Fry

Part 3

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Terry M. Fry

Title: Senior Vice President and Director of Energy Services, Cadmus

Summary:

Company Witness Terry M. Fry testifies regarding the Company's long-term plan, which is provided as part of the Company's 2021 DSM Update. More specifically, Mr. Fry supports the Company's response to the Virginia State Corporation Commission's final order approving the Company's 2020 DSM Update, in Case No. PUR-2020-00274 ("2020 DSM Update Final Order"). In the 2020 DSM Update Final Order, the Commission directed Dominion Energy Virginia to present a long-term plan for DSM sufficient to comply with the total energy savings targets in the Virginia Clean Economy Act ("VCEA") and investment levels in the Grid Transformation and Security Act ("GTSA"). Mr. Fry sponsors the Company's Demand-Side Management Long-Term Plan.

DIRECT TESTIMONY
OF
TERRY M. FRY
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUR-2021-00247

Q. Please state your name and business address.

A. My name is Terry M. Fry, and I am Senior Vice President and Director of Energy Services at Cadmus. My business address is 3100 Clarendon Blvd., Suite 400, Arlington, Virginia 22201. A statement of my background and qualifications is attached as Appendix A.

Q. Please describe your background as it relates to this proceeding.

A. Since 1987, I have worked in the energy utility industry in various capacities, including as a researcher, consultant, educator, and policy advisor. With the assistance of my staff, I have provided technical advice and consultation to energy utilities on matters related to resource planning, load research, grid modernization, market assessment, energy efficiency, demand response, portfolio assessment, and performance measurement and verification.

Before joining Cadmus in 2017, I was Senior Vice President for Utility Services at Nexant from 2000 to 2017. I served as senior Project Director at Bechtel Technology and Consulting (the parent of Nexant's spin-out) from 1997-2000. Prior to that, I served as a director in the consulting firm of Barakat & Chamberlin, where I led project delivery in the firm's utility planning and strategy practice. I have also served as an appointed Advisor on renewable energy and energy efficiency to the U.S. Department of Commerce

Secretary since 2008 and am presently serving my fifth term. My educational background includes a Master of Philosophy degree in Economics and Politics of Development from Cambridge University and a B.S. in Mechanical Engineering from Stanford University. For additional details, please see my resume, which is attached as Appendix A.

Q. On whose behalf are you testifying in this proceeding?

A. I am testifying on behalf of Virginia Electric and Power Company ("Dominion Energy Virginia" or the "Company") with respect to the Company's long-term plan, which is provided as part of the Company's 2021 DSM Update.

Q. Are you sponsoring any exhibits or schedules with your direct testimony?

A. Yes. Company Exhibit No. __, TMF, consisting of Schedule 1, "Demand-Side Management Long-Term Plan," which was prepared for the Company under my direction and supervision, and is accurate and complete to the best of my knowledge and belief.

Q. What is the purpose of your testimony in this proceeding?

A. The purpose of my testimony is to support the Company's response to the Virginia State Corporation Commission's ("Commission") final order approving the Company's 2020 DSM Update, in Case No. PUR-2020-00274, on September 7, 2021 ("2020 DSM Update Final Order"). In the 2020 DSM Update Final Order, the Commission directed Dominion Energy Virginia to present a long-term plan for demand-side management ("DSM") sufficient to comply with the total energy savings targets in the Virginia Clean Economy Act ("VCEA") and investment levels in the Grid Transformation and Security Act ("GTSA").

Specifically, Dominion Energy Virginia hired Cadmus, a third-party vendor, to provide support to the Company's participation in the Virginia stakeholder process, develop a long-term plan for the Company's DSM program portfolio, develop recommendations for optimizing the customer experience with respect to DSM program participation, provide supplementary technical support regarding cost-benefit analysis, provide supplemental staff resources as necessary to review DSM program tracking data, and benchmark the Company's DSM portfolio relative to other program portfolios across the country. The scope of work between the Company and Cadmus specifies the expectation that—in developing strategies to best achieve energy and savings goals of proposed programs—Cadmus should work closely not only with Dominion Energy Virginia personnel but also with stakeholders such as Commission Staff, customer advocates, energy efficient advocates, and vendor network participants. Cadmus' recommended Long-Term Plan is attached as my Schedule 1.

Q. Does this conclude your direct testimony?

A. Yes, it does.

CADMUS

Terry M. Fry, Senior Vice President

Summary of Professional Experience

Terry Fry, senior vice president and director of Energy Services at Cadmus, has led economically efficient energy production and technology deployment initiatives for more than 30 years, and for the last 20 years has worked with governmental and non-governmental entities on energy industry policies and regulations that encourage energy efficiency and renewable energy. He has particular depth in utility resource planning and regulatory practices, focusing on the intersection of customer initiatives, distributed energy resources, and modern grid dynamics.

Before joining Cadmus, Mr. Fry was senior vice president at Nexant, where he directed the utility services division in delivering portfolio EM&V services, turnkey energy efficiency initiatives, and providing solutions in grid modernization, dynamic pricing strategy, demand-side planning and evaluation, and integrated distributed energy resources planning. His career includes management consulting positions focused on demand-side strategy, policy, and institutional capacity building (at Bechtel Technology and Consulting and Barakat & Chamberlin).

Mr. Fry is presently serving his fifth term as an appointed Advisor on renewable energy and energy efficiency to the U.S. Commerce Secretary, for whom he provides guidance on clean energy manufacturing, export, and job creation initiatives. He is the past Chairman and continues to serve on the Board of the California Efficiency and Demand Management Council, a business organization that represents more than 80 of the country's leading energy efficiency and demand response industry firms. He was named by Smart Grid Today as one of its Smart Grid Pioneers, recognizing the top 50 energy leaders who are pioneering changes in the industry.

Relevant Experience

Demand-Side Management and Integrated Resource Planning

Beginning in the late 1980s, Mr. Fry pioneered many of what are now industry standard theoretical and practical approaches to modeling achievable demand-side management (DSM) scenarios in the context of utility integrated resource planning. Synthesizing both technical and economic attributes of DSM options with market attributes associated with customer behavior, his approaches to assessment and planning readily incorporate external stakeholder review and inputs.

Mr. Fry has directed project teams in support of DSM assessment and integrated resource planning analyses for more than two dozen investor owned and publicly owned North American utility clients, as well as for national government clients in Africa, Asia, and Europe. His facilitation of stakeholder inputs to and participation in the planning process has been instrumental in leading to favorable outcomes in obtaining management, regulatory, and stakeholder approvals.

Distributed Energy Policy Strategy

For utility, governmental, and corporate clients, Mr. Fry has directed a wide variety of projects focused on comprehensive policy and portfolio strategies for the effective use of coordinated technology and programmatic initiatives to encourage more widespread acceptance and use of clean energy and grid-integrated technologies. His perspectives on policy are focused on efficient and equitable allocation of distributed energy resources costs and benefits, with comprehensive consideration of energy system technical dynamics and socioeconomic effects, which has provided a foundation for his skills in

communicating complex policy considerations. For utility clients, Mr. Fry's command of applied ratemaking principles, coupled with his broad knowledge of emerging national and global trends in market design and regulatory policy, inform his advisory inputs into policy strategy.

Demand-Side Management EM&V

Mr. Fry's expertise in EM&V is rooted in project work in the late 1980s and 1990s, when his colleagues and he were developing many of the evaluation protocols and techniques now standard in the industry. He has maintained active participation in both theory and practice, including service on the steering committee of the US Department of Energy's Uniform Methods Project from its inception. His practical experience includes serving as the principal investigator evaluating the $330 million portfolio of legislatively mandated Peak Load Reduction Program of energy efficiency and demand response initiatives administered by the California Energy Commission, as well as technical oversight of portfolio evaluations of energy efficiency programs implemented by Wisconsin Focus on Energy, PPL Electric Utilities, PSE&G, Georgia Power, NorthWestern Energy, CPS Energy, and others.

Design and Implementation of Customer-Facing Initiatives

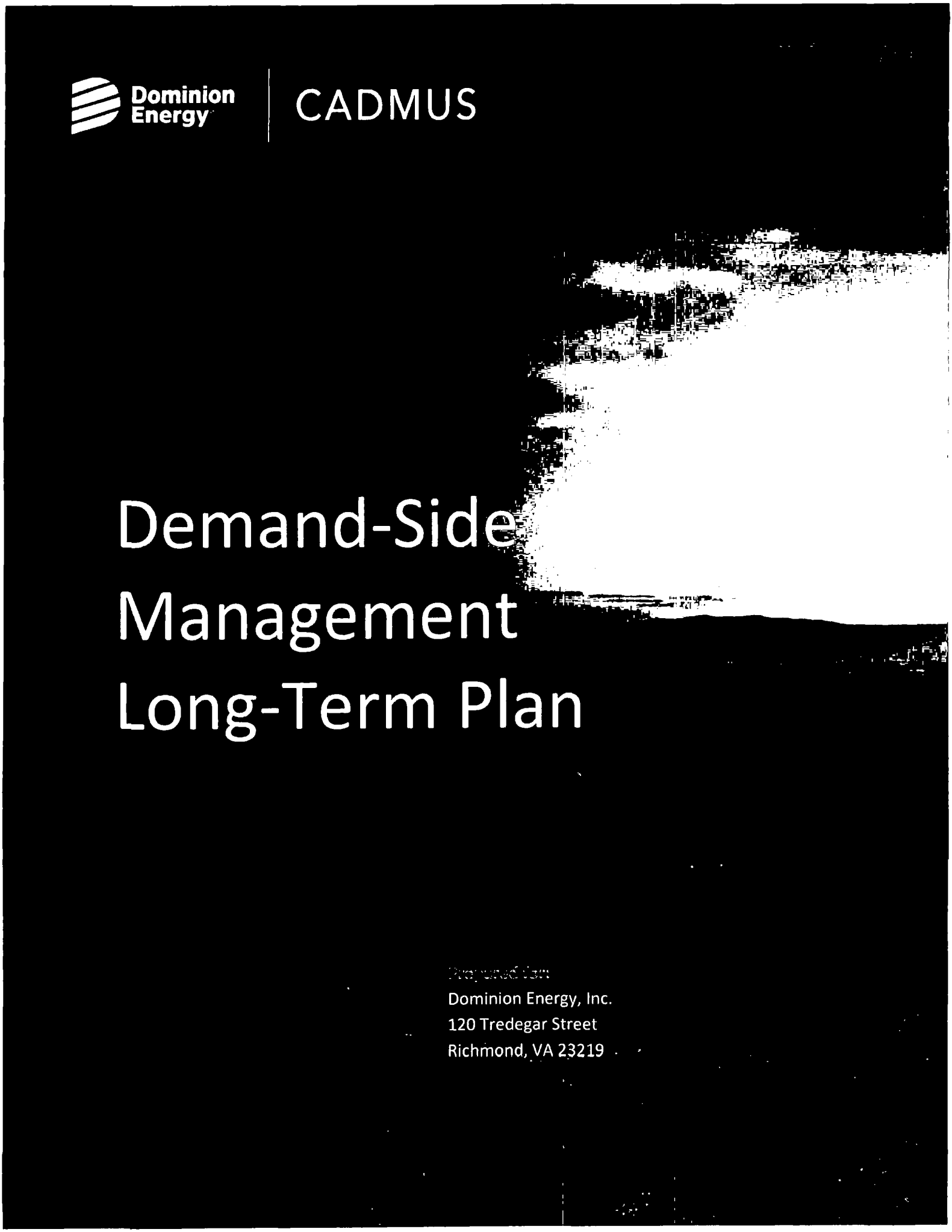
Prior to joining Cadmus, Mr. Fry was responsible for the design, launch, and management of some of the largest and most successful programmatic DSM initiatives in North America. In each instance, pre-launch design activities included developing and validating program logic models, determining market outreach and engagement strategies for both customers and trade allies, and supporting regulatory filings and approvals. Mr. Fry then directed translation of these requirements into procedures and training curricula for program staff and allies prior to launch, which typically featured client-branded outreach through multiple media. He oversaw the implementation of single initiative as well as portfolio-wide offerings and was responsible for developing and maintaining centralized functions such as marketing and outreach, enrollment, back-office processing and fulfillment, and reporting. His expertise also includes consideration of process automation solutions which also informs his technical perspectives on opportunities for real time program process evaluation and feedback into program activities.

Mr. Fry has delivered customer initiatives to several clients, including AEP, CenterPoint Energy, ComEd, CPS Energy, Dominion Energy Virginia, DTE Energy, LG&E-KU, MidAmerican Energy, PacifiCorp, Pacific Gas & Electric, Southern California Edison, Salt River Project, TVA, Xcel Energy, and Vectren Energy.

Education and Certifications

MPhil, Economics and Politics of Development, Cambridge University

BS, Mechanical Engineering, Stanford University



Demand-Side Management Long-Term Plan

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Table of Contents

Acronyms and Abbreviations ..... **v**

Executive Summary **6**

Planning Process 8

Challenges 9

Overarching Strategy to Achieve Portfolio Objectives 10

Next Steps 12

1. Introduction **13**

1.1. Vision and Goals 13

1.2. Plan Goals and Compliance Paths 14

1.2.1. VCEA Compliance Paths 15

1.2.2. Long Term Plan Savings Goals and Costs Summary 20

1.3. Legislative and Commission Goals and Requirements 24

1.4. Planning Process 26

1.5. Program Accomplishments 31

1.6. Risks, Challenges, and Management Strategies 33

1.6.1. Market Challenges and Management Strategies 34

1.6.2. Regulatory and Statutory Challenges and Management Strategies 38

1.6.3. Operational Challenges and Management Strategies 45

1.7. Overarching Strategy to Achieve Portfolio Objectives 49

2. Residential Sector **53**

2.1. Sector-Level Objectives and Goals 53

2.2. Sector-Level Profile 54

2.3. Sector-Level Strategies 56

2.3.1. Residential Energy Services Program 56

2.3.2. Residential Efficient Products Program 61

2.3.3. Residential New Construction Program 66

3. Income and Age Qualified Sector **69**

3.1. Sector-Level Objectives and Goals 69

3.2. Sector-Level Profile 70

3.3. Sector-Level Strategies 73

3.3.1. Income and Age Qualified Program 73
4. Nonresidential Sector 79
4.1. Sector-Level Objectives and Goals 79
4.2. Sector-Level Profile 80
4.3. Sector-Level Strategies 82
4.3.1. Large Business Solutions Program 82
4.3.2. Small Business Solutions Program 89
4.3.3. Nonresidential New Construction Program 95
5. Marketing, Education, and Training 99
5.1. Overview 99
5.2. Marketing Strategy 99
5.2.1. General Awareness Portfolio Marketing 100
5.2.2. Program Marketing 100
5.3. Education and Training 101
5.3.1. Customer Education 102
5.3.2. Trade Ally Training, Education, and Recruitment 103
6. Future Considerations for Dominion Energy 105
7. Next Steps 110
7.1. Recommendations for Achieving Objectives 111
7.1.1. Short-Term Recommendations (2021 to 2023) 111
7.1.2. Medium-Term Recommendations (2024 and 2025) 114
7.1.3. Long-Term Recommendations (2026 and beyond) 116
7.2. Progress Metrics for Long-Term Plan 117
Appendix A. Measure Level Savings, Participation, and Incentive Levels A-1
Appendix B. Proposed Program Bundles B-1
Appendix C. Residential Survey Report C-1
Appendix D. Nonresidential Survey Report D-1

