year)
٨	Appliance Recycling	2,124	4,134	16,994	0.32	1,274	2,481	10,197	0.19	\$0.00	1,285	ΝΆ	N/A
	Home Energy Assessment	27,562	18,956	344,597	1.83	22,049	15,165	275,678	1.46	\$2.42	16,697	\$7,167	1.87
	Customer Engagement	63,949	48,408	64,060	0.00	63,949	48,408	64,060	00:00	\$6.64	38,609	NA	N/A
itnə viə S	Home Retrofit	208	41	4,626	0.07	187	37	4,164	90:0	\$0.02	126	\$1.48	0.01
	Manufactured Housing	1	0.07	6	0.00	1	90.0	6	0.0001	\$0.00	0.4	\$0.10	00.00
ਖ	Multifamily	0	0.03	1	0.00	0	0.03	10	0.000	\$0.00	0.2	\$0.24	N/A
stoı	Efficient Products Marketplace	264,607	334,980	4,390,924	24.36	174,062	226,550	2,888,497	16.00	\$11.72	159,797	\$9,991	17
lsitn o ubo19	Electric Vehicle Energy Efficiency and Demand Response	12	2	124	0.00	10	2	66	0.00	\$0.00	8	N/A	NA
	Kits	3,443	961	20,200	0.30	2,066	929	12,120	0.18	\$0.37	2,036	\$62	0.75
	Smart Thermostat Purchase and WeatherSmartTM	1,863	729	12,636	0.00	1,525	601	10,143	0.0	\$0.19	1,118	N/A	N/A
Residential	New Construction	1,971	497	45,840	0.88	1,715	432	39,881	0.77	\$0.22	1,209	Ϋ́Z	A/N
		365,739	408,709	4,900,022	28	266,838	294,252	3,304,857	18.7	\$22	220,886	\$17,222	20
Income & Age	Income and Age Qualifying Home Improvement	9,588	41,562	136,838	1.09	9,952	43,568	141,957	1.13	\$0.05	5,782	\$28	27
Qualifying	Residential HVAC Health and Safety	1,341	282	16,629	0.20	1,073	225	13,303	0.16	\$0.14	811	-\$3	N/A
		10,929	41,844	153,466	Ţ	11,025	43,794	155,260	1.29	\$0.19	6,593	\$25	27
	Small Business Improvement	52,910	168,874	740,952	11.21	49,206	157,052	689,085	10.43	\$0.18	32,056	\$40	N/A
,	Small Business Improvement Enhanced	2,429	784	35,666	0.45	2,259	729	33,169	0.42	\$0.26	1,471	283	N/A
suoi	Prescriptive	81,841	109,165	524,641	16.89	41,603	62,971	266,495	12.39	\$2.11	49,748	N/A	N/A
ınıo	Heating and Cooling Efficiency	2,880	3,394	43,218	0.47	2,016	2,375	30,252	0.33	\$0.05	1,747	-\$52	N/A
S ss	Lighting System & Controls	51,736	53,042	552,009	7.21	36,215	37,129	386,406	5.05	\$2.26	31,252	\$497	N/A
euis	Office	1,335	1,210	9,345	0.00	1,201	1,089	8,410	0.00	\$0.03	811	N/A	N/A
eng	Small Manufacturing	112	27	1,386	0.02	101	25	1,247	0.02	\$0.01	89	N/A	N/A
	Window Film	330	463	3,301	0.08	264	370	2,641	90.0	\$0.01	200	N/A	N/A
	Midstream Energy Efficiency Products	65	7	782	0.08	29	9	703	0.07	\$0.00	40	0\$	J
Non-Re sidential	New Construction	0	0	0	0	0	0	0	0	\$0.00	0	N/A	N/A
		193,639	336,964	1,911,298	36	132,925	261,747	1,418,409	29	\$4.92	117,394	\$572	0.26
TOTAL		570,307	787,517	6,964,787	99	410,788	599,793	4,878,527	49	\$27	344,873	\$17,819	47