Tables

Table ES-1. Virginia Clean Economy Act Energy Savings Requirements 6
Table ES-2. Estimated Savings and Investment to Achieve VCEA Goals (Gross and Net) 7
Table ES-3. Proposed Demand-Side Management Portfolio Structure 11
Table 1. Virginia Clean Economy Act Energy Savings Requirements 15
Table 2. Long-Term Plan Gross Savings Track A: Estimated Savings and Costs Summary by Year 15
Table 3. Long-Term Plan Net Savings Track B: Estimated Savings and Costs Summary by Year 16
Table 4. Summary of Gross Savings (Track A): Sector-Level Gross Savings and Investments, 2022–2025 19
Table 5. Summary of Net Savings (Track B): Sector-Level Net Savings and Investments, 2022–2025 20
Table 6. Long-Term Plan Gross Savings: Estimated Portfolio Costs Summary by Year 21
Table 7. Long-Term Plan Gross Savings: Estimated Portfolio Savings Summary by Year 22
Table 8. Long-Term Plan Net Savings: Estimated Portfolio Savings Summary by Year 23
Table 9. Summary of Benefit-Cost Screening Results by Program, Track A 24
Table 10. Portfolio-Level Challenges and Management Strategies 47
Table 11. Residential Sector Annual Estimated Gross Savings and Budget 53
Table 12. Residential Sector Annual Estimated Net Savings and Budget 54
Table 13. Residential Energy Services Program Customer Eligibility Parameters 58
Table 14. Residential Energy Services Annual Estimated Program Budget and Gross Impacts 60
Table 15. Residential Energy Services Annual Estimated Program Budget and Net Impacts 60
Table 16. Residential Energy Services Program Cost-Effectiveness Summary 61
Table 17. Residential Efficient Products Program Customer Eligibility Parameters 62
Table 18. Residential Efficient Products Program Annual Estimated Budget and Gross Impacts 65
Table 19. Residential Efficient Products Program Annual Estimated Budget and Net Impacts 65
Table 20. Residential Efficient Products Program Cost-Effectiveness Summary 66
Table 21. Residential New Construction Program Customer Eligibility Parameters 66
Table 22. Residential New Construction Program Estimated Annual Budget and Gross Impacts 68
Table 23. Residential New Construction Program Estimated Annual Budget and Net Impacts 68
Table 24. Residential New Construction Program Cost-Effectiveness Summary 68
Table 25. Income and Age Qualified Sector Annual Estimated Gross Savings and Budget 69
Table 26. Income and Age Qualified Sector Annual Estimated Net Savings and Budget 70
Table 27. Income and Age Qualified Program Customer Eligibility Parameters 75
Table 28. Income and Age Qualified Program Annual Estimated Budget and Gross Impacts 78
Table 29. Income and Age Qualified Program Annual Estimated Budget and Net Impacts 78

Table 30. Income and Age Qualified Program Cost-Effectiveness Summary 78
Table 31. Nonresidential Sector Annual Estimated Gross Savings and Budget 80
Table 32. Nonresidential Sector Annual Estimated Net Savings and Budget 80
Table 33. Large Business Solutions Program Eligibility Parameters 84
Table 34. Large Business Solutions Program Estimated Annual Budget and Gross Impacts 88
Table 35. Large Business Solutions Program Estimated Annual Budget and Net Impacts 89
Table 36. Large Business Solutions Program Cost-Effectiveness Summary 89
Table 37. Small Business Solutions Program Customer Eligibility Parameters 91
Table 38. Small Business Solutions Program Estimated Annual Budget and Gross Impacts 94
Table 39. Small Business Solutions Program Estimated Annual Budget and Net Impacts 95
Table 40. Small Business Solutions Program Cost-Effectiveness Summary 95
Table 41. Nonresidential New Construction Program Customer Eligibility Parameters 96
Table 42. Nonresidential New Construction Program Estimated Annual Budget and Gross Impacts 98
Table 43. Nonresidential New Construction Program Estimated Annual Budget and Net Impacts 98
Table 44. Nonresidential New Construction Program Cost-Effectiveness Summary 98
Table 45. Strategic Objectives and Progress Metrics 117

Figures

Figure ES-1. Estimated Savings by Source and Investment to Achieve VCEA Goals (Gross and Net) 8
Figure 1. Dominion Energy's Track A Path to Virginia Clean Economy Act: Gross Savings 17
Figure 2. Dominion Energy's Track B Path to Virginia Clean Economy Act: Net Savings 18
Figure 3. Long-Term Plan Development Process 27
Figure 4. Demand-Side Management Program History 33
Figure 5. Proposed Demand-Side Management Portfolio Structure 51
Figure 6. Residential Survey Respondent Demographics 55
Figure 7. Average Energy Burden (based on percentage of income) for Counties in Virginia 71
Figure 8. Income and Age Qualified Survey Respondent Key Household Characteristics 72
Figure 9. Nonresidential Survey Respondent Characteristics 81
Figure 10. States with Comprehensive Greenhouse Gas Reduction Policies 108
Figure 11. Proposed Phase Timeline 111

Acronyms and Abbreviations

Acronym	Definition
AMI	Advanced metering infrastructure
DSM	Demand-side management
EM&V	Evaluation, measurement, and verification
GHG	Greenhouse gas
GTSA	Grid Transformation and Security Act
HERS	Home Energy Rating System
IAQ	Income and age qualified
KPI	Key performance indicator
mCO2e	Metric tons of carbon dioxide–equivalent emissions
Plan	Demand-side management long-term plan
SCC	Virginia State Corporation Commission
VCEA	Virginia Clean Economy Act

Executive Summary

To assist Dominion Energy Virginia (Dominion Energy or the Company) with planning to meet legislative requirements outlined in the 2018 Grid Transformation and Security Act (GTSA) and the Virginia Clean Economy Act (VCEA), Cadmus developed a long-term Plan (also referred to as the Plan) outlining a framework for its customer-facing demand-side management (DSM) programs and a path to transition its existing operating environment to achieve its goals. This Plan is the culmination of extensive research, stakeholder input, and quantitative analysis, which Cadmus used to outline a streamlined, cost-effective DSM program structure and recommend additional actions. This structure consolidates Dominion Energy's existing portfolio of DSM programs into a more cohesive set of offerings to help its customers install energy efficiency upgrades in their homes and businesses. Cadmus analyzed the potential energy savings impacts of transitioning to this proposed program structure, combined with implementing a broad customer awareness campaign, on Dominion Energy's ability to achieve its targets.

The VCEA requires Dominion Energy to achieve 5% cumulative[1] energy savings, with 1.25% annual targets from 2022 through 2025, based on the Company's 2019 jurisdictional retail electric sales (68,231,332 MWh), as shown in Table ES-1.

Table ES-1. Virginia Clean Economy Act Energy Savings Requirements

	2022	2023	2024	2025
VCEA Cumulative Savings Requirement (%)	1.25%	2.5%	3.75%	5%
Dominion's VCEA Energy Savings Targets (MWh/yr)	852,892	1,705,783	2,558,675	3,411,567

To forecast energy savings impacts, Cadmus conducted a modeling analysis that accounts for (1) persistent savings resulting from historical program activities and forecasted savings from recently approved DSM Phase IX programs and proposed DSM Phase X programs, (2) estimated contributions from redesigned DSM programs and increased portfolio marketing and outreach investments recommended in this Plan, and (3) contributions from voltage optimization initiatives and self-directed savings from large commercial opt-out customers toward the Company's statutory goals.[2]

Because the VCEA does not specify whether energy savings targets need to be met with gross or net savings, Cadmus modeled two scenarios to demonstrate the difference in cost requirements to achieve the VCEA annual targets. Cadmus determined that Dominion Energy can likely achieve the VCEA's goals

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[1] Cumulative annual savings represent the sum of annual program savings over the program measures' lifetimes (i.e., persistent or lifetime savings). Incremental savings represent the first-year program savings.

[2] Pursuant to Virginia Code § 56-585.1 A 5 c savings from large general service customers shall be accounted for in the utility reporting in the standards in Virginia Code § 56-596.2.

for 2025 (with a nominal 7% buffer) under a gross savings scenario (Track A) through continued delivery of its existing and planned DSM programs if it is able to accelerate program participation by restructuring its DSM program portfolio and increasing customer awareness efforts. Achieving the VCEA goals under a net savings scenario (Track B), however, would be significantly more challenging and require the Company to increase incentives across all sectors and programs, make substantial additional investments in implementation support, and further expand its planned marketing and outreach activities. Even with the additional investment of nearly $132 million (in customer dollars) over four years, it is not clear whether achieving the VCEA's 2025 goals with net savings will be possible under Dominion Energy's current regulatory structure and market environment, with only a few years remaining.

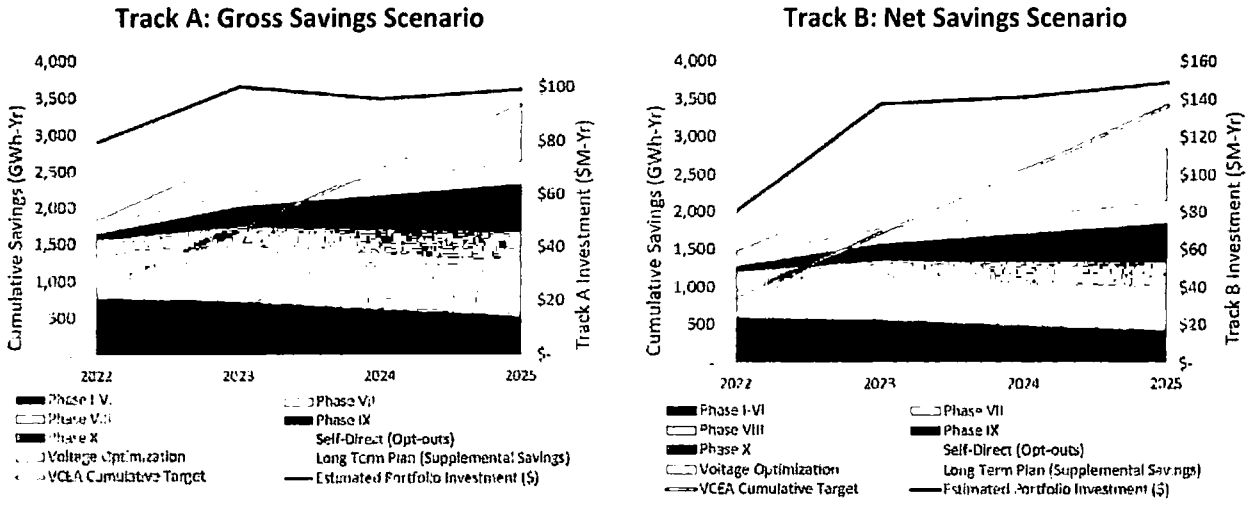
To minimize costs, Cadmus modeled the Track B scenario to achieve the VCEA more precisely than we modeled the Track A scenario (allowing for a more limited savings buffer). However, the small savings buffer creates potential risk for the Company if market conditions change substantially over the next four years. Table ES-2 summarizes estimated costs, savings, and VCEA compliance against the annual cumulative targets in both the net and gross savings scenarios.

Table ES-2. Estimated Savings and Investment to Achieve VCEA Goals (Gross and Net)

	2022	2023	2024	2025	Total
Track A: Gross Savings Scenario					
Estimated Portfolio Investment ($)	$79,721,288	$100,489,522	$95,993,546	$99,438,197	$375,642,553
Estimated Total Cumulative Electric Savings (MWh/yr)	1,848,688	2,751,051	3,234,276	3,651,298	N/A
VCEA Target (MWh/yr)	852,892	1,705,783	2,558,675	3,411,567	N/A
Progress to VCEA (%)	217%	161%	126%	107%	N/A
Track B: Net Savings Scenario					
Estimated Portfolio Investment ($)	$80,439,496	$137,426,470	$141,105,039	$148,630,820	$507,601,824
Estimated Total Cumulative Electric Savings (MWh/yr)	1,476,229	2,358,364	2,906,764	3,411,844	N/A
VCEA Target (MWh/yr)	852,892	1,705,783	2,558,675	3,411,567	N/A
Progress to VCEA (%)	173%	138%	114%	100%	N/A

Figure ES-1 outlines the forecasted savings by source and the investment required for Dominion Energy to achieve the VCEA goals under each scenario (Track A and Track B).

Figure ES-1. Estimated Savings by Source and Investment to Achieve VCEA Goals (Gross and Net)



Given the substantial differences in acquisition costs by program and cumulative customer investment between compliance scenarios, Track A is the preferred path. Accordingly, the remainder of this Plan presents data according to this preferred path (Track A). Although the VCEA targets are based on cumulative savings through 2025, this Plan is responsive to guidance from the Virginia State Corporation Commission (SCC) that requires it to include program savings and budgets for the five-year period beginning January 2022.[3] Accordingly, the remainder of Cadmus' analysis is based on the period from 2022 through 2026.

Planning Process

Developing Dominion Energy's long-term Plan was a significant undertaking that included primary and secondary research, analysis, and modeling over the course of nearly one year. This work entailed several key tasks:

- Literature data review of legislative and regulatory dockets, testimony, and SCC orders, as well as of Company–specific program information and the potential study conducted by the Company's external evaluator.
- Benchmarking of a broad range of metrics using data from more than 19 investor-owned utilities across the U.S.
- Primary data collection including external stakeholder surveys and interviews (many of these stakeholders are actively engaged in the independent monitor-led DSM stakeholder meetings), internal stakeholder interviews (with Dominion Energy staff and implementation vendors), and residential and nonresidential customer surveys.

[3] Virginia State Corporation Commission. September 7, 2021, *Final Order in Case No. PUR-2020-00274 and October 18, 2021, Preliminary Order in Case No. PUR-2021-00247.*

- Gap analysis to identify energy conservation measures with remaining potential that were not represented in Dominion Energy's existing programs.
- Assessment of the current landscape to characterize the Company's current and planned DSM programs.
- Development of program concepts that mapped stakeholders' key objectives, customer characteristics, and Dominion Energy's existing programs to an overarching portfolio strategy representing a logical customer journey and DSM program best practices.
- Scenario modeling and forecasting to identify savings pathways sufficient to achieve the VCEA targets under gross and net savings scenarios and to provide reasonable cost estimates of each path.

Challenges

Dominion Energy faces a range of market and regulatory risks and challenges to achieving its energy savings targets as required under the VCEA:

- **Limited Customer Awareness.** Cadmus' customer research revealed that both residential and business customers have low awareness of the Company's DSM programs compared to awareness among customers of utilities in other jurisdictions. This low awareness, coupled with high levels of interest for participating in energy efficiency, indicates an opportunity to increase program participation and boost energy savings.
- **Declining Potential.** As is the case with utilities across the U.S., the Company's energy efficiency potential is declining. Low avoided energy and capacity costs, rapid transformation of the lighting market, increases in equipment and building minimum performance standards, and the effects of a shift from summer to winter peak demand all impact economically achievable potential in Dominion Energy's service territory.
- **Regulatory Filing Cadence.** A historical precedent to file new programs each year has resulted in a large portfolio of narrowly focused programs and contributed to a resource intensive environment.
- **Lack of Budget Flexibility.** Dominion Energy's filed program budgets, once approved, become budget caps. Within a given phase, based on recent SCC orders, the Company can shift funds between program years but may not shift funds between programs or increase its budget to manage costs without submitting a specific request for approval to extend or replace the program. This substantially limits the Company's flexibility to optimize its programs and portfolio for energy savings impact and can be disruptive to the continuity of successful programs.
- **Compliance Uncertainty.** Lack of regulatory clarity on whether utilities must achieve the VCEA goals with gross or net savings creates significant uncertainty and hinders Dominion Energy's ability to appropriately plan its portfolio. With only four years remaining to achieve the VCEA goals, coupled with a long regulatory filing and approval cycle and inflexible program expiration dates and budget caps, the Company will have a limited ability to adjust if the SCC determines that net savings are required to meet goals.

- **Cost-Effectiveness Rules**. DSM programs in Virginia (except those serving income-qualified customers) that pass three of four cost-effectiveness tests are considered "in the public interest." Strict adherence to this standard may limit Dominion Energy's ability to invest in programs that may be beneficial for customers and catalyze their participation in higher-impact programs, or to invest in common offerings that may be necessary to achieve its aggressive energy conservation goals.
- **Changing Eligibility Requirements.** Rules exempting certain large customers from participating in DSM from 2018 to 2020 led to gaps in marketing and program offerings for those customers. This likely contributed to low awareness of Dominion Energy programs. While the Company has since added some targeted offerings for its largest business customers, these programs have yet to reach full maturity. Furthermore, the Company presently lacks a large commercial Custom program – a program design that typically provides substantial energy savings among utilities in other jurisdictions.
- **Need for Enhanced Program Information**. Although not required to evaluate Dominion Energy's portfolio results, it may benefit program performance for the Company to conduct objective research that informs how its programs function in local markets, why they may or may not be achieving goals, or the extent to which they influence customer behaviors. Targeted process evaluations of high-priority programs would help Dominion Energy to optimize its programs and continually improve their effectiveness.[4]
- **Existing Vendor Contracts Not Aligned with Streamlined Portfolio**. Dominion Energy currently administers separate implementation vendor contracts for each of its 37 existing and planned DSM programs. Each contract has a different period of performance and varying expiration dates ranging from 2022 to 2027, which align with the pertinent regulatory approval periods for each program. Maintaining the integrity of these contracts is important, not only to the Company's operational efficiency and reputation, but also to its implementation vendors' businesses. Thus, while restructuring the existing programs into a more streamlined portfolio can provide administrative efficiencies, the Company should continue to administer its existing vendor contracts for each bundled program until it can align the periods of performance by the end of 2027.

This long-term Plan was developed to identify potential resolutions to several of these challenges and to enable Dominion Energy to achieve its regulatory goals under the VCEA.

Overarching Strategy to Achieve Portfolio Objectives

Cadmus' recommendations in the long-term Plan are focused on three general strategies: restructure the portfolio, increase program awareness, and create a continuous improvement framework.

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[4] The scope of process evaluations broadly includes not only a review of program operations, but also an objective assessment of the effectiveness of a particular program design and its market impacts. This includes, for example, effects on customers' awareness and behaviors and on market actors' motivations.

Restructure the Portfolio by consolidating Dominion Energy's existing 37 programs into seven overarching programs designed around a logical customer journey. Cadmus recommends offering three residential programs, one income- and age-qualified program, and three nonresidential programs, each with multiple ways in which customers can engage with efficiency. Table ES-3 outlines the proposed program structure.

Table ES-3. Proposed Demand-Side Management Portfolio Structure

Sectors	Programs	Components	Pathways
Residential	Residential Efficient Products program	Efficient Products	• Upstream/Marketplace • Midstream Incentives • Downstream Rebates
		Energy Efficient Kits	
	Residential Energy Services program	Home Assessments and Direct Install	• Online Assessment • Walk-through Assessment • Diagnostic Audit
		Appliance Recycling	
		Customer Engagement	
	Residential New Construction program		
Income and Age Qualified	Income and Age Qualified program	Home Assessments and Direct Install	
		Customer Engagement	
		Nonresidential Facilities	
		Audit, Direct Install, and Enhanced Rebates	
Nonresidential	Small Business Solutions program	Prescriptive Rebates	• Downstream Rebates • Midstream Rebates
		Building Optimization	
		Customer Engagement	
	Large Business Solutions program	Custom Rebates	• Feasibility Assessment • Custom Projects • Strategic Energy Management • Building Optimization
		Facility Audit	
		Prescriptive Rebates	• Downstream Rebates • Midstream Rebates
	Nonresidential New Construction program		

Note: In addition to the customer-facing programs outlined, Dominion Energy will propose a Voltage Optimization program in its Phase X DSM filing as part of its strategy to achieve VCEA goals.

This consolidated program structure is intended to help Dominion Energy overcome its key challenges and create a path to achieve its VCEA goals through several associated benefits:

- Larger, consolidated programs with associated larger budgets will give Dominion Energy greater flexibility to allocate funds within programs to its most effective program component offerings.
- Implementation vendors and trade allies will be better able to educate and promote intra-program opportunities for customers who are interested in achieving deep energy savings.
- Broader programs can accommodate measures with lower cost-effectiveness by combining them with elements that have higher cost-effectiveness.
- Over time, broader programs with larger budgets and continuous operations (e.g., no expiration dates until discontinuation is proposed by Dominion Energy or they are found to be not cost

effective) could reduce staff burden through a less frequent regulatory filing schedule and more efficient program management.

- The proposed structure will enable the Company to integrate a custom program offering for its large nonresidential customers in its Phase XI filing. Custom programs can be a significant source of energy savings for customers and for Dominion Energy.

Increase Program Awareness by (1) launching a general awareness portfolio marketing campaign that aims to educate customers about the availability of Dominion Energy's programs and that complements its existing program-level marketing efforts; (2) educating customers about the benefits of energy efficiency, ways to save energy, and resources available to help them take action; and (3) offering expanded trade ally training, education, and recruitment so that trade allies act as program ambassadors and leverage Dominion Energy's programs to enhance their own sales efforts.

Create a Continuous Improvement Framework to assess, improve, and track the effectiveness of the programs' design and delivery. This will help Dominion Energy optimize its programs over time. Engaging with an objective evaluator to conduct targeted process evaluations of the programs with the greatest impact, uncertainty, and customer effects is a best practice that can lead to actionable recommendations for program improvement.

Next Steps

This long-term Plan outlines a strategic roadmap for Dominion Energy to achieve the goals for energy savings as set forth in the VCEA. Cadmus developed several recommendations to help the Company operationalize the short- and medium-term program design and delivery adjustments outlined in this Plan and to prepare for a longer-term future with a greater focus on grid stabilization and resiliency, integrated DSM, and addressing the climate policy goals of the Commonwealth. Recommendations are outlined for near-term (2022 and 2023), medium-term (2024 and 2025), and long-term (2026 and beyond) regulatory and operational steps the Company can take to transition its existing portfolio into one that offers a more streamlined energy efficiency path for its customers, reduces its staff burden and resource constraints, and produces greater energy savings, environmental benefits, and economic impacts for the state of Virginia.

1. Introduction

Dominion Energy began providing its customers with regulated energy efficiency opportunities in 2009. In 2018, the Virginia legislature passed the GTSA, which establishes investment requirements for grid modernization and the expansion of DSM initiatives. In 2020 the Virginia legislature passed the VCEA, establishing aggressive energy savings targets. Together, these legislative mandates establish a framework for Virginia utilities to take a more active and focused approach to capturing energy savings through their customer-facing DSM programs. Building on over a decade of commitment, the Company contracted with Cadmus to develop a DSM long-term Plan that (1) provides a roadmap for achieving the statutory goals in the VCEA over the next four years, (2) creates additional customer value and an improved program experience, (3) provides strategies that address market and regulatory challenges, and (4) considers internal and external stakeholder priorities and input.

This Plan is divided into seven sections:

- **Section 1 Introduction** is an overview of the Company's vision and goals as well as legislative and regulatory energy savings targets and requirements; an overview of the long-term planning process; a summary of the Company's accomplishments to date and the challenges it may face in achieving its targets, along with possible strategies to overcome those challenges; and an overarching strategy summary.
- **Sections 2 through 4 Sector and Program Summaries** provide sector-level objectives and goals, customer profiles, and strategies and implementation plans for a set of comprehensive programs within each sector (including program-level objectives, target customer and eligibility requirements, eligible measures and incentives, implementation and marketing strategy, estimated participation and energy impacts, and cost-effectiveness).
- **Section 5 Marketing, Education, and Training** provides an overview of best practice approaches to DSM portfolio and program marketing and outreach as well as how education and training initiatives can be used to supplement and strengthen the general marketing strategy.
- **Section 6 Future Considerations for Dominion Energy** outlines longer-term market trends, potential industry disruptions, and sources of uncertainty in the period beyond the VCEA's culmination that could impact the Company and should be considered as it transitions toward its broader sustainability objectives.
- **Section 7 Next Steps** outlines steps for achieving short-, medium-, and long-term goals as defined in this Plan and discusses the future for Dominion Energy.

1.1. Vision and Goals

Dominion Energy's overarching vision is to achieve net zero greenhouse gas (GHG) emissions by 2050. In service of this vision, the Company is dedicated to delivering reliable and affordable clean energy, protecting the environment, serving customers and communities, empowering people with energy saving opportunities, and creating value for shareholders. Through an ongoing engagement process, the Company's external stakeholders have articulated perspectives and priorities that largely align with those of the Company.

This Plan outlines a strategic path to help the Company achieve compliance with its legislative targets and requirements and accomplish its stakeholder and corporate objectives:

- Deliver a streamlined energy efficiency program portfolio using a customer-sector approach (serving the residential, income-qualified, and small and large nonresidential sectors) that creates value and provides a unified, positive customer experience.
- Enhance program comprehensiveness by offering broad, overarching programs that span end uses, consolidate administrative functions, and are flexible to allow the Company to control the pace of programs if customer preferences or market conditions change.
- Provide a strategic program plan (including measures, incentives, eligibility, engagement strategies, benefits, and costs) that helps Dominion Energy overcome its unique challenges and establish a path to achieving significant energy savings and environmental benefits through:
  - Expanded offerings to income-qualified and large nonresidential customers,
  - Enhanced marketing and outreach strategy to increase program awareness across customer segments,
  - Energy efficiency education and information resources that encourage customers to take a more comprehensive, holistic approach to saving energy,
  - Continued and expanded focus on building an effective trade ally network that stocks efficient equipment and promotes Dominion Energy's programs, and
  - Focused attention on improving program performance, maximizing energy savings potential, and providing continuous improvement.
- Establish a framework for identifying, validating, and integrating new technologies and innovative program delivery strategies into the portfolio.
- Create a transition plan for Dominion Energy to shift from a large portfolio of narrowly focused programs and an annual filing cadence to a smaller number of broad programs approved for multiple years that will be less onerous to maintain and update.

The portfolio presented in this Plan offers Dominion Energy customers a cost-effective,[5] flexible, and comprehensive set of programmatic choices, incentives, information, and educational opportunities. The programs are described by customer sector (residential, income qualified, and nonresidential) in chapter 2 through chapter 4.

1.2. Plan Goals and Compliance Paths

The VCEA requires Dominion Energy to achieve 5% cumulative energy savings, with 1.25% annual targets from 2022 through 2025, based on the Company's 2019 retail electric sales (68,231,332 MWh). Achievement of the VCEA reflects persistent cumulative total savings accrued from measures claimed

[5] Cost-effectiveness is based on screening criteria from the Participant Cost Test, Utility Cost Test, Ratepayer Impact Measure Test, and Total Resource Cost Test as defined in the California Standard Practice Manual.

through DSM programs in prior years, through 2025. The overall VCEA requirements are shown in Table 1.

Table 1. Virginia Clean Economy Act Energy Savings Requirements

	2022	2023	2024	2025
VCEA Cumulative Savings Requirement (%)	1.25%	2.5%	3.75%	5%
Dominion's VCEA Energy Savings Targets (MWh/yr)	852,892	1,705,783	2,558,675	3,411,567

1.2.1. VCEA Compliance Paths

This Plan outlines a portfolio of seven comprehensive DSM programs that together are estimated to achieve Dominion Energy's VCEA savings targets by the end of 2025. Cadmus analyzed two savings paths—Track A is based on achieving the VCEA with gross savings (associated with total *customer* savings) and Track B is based on achieving the VCEA with net savings (associated with Dominion Energy's net *system* savings)—each with detailed estimates of associated customer investment requirements. As detailed in Table 2, achieving gross savings sufficient to meet the VCEA targets would require a four-year (2022-2025) investment of approximately $376 million, resulting in 3,651,298 megawatt hours (MWh) of cumulative lifetime energy savings as well as 1.4 million cumulative lifetime metric tons of carbon dioxide equivalent (mCO2e) reduction in GHG emissions. The average annual coincident peak demand reduction from 2022 to 2025 is 87 MW.

Table 2. Long-Term Plan Gross Savings Track A: Estimated Savings and Costs Summary by Year

	2022	2023	2024	2025	Total [d]
Portfolio Investment ($)	$79,721,288	$100,489,522	$95,993,546	$99,438,197	$375,642,553
Income-Qualified Investment ($) [a]	$14,224,459	$15,393,890	$15,394,165	$15,410,049	$60,422,563
Incremental Program Savings (MWh/yr) [b]	376,344	491,185	399,618	423,216	1,619,436
Other Savings (MWh/yr) [c]	1,472,344	2,277,857	2,852,322	3,263,353	N/A
Cumulative Electric Savings (MWh/yr)	1,848,688	2,751,051	3,234,276	3,651,298	N/A
Progress to VCEA (%)	217%	161%	126%	107%	107%
Peak Demand Reduction (MW)	80	97	84	86	N/A
GHG Reduction (mCO2e/yr)	322,730	421,211	342,688	362,924	1,388,731

Note: Although the Virginia SCC Final Order approving Dominion Energy's 2020 DSM update requires a long-term Plan to provide "proposed Program savings and budgets for the five-year period beginning January 1, 2022,..." this table is intended to outline costs and savings to achieve VCEA compliance; therefore, the data presented here is for the period 2022-2025

[a] Income-qualified investments refer to Dominion Energy's prospective IAQ program budgets, which correlate to the VCEA's budgeting provisions for programs designed to benefit income-qualified and disabled individuals or veterans.