APCo

APCo's currently approved and operating programs are listed below:³⁴

Appalachian Power Active DSM Programs

Case No.	Program Name	Program Type
PUE-2014-00026	Low-Income Weatherization	Energy Efficiency
	Peak Reduction	Demand Response
PUR-2017-00126	eScore	Energy Efficiency
	Bring Your Own Thermostat	Demand Response
	Commercial and Industrial Lighting	Energy Efficiency
	Commercial and Industrial Standard	Energy Efficiency
	Small Business Direct Install	Energy Efficiency
PUR-2019-00122	Low Income Single Family	Energy Efficiency
	Low Income Multifamily	Energy Efficiency
	ENERGY STAR® Manufactured Homes ³⁵	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

APCo filed its most recent EM&V Report on April 29, 2022 ("APCo's 2022 EM&V Report"), the public version of which is available on the Commission's website.³⁶ A summary of

³⁴ The findings and determinations of the EM&V Proceeding discussed above are only applicable to DEV.

³⁵ On May 2, 2022, APCo notified Staff of APCo's decision to cancel the ENERGY STAR Manufactured Homes Program as of May 1, 2022. APCo explained that it had learned the program was exclusively used by free riders – that is, everyone who purchased a home under this program would have purchased a home with the relevant energy efficiencies regardless of the existence of the program.

³⁶ This report may be located on the Commission's website, <u>scc.virginia.gov/pages/Case-Information</u>, by clicking "Docket Search," then clicking "Search by Case Information," and entering the case number, PUE-2014-00039, in the appropriate box.

the key findings is reprinted below (Tables 1-3 and 1-4 for Residential and Commercial & Industrial ("C&I") Programs, respectively, from APCo's 2022 EM&V Report):³⁷

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 Net Ex Post kWh Savings
Home Performance Program	1,312,658	917,268	70%	671,749	73%	9,195,069
Low-Income Single Family Program	678,953	477,853	70%	477,853	100%	5,978,841
Low-Income Multifamily Program	1,268,455	982,294	77%	982,294	100%	11,843,186
ENERGYSTAR Manufactured Homes Program	-	7,940	N/A	-	0%	-
Bring Your Own Thermostat Program	122,389	122,389	100%	191,256	156%	191,256
Residential Portfolio Totals	3,382,455	2,507,744	74%	2,323,152	93%	27,208,353

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	220.54	101.40	46%	74.77	74%
Low-Income Single Family Program	249.86	95.09	38%	95.09	100%
Low-Income Multifamily Program	483.90	228.65	47%	228.65	100%
ENERGYSTAR Manufactured Homes Program	-	(4.79)	N/A	-	0%
Bring Your Own Thermostat Program	4,463.95	4,463.95	100%	4,463.95	100%
Residential Portfolio Totals	5,418.25	4,884.30	90%	4,862.46	100%

³⁷ This data was provided by APCo and has not yet been reviewed or validated by the Commission.

Table 1-3 Summary of C&I Portfolio Energy Savings

Program Name	Ex Ante kWh Savings	Gross Ex Post kWh Savings	Gross Realization Rate	Net Ex Post kWh Savings	Net- to- Gross Ratio	Net Lifetime kWh Savings
C&I Lighting Program	16,448,721	14,924,758	91%	11,865,183	80%	173,996,276
C&I Standard Program	673,770	546,502	81%	496,604	91%	6,032,895
Small Business Direct Install Program	10,475,975	47,096	0%	40,973	87%	526,772
Opt Out	28,076,053	28,076,053	100%	28,076,053	100%	28,076,053
C&I Portfolio Totals	55,674,520	43,594,409	78%	40,478,813	93%	208,631,997

Table 1-4 Summary of C&I Portfolio Peak Demand Impacts

Program Name	Ex Ante kW Savings	Gross Ex Post kW Savings	Gross Realization Rate	Net Ex Post kW Savings	Net- to- Gross Ratio
C&I Lighting Program	2,906.55	2,279.35	78%	1,870.88	82%
C&I Standard Program	78.47	85.00	108%	74.60	88%
Small Business Direct Install Program	676.25	10.68	2%	8.76	82%
Opt Out	-	-	N/A	-	N/A
C&I Portfolio Totals	3,661.28	2,375.03	65%	1,954.23	82%

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 shall 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.