[b] This table total represents the incremental sum of values that include considerations of attrition from prior installed measures.

[c] Other savings includes residual program savings from prior DSM phases, savings from voltage optimization, and self-directed savings from large commercial opt-out customers.

[d] Totals may not sum due to rounding.

Dominion Energy's ability to achieve the VCEA target with net savings (Track B) is significantly influenced by market and other challenges outlined in section 1.6 of the long-term Plan. As indicated in Table 3, achieving net savings sufficient to meet the VCEA targets would require an estimated minimum $508 million investment, resulting in 3,411,844 MWh of cumulative lifetime energy savings in 2025, and 1.4

million cumulative mCO2e reduction in GHG emissions. The average annual coincident peak demand reduction from 2022 to 2025 is 85.5 MW.

Table 3. Long-Term Plan Net Savings Track B: Estimated Savings and Costs Summary by Year

	2022	2023	2024	2025	Total [d]
Portfolio Investment ($)	$80,439,496	$137,426,470	$141,105,039	$148,630,820	$507,601,824
Income-Qualified Investment ($) [a]	$14,247,391	$22,464,353	$22,731,453	$22,990,332	$82,433,530
Incremental Electric Savings (MWh/yr) [b]	301,432	452,954	432,504	481,054	1,594,664
Other Savings (MWh/yr) [c]	1,174,797	1,923,372	2,492,390	2,967,978	N/A
Cumulative Electric Savings (MWh/yr)	1,476,229	2,358,364	2,906,764	3,411,844	N/A
Progress to VCEA (%)	173%	138%	114%	100%	100%
Peak Demand Reduction (MW)	64	91	90	97	N/A
GHG Reduction (mCO2e/yr)	258,490	388,426	370,889	412,523	1,367,487

Note: Although the Virginia SCC Final Order approving Dominion Energy's 2020 DSM update requires a long-term Plan to provide "proposed Program savings and budgets for the five-year period beginning January 1, 2022,..." this table is intended to outline costs and savings to achieve VCEA compliance; therefore, the data presented here is for the period 2022-2025.

[a] Income-qualified investments refer to Dominion Energy's prospective IAQ program budgets, which correlate to the VCEA's budgeting provisions for programs designed to benefit income-qualified and disabled individuals or veterans.

[b] This table total represents the incremental sum of values that include considerations of attrition from prior installed measures.

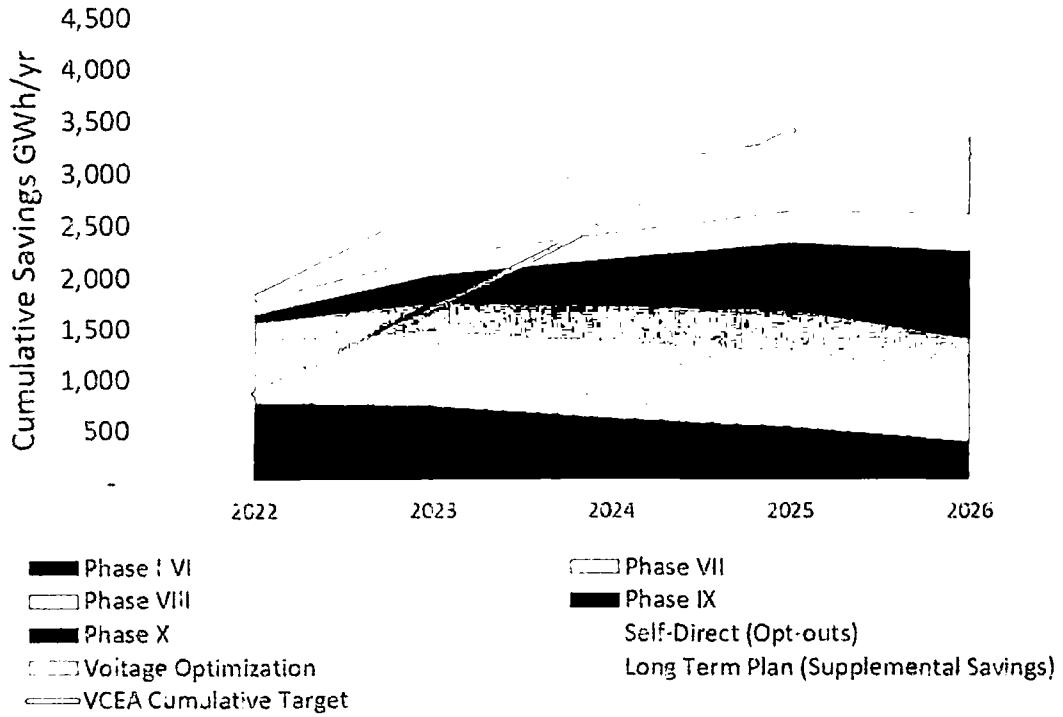
[c] Other savings includes residual program savings from prior DSM phases, savings from voltage optimization, and self-directed savings from large commercial opt-out customers.

[d] Totals may not sum due to rounding.

Figure 1 outlines forecasted gross savings (Track A) by source under Dominion Energy's current regulatory structure and market environment and Figure 2 outlines forecasted net savings (Track B) by source under Dominion Energy's current regulatory structure and market environment. In each figure, savings sources include (1) persistent savings resulting from historical program activities and forecasted savings from recently approved DSM Phase IX programs and proposed DSM Phase X programs, (2) estimated contributions from redesigned (and currently active) DSM programs and increased portfolio marketing and outreach investments recommended in this Plan, and (3) contributions from voltage optimization initiatives and self-directed savings from large commercial opt-out customers (which the VCEA states shall be accounted for in the Company's reporting in the statutory goals).

Figure 1 shows Cadmus' modeled projections for Track A, achieving gross savings equivalent to the VCEA targets by the end of 2025. As shown, Dominion Energy can nearly achieve the VCEA targets via Track A by leveraging its existing and planned programs. The supplemental savings generated by implementing the recommendations in this Plan are expected to enable Dominion Energy to reach the target and provide a nominal buffer to weather potential market uncertainties such as unexpected changes to equipment standards or supply disruptions.

Figure 1. Dominion Energy's Track A Path to Virginia Clean Economy Act: Gross Savings



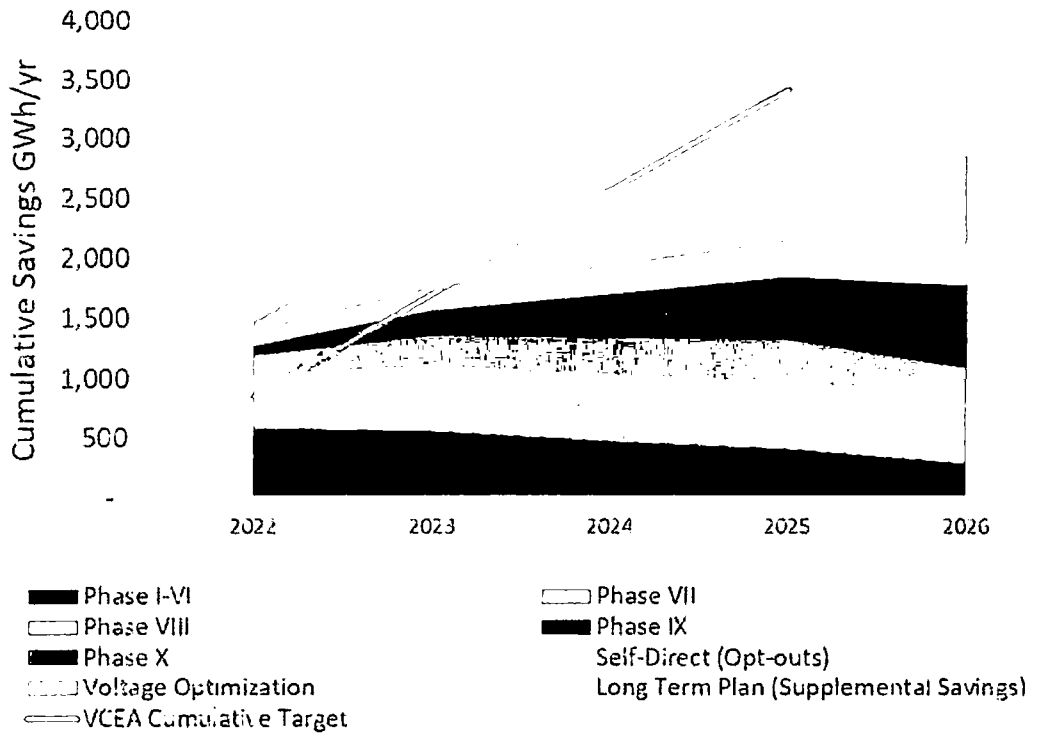
Reaching the cumulative VCEA goal by 2025 based on net savings (Track B) would require the Company to increase its investment in DSM by approximately $132 million over the compliance period (a 35% increase) above the Track A scenario. The Company would need to increase participation in most programs since no single program could be expanded to the extent needed to meet the VCEA targets with net savings. Cadmus modeled a scenario in which the Company increased investments and participation in the IAQ program by roughly 50%, expanded residential behavioral component participation by 25% per year, increased appliance recycling participation by 75%, expanded residential audit and direct install component participation by roughly 125%, increased participation in nonresidential custom[6] and building optimization by 35%, increased small business participation by roughly 125%, and increased overall downstream, midstream, and marketplace component participation by 135%. To drive the higher participation needed to meet a net savings target, Cadmus projected an adoption rate tied to increasing investment in incentives sufficient to drive the participation levels needed and expanding the Company's investment into marketing and outreach beyond that which is already planned. However, since budget caps and incentive levels may not be

[6] Dominion Energy does not presently offer a nonresidential Custom program; however, Cadmus' modeling assumes a program will be submitted in phase XI. The increase in nonresidential custom program participation is relative to Cadmus Track A model.

changed without prior regulatory approval, the timeline for achieving the VCEA under this scenario (Track B) would present challenges. Dominion Energy would need to accelerate its income qualified program investments immediately and request approval for budget cap increases and higher incentive levels across all programs in the December 2022 DSM filing. Approval could be expected in late 2023, after which time the Company would only have two years to fill a significant savings gap by the end of the VCEA compliance period.

Figure 2 shows the minimum required net savings needed to meet the VCEA under a Track B scenario. To minimize costs, Cadmus modeled the Track B scenario to achieve the VCEA with no buffer, creating potential risk for the Company over the next four years should market conditions change substantially.

Figure 2. Dominion Energy's Track B Path to Virginia Clean Economy Act: Net Savings



Dominion Energy's programs, goals, and spending affect customers in three sectors: residential, residential income-qualified, and nonresidential. Table 4 and Table 5 summarize the contributions of each Dominion Energy program to the overall gross and net savings (2022-2025), respectively, estimated spending needed to achieve each scenario, and the resulting cost of savings per megawatt-hour. These tables focus on the programmatic impact and cost differences between gross and net VCEA compliance targets. As these tables show, achieving VCEA targets using net savings will require substantially greater investment than achieving compliance with gross savings across all sectors, requiring higher customer investment and driving higher acquisition costs.

Given the substantial differences in acquisition costs by program and cumulative customer investment between compliance tracks, Cadmus recommends Track A as the preferred path. Accordingly, the remainder of this long-term Plan presents data according to this preferred path (Track A).

Table 4. Summary of Gross Savings (Track A): Sector-Level Gross Savings and Investments, 2022–2025

	Planned Electric Savings (MWh)[a]	Planned Demand Reductions in 2025 (MW)	Planned Program Investment ($)[b]	Acquisition Cost ($/MWh)[c]
Residential Sector				
Residential Energy Services Program	399,078	22	$47,419,749	$118
Residential Efficient Products Program	434,613	10	$61,811,049	$142
Residential New Construction Program	29,871	4	$16,749,217	$561
Income and Age Qualified Sector				
IAQ Program	36,404	8	$60,422,563	$1,443
Nonresidential Sector				
Large Business Solutions Program	396,540	19	$74,995,860	$185
Small Business Solutions Program	299,466	21	$68,362,857	$194
Nonresidential New Construction Program	23,465	2	$8,655,419	$369
Total [d]	**1,619,436**	**86**	**$338,416,714**	**$200**

Note: Although the Virginia SCC Final Order approving Dominion Energy's 2020 DSM update requires a long-term Plan to provide "proposed Program savings and budgets for the five-year period beginning January 1, 2022,..." this table is intended to outline costs and savings to achieve VCEA compliance; therefore, the data presented here is for the period 2022-2025.

[a] Total represents sum of annual savings (2022-2025) including attrition from prior installed measures.

[b] Excludes Dominion Energy management, marketing, and common costs of $37,255,838 (2022-2025).

[c] Acquisition cost represents the average first year cost to acquire savings in the VCEA compliance period (2022-2025).

[d] Totals may not sum due to rounding.

Table 5. Summary of Net Savings (Track B): Sector-Level Net Savings and Investments, 2022–2025

	Planned Electric Savings (MWh) [a]	Planned Demand Reductions in 2025 (MW)	Planned Program Investment ($) [b]	Acquisition Cost ($/MWh) [c]
Residential Sector				
Residential Energy Services Program	440,835	27	$57,641,553	$130
Residential Efficient Products Program	346,866	10	$74,061,148	$214
Residential New Construction Program	25,987	4	$16,749,216	$645
Income and Age Qualified Sector				
IAQ Program	40,495	10	$79,937,518	$1,707
Nonresidential Sector				
Large Business Solutions Program	410,357	20	$115,476,567	$276
Small Business Solutions Program	309,004	23	$100,694,492	$276
Nonresidential New Construction Program	21,119	2	$8,655,420	$410
Total [d]	**1,667,943**	**97**	**$453,215,914**	**$272**

Note: Although the Virginia SCC Final Order approving Dominion Energy's 2020 DSM update requires a long-term Plan to provide "proposed Program savings and budgets for the five-year period beginning January 1, 2022,..." this table is intended to outline costs and savings to achieve VCEA compliance; therefore, the data presented here is for the period 2022-2025.

[a] Total represents sum of annual savings (2022-2025) does not include attrition from prior installed measures.

[b] Excludes Dominion Energy management, marketing, and common costs of $54,385,910 (2022-2025).

[c] Acquisition cost represents the average first year cost to acquire savings in the VCEA compliance period (2022-2025).

[d] Totals may not sum due to rounding.

1.2.2. Long Term Plan Savings Goals and Costs Summary

Although the VCEA targets are based on cumulative savings through 2025, the SCC Final Order[7] requires this plan to include program savings and budgets for the five-year period beginning January 2022. Accordingly, the information provided in the remainder of the long-term Plan is based on the period from 2022 through 2026.

The portfolio costs for seven comprehensive DSM programs that together represent Dominion Energy's long-term Plan are shown in Table 6. The overall investments total $476 million over the five-year Plan period, with income-qualified investments representing roughly 16% of the portfolio cost. Investments within the residential sector decline over the long-term Plan due to the shift in available savings potential, primarily from reduced residential lighting savings.

[7] Virginia State Corporation Commission. September 7, 2021. "Final Order in Case No. PUR-2020-00274."

Table 6. Long-Term Plan: Estimated Portfolio Costs Summary by Year

	2022	2023	2024	2025	2026	Total
Residential Sector Investment ($)	**$33,811,607**	**$35,758,741**	**$27,750,253**	**$28,659,414**	**$29,632,179**	**$155,612,194**
Residential Energy Services Program ($)	$12,756,483	$12,479,675	$11,252,532	$10,931,059	$10,840,079	$58,259,828
Residential Efficient Products Program ($)	$17,213,384	$19,168,405	$12,099,313	$13,329,947	$14,393,692	$76,204,741
Residential New Construction Program ($)	$3,841,740	$4,110,661	$4,398,408	$4,398,408	$4,398,408	$21,147,625
Income-Qualified Sector Investment ($)	**$14,224,459**	**$15,393,890**	**$15,394,165**	**$15,410,049**	**$15,423,100**	**$75,845,663**
IAQ Program ($)	$14,224,459	$15,393,890	$15,394,165	$15,410,049	$15,423,100	$75,845,663
Nonresidential Sector Investment ($)	**$23,784,914**	**$39,378,470**	**$43,336,254**	**$45,514,498**	**$45,930,761**	**$197,944,897**
Large Business Solutions Program ($)	$9,216,785	$19,058,310	$22,440,667	$24,280,098	$25,368,697	$100,364,557
Small Business Solutions Program ($)	$13,007,396	$18,258,469	$18,389,019	$18,707,973	$18,907,762	$87,270,619
Nonresidential New Construction Program ($)	$1,560,733	$2,061,691	$2,506,568	$2,526,427	$1,654,302	$10,309,721
Administration Services Costs ($)	**$7,900,308**	**$9,958,421**	**$9,512,874**	**$9,854,236**	**$10,008,464**	**$47,234,303**
Portfolio Investment ($)	***$79,721,288***	***$100,489,522***	***$95,993,546***	***$99,438,197***	***$100,994,504***	***$476,637,057***

Note: Totals may not sum due to rounding.

Table 7 provides the forecasted gross portfolio savings (incremental and cumulative) associated with implementing the long-term Plan. Total incremental gross savings (from 2022 through 2026), accounting for attrition of measures[8] installed in prior years, is 3,033,653 MWh, which includes projected savings accruing from Dominion Energy programs (2,015,363 MWh), self-directed savings from large commercial opt-out customers (288,270 MWh), and voltage optimization initiatives (730,020 MWh). The overall cumulative lifetime gross savings from Dominion Energy's historical, active, and planned programs is 3,846,700 MWh. The portfolio is projected to reduce 3.3 million cumulative lifetime mCO2e gross reduction in GHG emissions. In addition, the average annual coincident peak demand reduction from 2022 through 2026 is 87 MW.

[8] Attrition occurs when measures installed in prior years reach the end of their effective useful lifetimes and cease producing energy savings.

Table 7. Long-Term Plan Gross Savings: Estimated Portfolio Savings Summary by Year

	2022	2023	2024	2025	2026	Total
Estimated Incremental Electric Gross Savings (MWh/yr)						
Residential Sector Incremental Savings	**267,414**	**282,984**	**155,459**	**160,780**	**167,305**	**1,015,634**
Residential Energy Services Program	111,494	106,935	93,300	90,423	89,455	478,680
Residential Efficient Products Program	149,069	168,717	54,314	62,513	70,006	499,239
Residential New Construction Program	6,851	7,331	7,844	7,844	7,844	37,715
Income-Qualified Incremental Savings	**10,106**	**10,600**	**10,591**	**10,591**	**10,591**	**43,990**
IAQ Program	10,106	10,600	10,591	10,591	10,591	43,990
Nonresidential Incremental Savings	**58,848**	**101,632**	**95,777**	**96,736**	**96,749**	**955,740**
Large Business Solutions Program	37,387	90,737	129,970	147,288	157,457	547,456
Small Business Solutions Program	58,848	101,632	95,777	96,736	96,749	376,997
Nonresidential New Construction Program	2,589	5,233	7,822	7,822	7,822	31,287
Self-Directed Incremental Savings	**57,654**	**57,654**	**57,654**	**57,654**	**57,654**	**288,270**
Voltage Optimization Incremental Savings	**81,205**	**498,733**	**650,896**	**715,190**	**730,020**	**730,020**
Total Incremental Gross Savings	**475,227**	**951,602**	**970,376**	**1,040,950**	**1,062,319**	**3,033,653**
Estimated Cumulative Lifetime Electric Gross Savings (MWh/yr)						
Program Cumulative Savings, Phase I through Long-Term Plan	1,652,175	2,079,356	2,352,764	2,647,837	2,770,756	N/A
Self-Directed Cumulative Savings	115,308	172,962	230,616	288,270	345,924	N/A
Voltage Optimization Cumulative Savings	81,205	498,733	650,896	715,190	730,020	N/A
Total Cumulative Electric Gross Savings	**1,848,688**	**2,751,051**	**3,234,276**	**3,651,298**	**3,846,700**	**N/A**
Progress to VCEA (%)	217%	161%	126%	107%	N/A	N/A
Total Cumulative Gross GHG Reduction (MCO2e)	1,585,323	2,359,135	2,773,520	3,131,132	3,298,698	N/A

Note: Totals may not sum due to rounding.

Table 8 shows projected program, sector, and portfolio net incremental and cumulative savings from 2022 through 2026. Portfolio incremental savings are estimated at 2,635,241 MWh and cumulative lifetime net savings are estimated at 3,280,322 MWh. These savings would result in a net reduction of 2.8 million cumulative lifetime mCO2e in GHG emissions. In addition, the average annual coincident peak demand net reduction from 2022 through 2026 is 72 MW.

Table 8. Long-Term Plan Net Savings: Estimated Portfolio Savings Summary by Year

	2022	2023	2024	2025	2026	Total
Estimated Incremental Electric Net Savings (MWh/yr)						
Residential Sector Incremental Savings	**205,900**	**218,980**	**129,320**	**134,760**	**140,760**	**814,565**
Residential Energy Services Program	92,700	90,290	79,740	78,010	77,430	407,165
Residential Efficient Products Program	107,240	122,310	42,760	49,930	56,510	374,589
Residential New Construction Program	5,960	6,380	6,820	6,820	6,820	32,812
Income-Qualified Incremental Savings	**8,330**	**8,720**	**8,710**	**8,710**	**8,710**	**35,433**
IAQ Program	8,330	8,720	8,710	8,710	8,710	35,433
Nonresidential Incremental Savings	**87,200**	**162,460**	**188,610**	**203,140**	**210,410**	**766,952**
Large Business Solutions Program	31,800	73,280	102,180	116,100	123,530	433,186
Small Business Solutions Program	53,070	84,470	79,390	80,000	79,840	305,608
Nonresidential New Construction Program	2,330	4,710	7,040	7,040	7,040	28,158
Self-Directed Incremental Savings	**57,654**	**57,654**	**57,654**	**57,654**	**57,654**	**288,270**
Voltage Optimization Incremental Savings	**81,205**	**498,733**	**650,896**	**715,190**	**730,020**	**730,020**
Total Incremental Net Savings	**440,289**	**946,547**	**1,035,190**	**1,119,454**	**1,147,554**	**2,635,241**
Estimated Cumulative Lifetime Electric Net Savings (MWh/yr)						
Program Cumulative Savings, Phase I through Long-Term Plan	1,279,716	1,623,876	1,857,203	2,110,259	2,204,378	N/A
Self-Directed Cumulative Savings	115,308	172,962	230,616	288,270	345,924	N/A
Voltage Optimization Cumulative Savings	81,205	498,733	650,896	715,190	730,020	N/A
Total Cumulative Electric Net Savings	**1,476,229**	**2,295,571**	**2,738,715**	**3,113,719**	**3,280,322**	**N/A**
Progress to VCEA (%)	173%	135%	107%	91%	N/A	N/A
Total Cumulative Net GHG Emission Reductions (MCO2e)	1,265,925	1,968,543	2,348,557	2,670,137	2,813,007	N/A

Note: Totals may not sum due to rounding.

To estimate savings within this proposed compliance path, Cadmus conducted a modeling process that relied on participation estimates (derived from the Company's historical and projected program participation [DSM Phases I through X], Dominion Energy's 2020–2029 Potential Study,[9] and benchmarking research), and unit-level measure savings and incremental measure costs (derived from DSM Phases I through X program design information, the *Virginia Standard Tracking and Engineering Protocols Manual*, the *Potential Study*, the *Mid-Atlantic Technical Reference Manual,* and supplemented with other technical references manuals[10]). To estimate costs, Cadmus used modeling inputs derived from unit-level incentive values, implementation vendor estimates of program delivery costs, and the Company's program and portfolio administrative costs. Cadmus performed spot-check comparisons with Dominion Energy's Demand Side Planning team on the modeling to verify the reasonableness of the modeling results.

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[9] Dominion Energy. April 6, 2021. *Dominion Energy Efficiency Potential Study: 2020 to 2029.*

[10] Supplemental technical reference manuals (used as needed) include the *Pennsylvania Technical Reference Manual,* the *Illinois Technical Reference Manual,* and the *Wisconsin Technical Reference Manual.*

Virginia law provides that DSM programs, excluding those that serve residential income-qualified customers, are deemed in the public interest if they pass three of the four industry standard cost-effectiveness tests as outlined in the *California Standard Practice Manual.*[11] While not a definitive measure of cost-effectiveness, Cadmus' model includes a screening function that estimates likely program cost-effectiveness using the Dominion Energy–specific cost and benefit inputs outlined above along with system-level avoided energy costs, and avoided transmission and distribution capacity costs. As shown in Table 9, Cadmus' screening process showed that each of the residential and nonresidential programs outlined in chapter 2 and chapter 4, respectively, pass three of the four tests. Because the IAQ program (outlined in chapter 3) entails higher program delivery costs, it is not cost effective. However, Virginia Law § 56-576 allows that programs that provide energy savings to income-qualified customers are not required to pass three of the four tests to be considered in the public interest.

Table 9. Summary of Benefit-Cost Screening Results by Program, Track A

	UCT	TRC	PCT	RIM
Residential Sector				
Residential Energy Services Program	3.30	2.72	16.21	0.46
Residential Efficient Products Program	2.85	2.01	7.24	0.40
Residential New Construction Program	2.10	1.05	2.06	0.52
Income and Age Qualified Sector				
Income and Age Qualified Program	0.48	0.48	N/A	0.29
Nonresidential Sector				
Large Business Solutions Program	2.17	1.31	2.76	0.53
Small Business Solutions Program	1.90	1.37	2.88	0.54
Nonresidential New Construction Program	3.84	1.67	2.82	0.71
Portfolio Total	**1.91**	**1.40**	**4.62**	**0.45**

1.3. Legislative and Commission Goals and Requirements

As a public utility in the Commonwealth of Virginia, Dominion Energy is subject to legislative and SCC rules, as well as past SCC guidance via final orders, associated with proposing and ultimately administering DSM programs for its customers. These requirements are set forth in various sources, with the most relevant in the context of the Plan being those addressed in the Code of Virginia (Virginia law) and the Administrative Code of Virginia (SCC rules), including the 2020 VCEA and 2018 GTSA. Cadmus developed this Plan to address the key program planning and implementation goals outlined in the legislation and SCC goals, requirements, and guidance identified below.

- **Virginia Law § 56-596.2** mandates that Virginia utilities develop, propose, and implement energy efficiency programs in which at least 15% of program costs benefit income-qualified and disabled individuals and/or veterans. The law sets a cumulative energy savings target of 5% of 2019 jurisdictional retail electric sales between 2022 and 2025, with total annual energy savings

[11] California Public Utilities Commission. October 2001. California Standard Practice Manual: Economic Analysis of Demand-Side Programs and Projects.

targets that add 1.25% persistent cumulative savings each year (1.25% in 2022, 2.5% in 2023, 3.75% in 2024, and 5% in 2025). For the years from 2026 through 2028, and for the three-year period after that, the SCC will establish new saving targets. Further, the law sets a target for proposed program spending of $870 million between July 1, 2018 and July 1, 2028 and requires Dominion Energy to use a contractor to provide evaluation, measurement, and verification (EM&V) services to measure and track annual and lifetime energy savings, demand reductions, emission reductions, and other benefits such as customer bill savings and spending at the program and portfolio levels. The law also establishes a formal stakeholder process in the state, led by an independent monitor.

- **Virginia Law § 56-585.1 A 5** establishes rules by which Virginia utilities can recover DSM program costs. It states that Dominion Energy may petition the SCC for approval of a rate adjustment clause once each year and, beginning January 1, 2022, the SCC will award a margin on approved energy efficiency program operating expenses in the following year if the Company meets its annual energy savings target. Finally, the law enables large general service customers[12] with 1 MW and greater demand to opt out of energy efficiency program participation when they implement verified energy efficiency improvements consistent with industry standards, as well as meet the filing requirements established by the SCC rules to obtain such exemption. In addition, energy savings from these large general service customers shall be accounted for in utility reporting in the standards in Virginia Code § 56-596.2. Prior to 2018, all Virginia nonresidential customers with greater than 10 MW of demand were automatically exempted from paying the energy efficiency rider (but all customers pay the peak shaving rider), and customers with use between 500 kW and 10 MW had the opportunity to opt out of paying the rider.
- **Virginia Law § 56-576** provides that Virginia utility programs that pass at least three of the four cost-effectiveness tests[13] be deemed in the public interest. Programs that provide energy savings to income-qualified customers and pilots with limited scope, cost, and duration are not required to pass three out of four cost-effectiveness tests to be deemed in the public interest.
- **SCC Rule 20 VAC 5-304-20** requires that Virginia utilities analyze programs from multi-perspectives including the Participant Cost Test, Utility Cost Test, Ratepayer Impact Measure Test, and Total Resource Cost Test. Regardless of the cost-effectiveness of a program portfolio, discrete programs must be analyzed from each test perspective individually.
- **SCC Rule 20 VAC 5-304-40** requires a pilot or experimental program that involves rates or promotional allowances to be approved by the SCC before it can be launched; however, other, more limited pilots may be conducted without approval. In addition, the rule mandates that Virginia utilities must file a notification with the SCC's Division of Energy Regulation 30 days

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[12] Large general service customers are defined as having greater than 1 MW of demand at a single site.