As shown above, the calendar year 2022 is the first year that the energy efficiency targets are in effect. As such, the Commission will not receive data related to the utilities' success in meeting such targets until the 2023 EM&V reports are received and reviewed. The Commission expects to be able to provide data related to the feasibility of achieving these energy efficiency goals in future reports. As discussed in more detail below, on a "net" basis, APCo projects to meet all of its annual VCEA related savings goals. As of its latest filing, Dominion currently projects to meet its VCEA related savings goals on a "net" basis in only 2022.

On the issue of whether net or gross savings should be used to measure compliance with the energy efficiency targets, the Commission's Final Order in Dominion's 2021 DSM Update found that:

Determining whether [Dominion] has achieved the 2022 total annual savings percentage in Code § 56-596.2 B will require a factual analysis based on a separate record, which has yet to be developed and which is not yet before us for such purpose. Under the statute, that required factual analysis is not articulated in terms of "gross" or "net" savings,

³⁸ "Net" refers to changes in energy use that are induced by a particular energy efficiency program, *i.e.*, exclusive of free riders.

³⁹ "Gross" refers to savings that are expected to occur independent of an energy efficiency program's implementation, *i.e.*, inclusive of free riders.

which are neither referenced nor defined therein. Rather, Dominion has the burden to establish, on a factual basis, the "total combined kilowatthour savings achieved by" its energy efficiency and demand response programs and measures.

In this regard, the definition of "achieved" is: "1 a: to bring to a successful conclusion: carry out successfully: accomplish ... 2: to get as the result of exertion: succeed in obtaining or gaining: win, reach, attain." Accordingly, based on the plain language thereof, when Dominion seeks findings on the savings achieved for purposes of this statute, [Dominion] must factually establish the amount of savings that occurred as the result of its programs and measures.

FN33: For example, to the extent the term "free riders" factually represents specific savings that can be reasonably identified, and that were *not* achieved as a result of Dominion's programs and measures, such savings do not fall within the plain language of this statute.⁴⁰

DEV

In its 2021 DSM Update, DEV provided the data below related to its expected achievement of the VCEA's energy efficiency goals:⁴¹

	Net Savings											
							DSM	VCEA	VCEA			
	Phase 1-8	Phase 9	Phase 10	Phase 11	Phase 12	Total DSM	%	Target	Target %			
Year	programs	programs	programs	programs	programs	Forecast MWh	MWh	MWh	MWh			
2022	947,069	31,995	99,261			1,078,325	1.60%	852,892	1.25%			
2023	1,112,639	92,217	272,791			1,477,647	2.20%	1,705,783	2.50%			
2024	1,196,025	156,589	501,834	31,995		1,886,443	2.80%	2,558,675	3.75%			
2025	1,196,705	224,149	718,208	92,217	31,995	2,263,274	3.30%	3,411,567	5.00%			

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⁴⁰ 2021 DSM Update Final Order at 8-9.

⁴¹ These are DEV's estimates as provided in DEV witness Frost's direct testimony, Schedule 2, as part of its 2021 DSM Update application, and have not been determined by the Commission to be the "achieved" savings at this time. *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, Doc. Con. Cen. No. 211220150, Petition (filed December 14, 2021).

	Gross Savings											
							DSM	VCEA	VCEA			
	Phase 1-8	Phase 9	Phase 10	Phase 11	Phase 12	Total DSM	%	Target	Target %			
Year	programs	programs	programs	programs	programs	Forecast MWh	MWh	MWh	MWh			
2022	1,232,949	41,304	165,435			1,439,688	2.10%	852,892	1.25%			
2023	1,443,309	117,833	407,085			1,968,227	2.90%	1,705,783	2.50%			
2024	1,544,424	198,070	678,991	41,304		2,462,789	3.60%	2,558,675	3.75%			
2025	1,530,522	280,955	910,427	117,833	41,304	2,881,041	4.20%	3,411,567	5.00%			

APCo

In APCo's 2021 EE-RAC Proceeding, it provided the below data related to its expected achievement of the VCEA energy efficiency goals based on net savings:⁴²