[13] These four cost-effectiveness tests are the Participant Cost Test, Utility Cost Test, Ratepayer Impact Measure Test, and Total Resource Cost Test, as reflected in the California Standard Procedures Manual.

before implementing pilots or experimental programs and must submit semi-annual pilot status reports.

- **The Final Order in Case No. PUR-2020-00274** requires that Dominion Energy's future DSM filings include a long-term Plan with the following elements:
  - *Proposed program savings and budgets for the five years beginning January 1, 2022, sufficient to comply with the total energy savings in the VCEA and investment levels in the GTSA.* To address this provision, the Plan includes energy savings and budget projections for the period 2022 through 2026, one year beyond the VCEA's 2025 end date, for all programs (see Chapter 2 through Chapter 4, *Impacts*) and at the portfolio level, as shown in Table 6 through Table 8.
  - *A proposed plan and framework for consolidating, streamlining, and marketing the public-facing aspects of the Company's approved and proposed DSM programs to facilitate participation at the levels required to achieve the VCEA targets.* Section 1.7 of this Plan includes a visual depiction of the recommended streamlined program framework and chapter 2 through chapter 4 describe the streamlined programs and their recommended implementation and marketing approaches. Chapter 7 provides detailed recommendations for how the Company can operationalize this approach in the near and medium terms.
  - *A detailed project management plan and risk management strategy demonstrating that the Company has identified and planned for deployment of the resources required to implement its revised programs. This strategic Plan shall reflect short-term, medium-term, and long-term recommendations for improvement of the Company's DSM portfolio.* To address these requirements, this Plan includes: (1) program- and portfolio-level budgets indicating the resources required to implement the Plan; (2) a summary of the Company's potential risks and challenges in attempting to achieve the VCEA goals, along with potential strategies to manage those risks and challenges (in section 1.6 and section 1.7); and (3) detailed short-, medium-, and long-term recommendations (in chapter 7) to guide Dominion Energy in implementing the overarching strategy to achieve its portfolio objectives generally and the VCEA specifically.

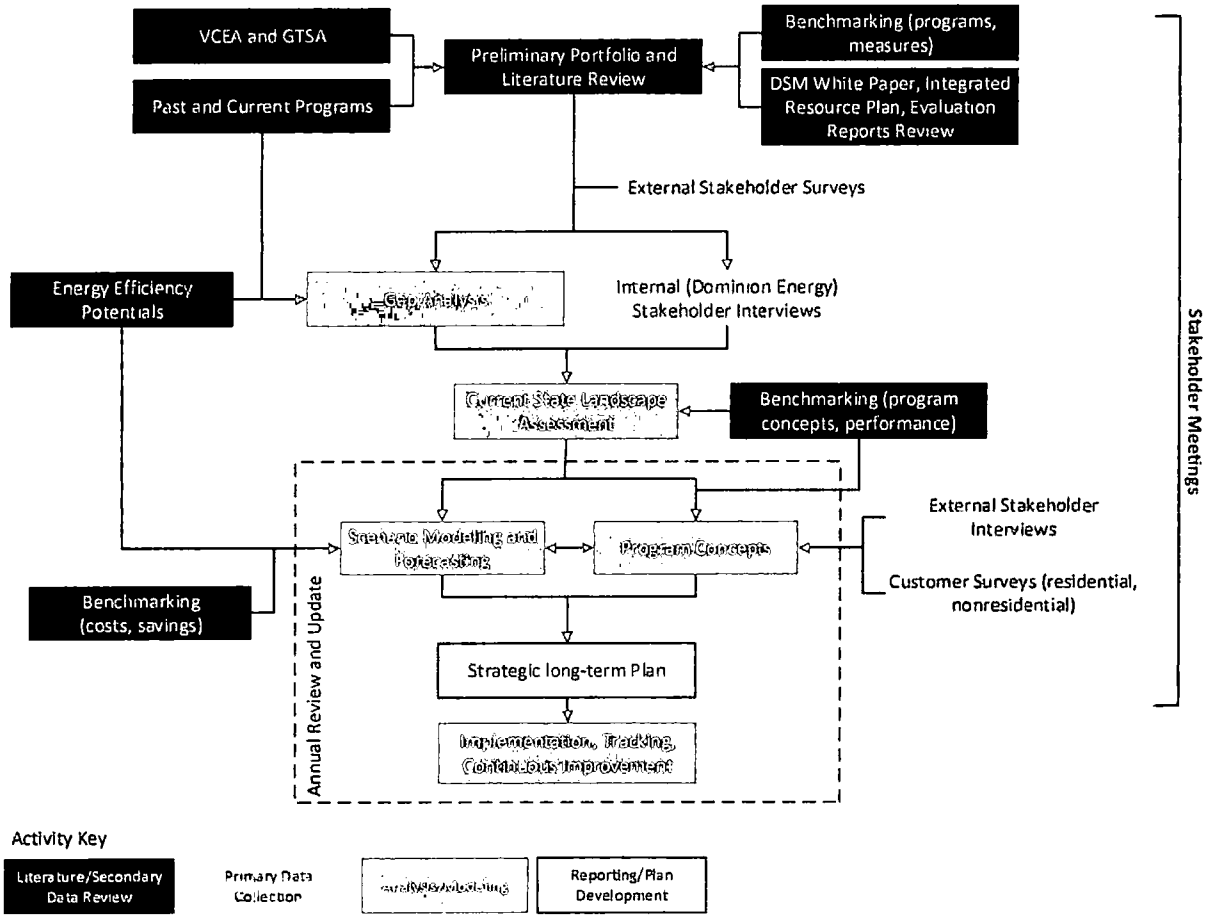
1.4. Planning Process

Cadmus developed this long-term Plan to support Dominion Energy in achieving the energy savings and spending targets outlined in the GTSA and VCEA, as well as the Company's corporate goals and objectives (as outlined in section 1.1). This Plan builds on Dominion Energy's existing robust program offerings, providing recommendations to refine the portfolio by bundling and enhancing its existing programs based on best practices and the characteristics of its customer base.

In developing this Plan, Cadmus conducted a series of primary and secondary research activities to gather relevant information on the Company's existing programs, energy savings potential, stakeholder priorities, and customer barriers and preferences, which were used to inform a set of consolidated DSM programs, as key inputs to model energy savings and program budgets, and to screen for cost-

effectiveness. Figure 3 provides an overview of the long-term Plan development process; each step in this process is described below the figure.

Figure 3. Long-Term Plan Development Process



Literature/Secondary Data Review. To assess Dominion Energy's current program portfolio structure and performance, market conditions, legislative and regulatory environment, and savings potential, Cadmus conducted an extensive review of secondary sources including the VCEA, GTSA, regulatory dockets, testimony, and SCC orders, as well as the Company's *Energy Efficiency Potential Study* and *2020 Integrated Resource Plan*,[14] past EM&V reports and other documentation of program history, and its program website.

[14] Filed in Case No. PUR-2020-00035. May 1, 2020.

- **Benchmarking.** Cadmus conducted extensive benchmarking to contextualize the Company's regulatory and market conditions. This review included data from more than 19 investor-owned utilities across the U.S., as well as secondary sources such as the Energy Information Administration and E Source, a research and data science firm for the utility sector. Cadmus used benchmarking data to understand and characterize persistent barriers and challenges in Virginia, to identify alternative program and portfolio strategies that offered replicable models for Dominion Energy's redesigned portfolio, and to fill gaps in data necessary to model energy savings and costs.

Metrics Benchmarked

- Utility avoided costs and rates
- Cost-effectiveness tests used for regulatory approval
- DSM Plan filing cycle length
- Utility portfolio structures and best practice program designs
- Customer awareness of utility DSM programs
- Net kilowatt-hour savings and program costs per customer
- DSM acquisition costs
- Common performance indicators
- Types of vendor trainings offered
- Marketing strategy and budget structures
- Technical measure specifications to fill gaps in existing data

Primary Data Collection: Stakeholder Feedback. At several points during the planning process, at Dominion Energy's direction, Cadmus took opportunities to inform stakeholders of our progress and solicit their input.

- **External stakeholder surveys.** Early in the Plan development process, Cadmus surveyed stakeholders engaged in the formal Dominion Energy stakeholder group. Cadmus issued invitations to 231 stakeholders and received 51 responses, for a 22% response rate. The primary survey objectives were to understand stakeholders' priorities for the Company's DSM portfolio and Plan, their perception of customer characteristics and constraints, and their proposed solutions to address existing market and regulatory barriers.
- **Internal stakeholder interviews.** Cadmus conduced in depth interviews with Dominion Energy staff, implementation vendors, the Company's legal team, and the current EM&V vendor to understand how the programs are identified, selected, and designed; constraints, challenges, barriers, and concerns with implementing DSM programs and reaching the VCEA goals; and insights on the current DSM portfolio and program design, performance, value proposition, challenges, delivery strategy, and implementation. Cadmus conducted 20 interviews with 27 individuals representing eight organizations.
- **External stakeholder interviews.** Cadmus conducted in-depth interviews with 10 external stakeholders, spanning environmental, low income, and energy conservation advocacy groups. We conducted these interviews after completing an initial conceptual design of Dominion Energy's consolidated program portfolio to capture their feedback and suggestions for further refinement.
- **Stakeholder meetings.** Cadmus presented the intended long-term Plan development process and progress to the Dominion Energy Virginia Energy Efficiency Stakeholder Group at several

stages[15] throughout the Plan development process to ensure transparency and to provide stakeholders with ample opportunity to provide feedback.

Gap Analysis. Cadmus conducted a measure-level analysis of key gaps between Dominion Energy's *Potential Study* and its existing program portfolio. The objectives of this analysis were to identify measures (1) with remaining potential that were not offered in the current programs, (2) with no potential that could be removed from the current portfolio, and (3) with cost-effectiveness marginally below 1.0 that could provide additional savings if bundled with more cost-effective measures.

Primary Data Collection: Customer Surveys. Cadmus conducted two surveys with Dominion Energy customers to identify effective outreach and education opportunities (such as awareness levels and how to engage); assess customer drivers and barriers (including programs of interest and reasons for not participating); identify opportunities to engage customers in deeper savings, new technologies, and programs (such as planned improvements and willingness to adopt efficient technologies); and to generate inputs to the Cadmus planning process.

- **Residential survey.** Cadmus fielded an online survey with residential customers in July 2021. We invited 26,000 customers to take the survey and received 761 valid and complete surveys, for a 2.9% response rate. We targeted several specific subgroup populations, including income-qualified customers and households with veterans, disabled persons, and/or non-English speakers, using specific survey quotas to enable an analysis based on likely program designations and specific VCEA targets.
- **Nonresidential survey.** Cadmus fielded an online survey with nonresidential customers in July and August 2021. We invited 25,451 businesses to participate in the survey and received 348 valid and complete surveys, for a 1.4% response rate. We categorized businesses by type and size (large and small) to align with expected program and component design criteria.

Current State Landscape Assessment. Each of the activities outlined above enabled Cadmus to understand the existing market environment and regulatory structure within which Dominion Energy has historically designed and implemented its programs. They also enabled us to characterize each current and planned program to allow for conceptualizing and modeling an alternative portfolio design structure.

Program Concepts. To create a structure for a comprehensive DSM portfolio, Cadmus compiled detailed information on Dominion Energy's existing programs. We reviewed stakeholder feedback to map key objectives to critical elements of an overarching portfolio strategy, as well as issues that Dominion Energy may be able to control or influence. Then, for each customer sector, we grouped existing programs based on key commonalities regarding the program offering, delivery strategy, and customer and building types. We sought to bundle programs together to create a more streamlined experience for

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[15] Cadmus presented status updates during the Dominion Energy Virginia Energy Efficiency Stakeholder meetings on November 9, 2020; February 8, 2021; June 14, 2021; July 28, 2021; August 31, 2021, and November 17, 2021.

customers seeking to engage in a deeper energy efficiency journey and to pair higher-cost programs and measures with those that produce sufficient energy savings to meet Virginia's cost-effectiveness requirements. In the near and medium terms, we retained core program design features of the Company's existing programs within the bundled structure so that the current programs and implementation vendors can continue with minimal disruption. We relied on data from the market potential study, Cadmus' gap analysis, customer insights, and benchmarking research to fill programmatic gaps, recognizing that certain adjustments (such as establishing midstream incentives and custom rebates for large business program) may take longer than others to operationalize. Finally, for program concepts consisting of multiple existing programs, we adjusted program design elements (such as eligibility parameters and incentives) where possible to create uniformity within the programs to the extent possible.

Scenario Modeling and Forecasting. To develop savings pathways sufficient to achieve Dominion Energy's energy efficiency portfolio goals, Cadmus configured its proprietary modeling tools to model various Plan savings scenarios. This involved a multi-step process:

- **Step 1: Compile measure specifications.** Cadmus collected a comprehensive list of energy efficiency measures consisting of those offered through Dominion Energy's past, current, and proposed program offerings. For each measure, we compiled data on technical specifications, potential end-use energy savings, and peak demand reductions and costs from Dominion Energy's *Potential Study*, Phase I through X Plans, the *Virginia Standard Tracking and Engineering Protocols Manual*, and other secondary sources into a customized scenario modeling tool. For programs using more holistic strategies rather than measure-based approaches, such as the nonresidential custom component and new construction programs, Cadmus consulted historical program participant data, EM&V results, and benchmarking research to develop realistic participation and per-project savings estimates.
- **Step 2: Assess program design strategies.** Cadmus reviewed its cumulated research (as outlined above) to assess potential modifications to Dominion Energy's existing portfolio. We used this information to identify programmatic gaps, inefficiencies, and new program delivery strategies warranting consideration for the Company's portfolio.
- **Step 3: Incorporate stakeholder input.** To ensure the Plan aligns with stakeholder and customer priorities and addresses perceived challenges and participation barriers, Cadmus reviewed aggregated input provided through internal and external stakeholder surveys and interviews and customer surveys. While some identified stakeholder priorities and challenges were outside the scope of this Plan, we sought to ensure that the Plan addresses those priorities that are within Dominion Energy's control. We considered customer feedback on participation barriers and challenges; communication sources and preferences; and interests, attitudes, and motivations to understand opportunities for increased engagement and strategies to engage participants. We also reviewed and considered the Virginia Pathways modeling results and tool prepared by Energy Futures Group to assess opportunities to achieve the VCEA goals that may not be represented in other documentation. Although not specifically based on Dominion

Energy's Virginia service territory, avoided costs, or benefit/cost analysis, the Pathways model provided a useful comparison with DSM portfolios and programs in other states.

- **Step 4: Estimate participation for each measure.** Cadmus derived participation estimates from historical program data, the *Potential Study*, program implementation vendor estimates, and benchmarked data.
- **Step 5: Scenario modeling.** Cadmus used the consolidated data to model various Plan savings scenarios and to assess measures and programs based on their benefit/cost ratios according to each of the four *California Standard Practice Manual* cost-effectiveness tests. The modeling tool enabled Cadmus to evaluate various measure bundling options and alternative portfolio design strategies under different investment and participation projections, including Track A and Track B scenarios.
- **Step 6: Calculate program-level savings and costs.** Cadmus calculated gross savings as the sum of each measure's annual energy savings estimate multiplied by expected participation over the entire Plan. Cadmus applied net-to-gross ratios from Dominion Energy's most recent EM&V study and recent program plans with projected net values to derive net savings for the long-term Plan. To generate budgets, Cadmus summed incentives based on measure-level participation and program- and portfolio-level administrative costs for each Plan year.
- **Step 7: Calculate persistent savings.** To establish compliance with VCEA goals, Cadmus summed Dominion Energy's persistent savings from historical program accomplishments in Phases I through VIII, projected savings from Phases IX and X program plans, and long-term Plan savings (lifetime measure savings) through 2025.
- **Step 8: Balance the Plan.** Cadmus iteratively adjusted the expected participation, customer incentive levels, and program investment to balance the Plan. This step balances the priorities set by stakeholders, realistic achievements identified in Dominion Energy's *Potential Study*, alignment with the Company's integrated resource plan, and goals set by the VCEA.

1.5. Program Accomplishments

Virginia's energy plan,[16] published in 2007, introduced the Commonwealth's voluntary goal "to reduce 2022 electricity use by 10 percent of 2006 retail consumption through conservation and efficiency." Dominion Energy launched its first DSM program three years later, in 2010, after running several pilot programs. Since that time, the Company has implemented 57 DSM programs (including 51 programs focused on energy efficiency and six on demand response), provided more than $230 million in incentives to over 470,000 customers, and is on track to exceed the 10% electricity reduction goal set by the state energy plan for 2022. In the process, Dominion Energy and its implementers have formed trade ally networks that include market actors such as contractors, builders, retailers, and distributors; established program tracking and delivery processes; and built integrated data tracking systems.

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[16] Commonwealth of Virginia Department of Mines, Minerals and Energy. 2007. *The Virginia Energy Plan*. http://dls.virginia.gov/groups/energy/VEP.pdf

Through 2020, Dominion Energy's programs have generated 3,561,633 MWh of verified gross energy savings, resulting in a 305,588 metric ton reduction in CO_2 emissions for the Company's customers.

Informed by the passage of the GTSA and VCEA, Dominion Energy continues to closely coordinate with stakeholders to identify new energy efficiency program offerings. Accordingly, the Company will launch 11 more programs in 2022 (Phase IX). Dominion Energy is committed to achieving its regulatory targets through a comprehensive, diverse, and equitable portfolio of energy efficiency programs that offer participants an exceptional experience and a path to achieving the Company's energy efficiency goals. Dominion Energy has embarked on a rigorous process to identify a portfolio of programs that leverage all available energy savings potential, align with its stakeholders' priorities and customer preferences, and provide value to its customers.

DSM Accomplishments to Date*

DSM PROGRAMS: 27 Active, 11 Pending

CUSTOMER SERVED: 459,000

REBATES ISSUED: $225 Million

LEDs DISCOUNTED: 8 Million

HOMES ASSESSED: 10,600

INCOME-QUALIFED CUSTOMERS REACHED: 37,000

SMALL BUSINESS REBATES ISSUED: 3,600

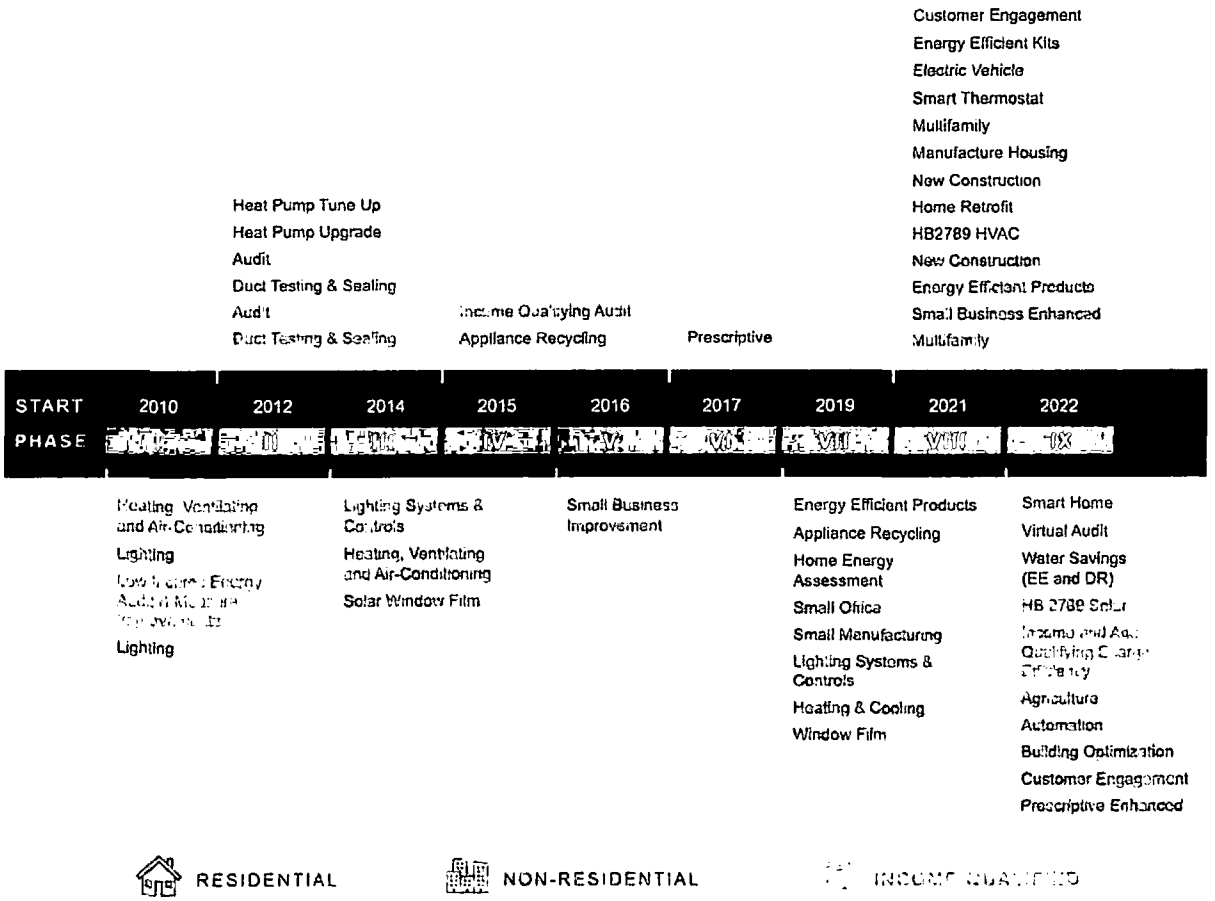
WELCOME KITS DISTRIBUTED: 19,000

* Phases I – VIII, through 9/30/2021. Does not include contributions from the shareholder funded EnergyShare program

As shown in Figure 4, over the past 12 years Dominion Energy has established a robust set of program offerings for each of its customer segments, putting in place energy efficiency assessments and services, product rebates, and incentives for energy-efficient new construction. Dominion Energy ramped up its offerings significantly beginning in 2018 and currently provides its customers in every sector with a wide range of opportunities to save energy.

The Company has made substantial progress in building partnerships with the state's weatherization assistance providers to deliver Dominion Energy's IAQ programs alongside state's federally funded energy services, expanding the free products and services that income-qualified customers receive. Partnering with state weatherization providers is a successful, proven strategy employed by utilities across the U.S.—it pairs utility and state funding with local expertise and outreach to maximize benefits for income-qualified customers. In areas where a weatherization service provider does not have the staff capacity to deliver Dominion Energy's programs alongside state-funded programs, the Company's IAQ program implementation vendor uses qualified contractors to fill resource gaps and handle increased demand. In 2020 alone, Dominion Energy's IAQ program reached 23,981 participants, exceeding its participation goal by 20% and its net energy savings goal by 11%.

Figure 4. Demand-Side Management Program History



To supplement its robust portfolio of programs, Dominion Energy anticipates submitting an additional nine programs for approval in its Phase X Plan, in December 2021. Collectively, these new programs will reflect nearly all remaining measures with economic potential identified in Cadmus' gap analysis. The Company will submit the Phase X Plan concurrently with this long-term Plan, along with requests for regulatory flexibility to support transitioning to the streamlined portfolio structure outlined herein. Additionally, as of the time of this Plan's release, Dominion Energy is preparing to solicit bids from experienced DSM marketing and strategy firms to develop and execute an overarching and comprehensive portfolio marketing and outreach strategy.

1.6. Risks, Challenges, and Management Strategies

Dominion Energy faces a range of market and regulatory risks and challenges to achieving its energy savings targets as required under the VCEA. This section provides an overview of risks and challenges as well as management strategies the Company can leverage to help mitigate those risks to optimize its ability to achieve the goals outlined in this Plan.

1.6.1. Market Challenges and Management Strategies

Existing market challenges in Virginia—including low awareness of energy efficiency opportunities and declining market potential for savings—create significant challenges for Dominion Energy to achieve its legislative and regulatory obligations. It will be critical for the Company to increase customer awareness and capture all achievable energy savings potential to develop and execute a successful portfolio of programs.

1.6.1.1. Limited Customer Awareness

Ideally, customers think of Dominion Energy when they want to improve the energy efficiency of their home or business or when they need to replace energy consuming equipment. To cultivate this top-of-mind awareness, utilities often deploy marketing strategies that address both the program and portfolio levels, where program-level marketing is focused on a specific program's value proposition and target customer population while portfolio-level marketing is focused on increasing customers' general awareness of programs and the benefits of energy efficiency, as well as actions they can take to conserve energy (including by participating in programs). To create broad awareness across customer segments, both strategies rely on multiple outreach channels, targeted messaging based on primary research and industry best practices, and cross-promotion that encourages customers to take a holistic approach to efficiency. Research shows that a customer-centric approach to program outreach and engagement also increases customers' satisfaction with their utilities and encourages ongoing program engagement.

Historically, Dominion Energy has relied on its implementation vendors to conduct program-level marketing, including management of program-specific trade ally networks, but to date the Company has not implemented an overarching portfolio-level marketing strategy nor a coordinated trade ally management initiative. Previous SCC orders have required marketing expenditures to be tied to specific program approvals (rather than to, for example, portfolio initiatives), limiting the Company's ability to launch a broad awareness campaign that links and promotes the programs and measures together. Cadmus' survey results indicated a significant opportunity to increase customer awareness of the Company's DSM programs. For example, only 19% of surveyed residential customers were *somewhat familiar* or *very familiar* with Dominion Energy programs and even fewer (13%) reported participating in a program in the last three years.

Among nonresidential survey participants, 15% had heard about Dominion Energy's programs in the last year and only 9% were *somewhat familiar* or *very familiar* with the Company's programs, while 12% said they had participated in the past. These findings are indicative of a historical under-investment in general energy efficiency awareness advertising and education, as well as the fact that, between 2018 and 2020, Dominion Energy's largest nonresidential customers were excluded from participation in DSM programs and were not exposed to direct program marketing during that period.[17]

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[17] Between 2018 and 2022, nonresidential customers with 500 kW or more of annual energy demand were automatically exempted from contributing to or participating in DSM.

Through benchmarking research, Cadmus found that general population program awareness is higher among customers in other utility jurisdictions, ranging from 47% to 81%. Cadmus' survey also revealed considerable interest among Dominion Energy's customers to engage with efficiency. Among surveyed residential customers, 84% would be *somewhat interested* or *very interested* in program participation, with income-qualified respondents expressing the strongest interest. Nonresidential customers are also very interested in participating, with 49% of respondents indicating they were *very likely* or *somewhat likely* to participate in a Dominion Energy program in the next three years. Both residential and nonresidential customers said that reducing energy bills was a strong motivator to participate. These survey results indicate a significant opportunity to increase program awareness and engagement among all customer segments as one avenue to increase program participation and savings.

Additionally, the support of a robust and engaged trade ally network is an important element in disseminating information about utility programs and their benefits as well as maintaining a consistent pipeline of program participants. Because many high impact energy-using systems are subject to emergency replacement, and customers may not have the time or knowledge to research efficiency programs, trade allies provide an important link to information about programs that offer incentives for energy saving equipment. The most successful programs leverage a network of trade allies, such as contractors, distributors, and retail partners, to serve as program ambassadors and promote the utility's programs and upsell higher-efficiency equipment to their customers. To ensure strong trade ally relationships, utilities make participating worthwhile by providing value to those trade allies in the form of training and educational opportunities, recognition, co-marketing support, or some combination. In Cadmus' survey, only about 8% of residential customers and 11% of nonresidential customers who were aware of Dominion Energy's programs had heard about them from a trade ally. During interviews with internal stakeholders, Dominion Energy staff and implementers indicated that the Company's trade ally network is managed at a program level and has some gaps. While some programs have sufficient support from local and regional trade allies to provide a strong pipeline of program participants, newer programs have lower representation from trade allies. While the implementation vendors are working to build relationships with local contractors, distributors, and builders as the programs mature, a more uniform process of engaging trade allies is a hallmark of best practice DSM portfolios and helps utilities manage risk by ensuring all trade allies abide by consistent program protocols and standards.

To address customers' limited program awareness, the Company plans to issue a request for proposals in the near term to solicit bids from marketing and advertising firms specializing in DSM program customer awareness and outreach. Once selected, this firm will be tasked with developing and executing a portfolio-level customer awareness strategy to complement the Company's existing program-level marketing efforts; this will be key to increasing customer awareness of Dominion Energy's DSM programs and the benefits of energy efficiency generally and in driving participation. One critical element of this overarching strategy will be a deliberate plan to engage, leverage, and track a trade ally network to promote all Dominion Energy programs.

Chapter 5 of this Plan outlines best practice marketing and outreach strategies that can be deployed to increase awareness among residential, income-qualified, and nonresidential customers.

1.6.1.2. Declining Potential

The VCEA requires Dominion Energy to capture significant and increasing energy savings in conditions where the known energy savings potential is forecast to decline. Specifically, results from the Company's *Potential Study* showed that compared to the previous (2017) study, estimated 2020 through 2029 technical and economic potential declined by 3% each as a proportion of base consumption. Some key drivers of this shift in potential include a decrease in avoided costs, rapid transformation of the lighting market and anticipated federal lighting standards that will eliminate potential from screw-based LEDs, and the effects of a regional shift from a summer to a winter peak. This adjusted regional peak had a significant impact on the cost-effectiveness of some measures, such as residential and commercial cooling, that have historically provided substantial avoided capacity benefits.