	Net Savings										
	2015-2020		C&I		Total DSM		VCEA	VCEA			
	Persistent	Previous	Customer	Opt Out	Forecast	DSM %	Target	Target %			
Year	Savings	Programs	Pilot	Customer	MWh	MWh	MWh	MWh			
2022	153,187	141,915		37,734	332,836	460.6%	72,260	0.5%			
2023	148,610	227,389	11,964	37,734	425,697	294.6%	144,521	1.0%			
2024	143,033	305,926	23,929	37,734	510,622	235.5%	216,781	1.5%			
2025	136,745	373,956	35,893	37,734	584,328	202.2%	289,041	2.0%			

The Commission approved APCo's request to extend the period between EE-RAC filings to two years. APCo is, however, required to provide "updated reporting on program costs, revenues, participation, and other relevant information, on or before November 30, 2022."44

⁴² These are APCo's estimates provided in APCo's witness Diebel's direct testimony, Schedule 2, in APCo's 2021 EE-RAC Proceeding and have not been determined by the Commission to be the "achieved" savings at this 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).

⁴³ APCo's 2021 EE-RAC Final Order at 5.

⁴⁴ *Id.* at 4.

CLOSING

In summary, both APCo and Dominion project they can meet their 2022 VCEA related savings goals on a "net" basis. The Commission expects that these utilities will provide data related to their success in meeting the 2022 targets in future annual reports to the Commission. In the meantime, 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

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

Pandemic-related Activities

The Commission has previously reported on its response to the public health concern related to the spread of the coronavirus, or COVID-19. Through several orders, the Commission directed regulated electric, natural gas, and water and sewer companies in Virginia to suspend service disconnections through October 5, 2020, affording the General Assembly and the Governor time to address the economic impact on utility customers legislatively.⁴⁵ Thereafter, in a November 2020 Special Session, the General Assembly enacted budget legislation further prohibiting utility shut-offs during the then state of emergency declared by the Governor, subject to certain conditions and limitations.⁴⁶ This budget legislation also directed the Commission to distribute \$100 million of Virginia's portion of the coronavirus relief funds ("CRF") received under Public Law 116-136: Coronavirus Aid, Relief, and Economic Security Act, to electric, natural gas, and water and sewer utilities, including municipal utilities, throughout the Commonwealth to offset utility customer billing arrearages due to COVID-19.⁴⁷ Relatedly, budget legislation enacted by the General Assembly during a 2021 Special Session directed the Commission, in coordination with the Department of Housing and Community Development, to distribute \$120 million of additional coronavirus relief funds received by Virginia under Public Law 117-2: American

⁴⁵ Commonwealth of Virginia, ex rel. State Corporation Commission, Ex Parte: Temporary Suspension of Tariff Requirements, Case No. PUR-2020-00048, 2020 S.C.C. Ann. Rept. 467, Order Suspending Disconnection of Service and Suspending Tariff Provisions Regarding Utility Disconnections of Service (March 16, 2020); 2020 S.C.C. Ann. Rept. 467, Order Extending Suspension of Service Disconnections (April 9, 2020); 2020 S.C.C. Ann. Rept. 469, Order on Suspension of Service Disconnections (June 12, 2020); 2020 S.C.C. Ann. Rept. 473, Order on Moratorium (August 24, 2020); 2020 S.C.C. Ann. Rept. 475, Additional Order on Moratorium (September 15, 2020).

⁴⁶ See, House Bill 5005, 2020 Va. Acts, Special Session I, ch. 56 (Item 4-14)

⁴⁷ See, House Bill 5005, 2020 Va. Acts, Special Session I, ch. 56 (Item 479.10). See also, House Bill 1800, 2021 Va. Acts, Special Session I, ch. 552 (modifying pertinent provisions in Item 479.10).

Rescue Plan Act of 2021 ("ARPA"). ⁴⁸ These funds were also distributed to Virginia's utilities (as identified above) to offset utility customer billing arrearages due to COVID-19. The Commission and its Staff continue to provide oversight of these CRF and ARPA distributions. Additionally, and at the General Assembly's direction, the Commission since 2020 has submitted annual reports to the General Assembly and the Executive Branch detailing current utility customer billing arrearages and utility service disconnections. ⁴⁹ The annual submission of these reports will continue through 2023.

⁴⁸ See, House Bill 7001, 2021 Va. Acts, Special Session II, ch. 1 (Item 479.20).

⁴⁹ See, House Bill 5005, 2020 Va. Acts, Special Session I, ch. 56 (Item 4-14).