Based on benchmarking research from 19 investor-owned utilities across the U.S., Dominion Energy's avoided energy and capacity costs are lower than the average. In particular, the Company's 2020 avoided energy costs are only slightly more than half that of the benchmarked utilities' (at $0.0281 per kilowatt-hour compared to a $0.0477 per kilowatt-hour average) and its avoided capacity costs, at $85.60 per megawatt-year, were about 8% lower than the average of $92.60 per megawatt-year. These costs have a direct impact on Dominion Energy's energy savings potential and, particularly when coupled with a challenging cost-effectiveness regulatory environment (described below), present a unique challenge for the Company. Avoided energy and capacity costs comprise the bulk of DSM benefits used in cost-effectiveness calculations: lower avoided costs result in lower cost-effectiveness and therefor fewer measures being available to customers.

Utilities across the country are seeing similar declining potential, which is not only being driven by changes in the lighting market, but also by increasing saturations of high-efficiency technologies as well as changes to building codes and increased equipment standards. Consistent with many utilities around the country, Dominion Energy phased out standard screw-based LED bulbs in 2020 (for non-IAQ rebate programs) and will eliminate specialty LEDs in 2024 in anticipation of an increasingly transformed market and potential reinstatement of the federal Energy Independence and Security Act of 2007 (EISA). Given these challenges, Dominion Energy has been carefully assessing future potential and acknowledges that the ability to capture sustained cost-effective savings will be difficult. In analyzing this Plan, Cadmus conducted a gap analysis to identify measures not currently included in Dominion Energy's portfolio that could offer untapped potential. In general, Cadmus found that very little additional potential exists and those measures that do offer additional potential are expected to be included in the Company's Phase X programs. Specifically:

- The measures in Dominion Energy's existing programs represent 80% of available economic potential in the nonresidential sector. Only two measures—ENERGY STAR® servers and server power management—account for nearly all untapped economic potential. Dominion Energy intends to offer these measures through its Phase X programs.
- Dominion Energy already offers all residential measures with economic potential in its current residential program portfolio.

- Very few measures offer marginally cost-effective[18] additional energy savings potential. In the nonresidential sector, marginally cost-effective measures (including high-efficiency rooftop heat pumps, demand hot gas defrost, and ENERGY STAR or better personal computers) could increase existing potential by only 5%. Similarly, in the residential sector, marginally cost-effective measures (including return duct modification and low-flow showerheads) could increase potential by only 3%.

The decline or elimination of low-cost energy saving measures (such as LED lighting), persistently low avoided energy costs and rates, and the uncertain future market all impact the Company's objectives. In the next four years, Dominion Energy is planning to produce energy savings in excess of its estimated achievable potential, essentially front-loading savings to achieve the VCEA targets, by consolidating and expanding its program portfolio and increasing its investment in marketing and outreach as proposed in this Plan. Additionally, the Company may wish to seek regulatory approval for increased flexibility to manage its existing programs through changes to program budgets and incentive levels.

1.6.1.3. Lingering Impacts from COVID-19

The past 24 months have brought unforeseen challenges with respect to the Company's ability to consistently deliver DSM programs to customers. Following the onset of the COVID-19 pandemic, which led to months of lockdown and significant restrictions in the Company's ability to interact with customers, Dominion Energy was able to reposition its programs, adjust some of its customer engagement approaches, capitalize on alternative program delivery mechanisms, and achieve most of its portfolio goals. Even so, there is still uncertainty and possible risk in Dominion Energy's savings forecasts associated with the continued viability of its business customers' operations, ongoing financial hardship for many residential customers, supply chain issues, labor shortages, and increasing costs of raw materials and products. These cumulative impacts affect the Company's costs and operations, as well as its customers' ability to invest in energy efficiency.

The pandemic has also had a profound impact on customer expectations, changing the ways in which people consume information and buy products. Through this process, Dominion Energy has gained a better understanding of customer behaviors and will permanently integrate some of its adaptive strategies, such as offering virtual interactions and "no-touch" program participation options, which has made the Company more prepared for unforeseen events in the future. However, while the pandemic appears to be receding, the economy is slowly recovering, and customers are re-engaging with programs, the longer-term impacts of COVID-19 are still evolving and their potential effect on Dominion Energy's ability to achieve its significant VCEA goals are unknown.

To address these challenges, the Company should continue to respond to customer needs as they arise by exploring innovative and alternative program delivery approaches that prioritize customer, implementation vendor, and trade ally safety. Additionally, the Company may wish to seek regulatory

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[18] Measures with a Total Resource Cost Test ratio of between 0.8 and 1.0 were considered marginally cost effective.

approval for additional budget flexibility to respond to changing market conditions as they arise. Finally, it will be important for Dominion Energy to continue communicating with customers to inform them of changing market conditions and program opportunities, and with stakeholders to solicit their feedback and ideas, in order to respond to market disruptions arising from the continuing effects of the pandemic.

1.6.2. Regulatory and Statutory Challenges and Management Strategies

While the VCEA and GTSA create a framework for Virginia utilities to expand DSM efforts that help customers manage their energy costs and increase sustainability, legacy regulatory rules and precedents are likely to hamper Dominion Energy's ability to achieve its aggressive energy savings targets.

1.6.2.1. Filing Cadence

The regulatory filing cadence of a given jurisdiction is a core organizing principle for ongoing DSM program development and delivery. Most utilities across the U.S. file an energy efficiency plan covering a portfolio of programs every three to five years. Such filings may include new programs but are often dominated by existing programs that may be extended, discontinued, or modified (such as by adding new measures or adjusting incentives). Per Virginia Code § 56-585.1 A 5, utilities may update their DSM-specific rate adjustment clauses for cost recovery no more than annually, which has resulted in an annual filing cadence. Dominion Energy has also typically been subject to SCC orders dictating the timeline for when the next DSM case must be filed, which is generally one year later.[19] This, in combination with the VCEA savings targets, has created pressure for Dominion Energy to file for approval of new DSM programs every year since 2009, which the Company has largely done.

Dominion Energy begins its program planning process by issuing an open request for program implementation vendors to submit proposals for new programs that include detailed design parameters, along with cost and savings projections. Those program proposals that pass the Company's cost-effectiveness modeling process and provide customer value are included in its annual DSM filing. Each filing for new programs represents a new phase and requests funding approval for new or continuing programs that are proposed for a specific duration (typically five years for new programs). Approval generally takes about nine months, during which time Dominion Energy's selected program vendors remain *on standby* until their programs are approved and their contracts are finally executed. This process has resulted in an annual cycle during which Dominion Energy staff are simultaneously implementing the current set of programs and preparing to launch new approved programs from the previous filing, while also identifying possible new programs, soliciting requests for proposals from vendors, and preparing the next DSM filing. At any given time, Dominion Energy has anywhere from two to eight overlapping program phases in the field, all at different stages and with different end dates. This schedule places a significant burden on staff to design, implement, and plan for new programs concurrently and seems to have prevented them from approaching the portfolio strategically in the

[19] For example, the SCC Final Order approving Dominion Energy's 2020 DSM Plan, issued September 7, 2021, notes: "Dominion's future DSM filings, including its next annual DSM filing, shall include: . . ." Page 11.

context of the Company's corporate objectives, regulatory obligations, and legislative requirements. It has also seemed to have prevented the Company from exploring and implementing program improvements that could increase the energy savings performance of their existing programs.

This filing cadence is unusual from an industry perspective. Based on Cadmus' research, the average filing cycle in benchmarked states is 3.25 years, and ranges from two to seven years. (For reference, the Virginia filing cycle appears to be specific for each program, based on the duration approved in the original filing, in most cases, five years. At the end of the five years, if Dominion Energy does not file an extension, the program is discontinued.) In most other jurisdictions, a DSM plan covers an entire portfolio of programs, which is then approved for the full filing cycle. Different states have varying levels of flexibility to adjust programs mid-cycle so that utilities may react quickly to market changes or evaluation results. For example, the North Carolina Utilities Commission has adopted formal flexibility guidelines for Duke Energy that enable the utility to adjust its programs within specified parameters. Specifically, North Carolina Sub 831 Order[20] requires Commission approval only for: *"(1) Program changes or shifting of program resources that would result in program costs increasing or decreasing by more than 20% of the original program cost estimates initially approved by the Commission.; (2) Program changes that would increase or decrease the energy and demand savings projections by more than 20%; (3) Any increases or decreases to participant incentives; (4) Program changes that would alter the target customer groups; (5) Program changes that may result in the reassignment of costs and benefits from one class to another; (6) Any combination of the first five criteria."*

An additional outcome associated with this environment has been the Company's tendency take a more reactive, rather than proactive, approach to developing programs. This has resulted in many programs being narrowly focused on a specific measure, end use, or customer segment, rather than broad programs that include multiple ways for customers to engage with energy efficiency. Currently, Dominion Energy offers 27 different customer-facing energy efficiency programs and will add 11 more programs starting in 2022.[21] The programs are at varying levels of maturity and on different filing and implementation schedules. Based on benchmarking research, it is much more common for utilities to offer fewer programs, with seven being the average number of programs across 19 benchmarked utility portfolios. Additionally, while a common utility practice is to first establish program design parameters including cost and savings expectations and model cost effectiveness internally, then request vendor proposals that adhere to those parameters. the Company's open bidding process for new programs prolongs the timeline between program design and launch and creates uncertainty for both the Company and its program vendors. There may be an opportunity for the Company to reconsider how it designs and bids its programs for the purpose of shortening the time from program ideation to program launch.

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[20] State of North Carolina Utilities Commission. July 16, 2012. Order Adopting Program Flexibility Guidelines in Docket No. E-7, Sub 831.

[21] This is based on Phase IX programs, approved on September 7, 2021.

Offering comprehensive programs that include a wide range of measures and various program components would allow Dominion Energy to increase its program budget caps and would give the Company greater discretion—with appropriate regulatory oversight and consideration of stakeholder input—to direct funds where they are needed within a given program phase to maximize savings. Proposing a portfolio of programs on an established filing schedule without expiration dates could also increase trade allies' and other stakeholders' confidence in the programs' reliability and longevity and reduce the Company's risk from programs expiring prematurely. Finally, maintaining broader, more comprehensive programs could reduce the Company's filing frequency. Rather than submitting new, narrowly focused programs each year, Dominion Energy may wish to seek regulatory guidance on its ability to file its restructured portfolio, then submit mid-phase filings using an administrative approval request or other abbreviated process only when necessary to add new technologies or address program design modifications. While the Company would still be required to file an annual rate rider true up, the level of effort would be substantially lower than the process required to plan, analyze, and prepare documentation for a slate of new programs each year. By offering customers a range of opportunities to save energy, this structure also facilitates the cross-promotion of intra-program components and deeper program engagement, as well as a more streamlined participation and reporting processes, thus benefitting customers in at least two ways: by increasing ease of participating in programs and by reducing aggregate administrative costs ultimately borne by customers.

One goal of the Company's long-term Plan is to outline a structured, strategic portfolio with more streamlined programs that optimize customer participation and performance. The programs proposed in chapter 2 through chapter 4 will consolidate the Company's existing portfolio allowing it to continue operating without disruption to its programs or implementation vendor contracts while providing customers with a smaller number of *broadly* designed offerings with multiple opportunities to access services and incentives that help them save energy. Chapter 7 provides recommendations to help Dominion Energy transition to this program structure and move toward a five-year filing cycle in which the Company could update programs periodically to reflect customer and technology market changes and to true up budget needs.

1.6.2.2. Lack of Budget Flexibility

Although Dominion Energy files for multi-year approval of its programs and budgets, Virginia regulatory rules limit its flexibility to modify spending within a phase. Under a past order, the SCC determined that DSM programs were not in the public interest without a budget cap. For most programs, the Company requests five-year budget approval, consistent with its planned program duration, and such budgets, once approved, become caps that Dominion Energy may not exceed. In addition, the Company must file an annual budget true-up to recover its DSM costs under the rate recovery rules of Virginia Code § 56-575.1 A 5.

Within a given phase, Dominion Energy can shift funds between program years but may not shift funds between programs or increase its budgets to manage costs. Thus, if a given program successfully garners higher interest than expected, or costs otherwise increase such that program dollars are exhausted before the end of the approved phase, the Company must submit a full new plan filing to extend or replace the program, and it can take nearly two years to prepare and submit the plan and secure

approval. In the meantime, Dominion Energy may not exceed the budget; this occurred in 2020 when the Company's nonresidential Lighting Systems & Controls program attracted enough participation to expend its budget within the first three years of the five-year program. Capitalizing on customers' interest to maximize savings is central to Dominion Energy's ability to achieve its statutory energy savings targets and maintain its customer and trade ally relationships.

In many states, regulatory rules include provisions to provide utilities with some flexibility to adjust budgets as necessary to respond to unexpected market changes or other factors. Such provisions include allowing fungibility between program budgets within a specific customer class or budget increases to accommodate unexpected needs. A few states (primarily those without regulated energy savings targets), such as North Carolina and Kentucky, have no budget caps and no provisions around increasing funds to support energy efficiency programs; if program interest is high and the program is cost-effective, utilities can allocate additional funds as necessary without formal approval. Furthermore, very few utilities are required to file programs with a specific duration; rather, at the end of a given filing cycle, utilities can request to either extend, modify, or discontinue an existing program. This flexibility allows utilities to take advantage of the opportunity to capture as much savings as possible from cost-effective programs with unexpectedly high demand and to manage costs to avoid running out of program funds before a new DSM plan can be approved and a new budget allocated. This type of flexibility would not increase risk to Dominion Energy or its customers.

Suspending a program can be highly disruptive to program continuity and incompatible with achieving savings targets. When programs are closed or suspended, interested customers may be turned away or put on a waiting list, and trade allies, who depend on reliable utility programs and partnerships, may be required to reallocate equipment inventories, change their marketing strategies, or even lay off staff. Pausing programs can create disruptions to the marketing strategy, strain trade ally relationships, and frustrate interested customers who are unable to participate at a time convenient to meet their needs. A suspended program cannot contribute energy savings and can create an ongoing challenge to achieving energy savings targets if frustrated customers or trade allies refuse to give those programs a second chance (or if they tell their social network about their bad experience). Best practice energy efficiency programs avoid service disruptions as a top priority.

Reorganizing the portfolio by shifting away from single- or limited-measure-based programs to comprehensive program bundles with larger budgets (as recommended in this Plan) should help Dominion Energy create budget flexibility and manage costs while maintaining its budget cap requirements. These bundles will allow the Company to respond to market shifts in measure interest and demand while maintaining budget caps at the level of the comprehensive programs. Dominion Energy may also wish to seek regulatory approval for appropriate budget flexibility within the broad, consolidated programs proposed in this long-term Plan (i.e., between program pathways and components), particularly in the short- and medium-term timeframes, as it seeks to significantly ramp up savings to achieve the VCEA.

1.6.2.3. Goal Uncertainty

Neither the VCEA, nor subsequent regulatory guidance, specify whether the Virginia targets must be met with gross or net program savings. For Dominion Energy, the difference in achieving compliance using net versus gross savings is significant. In net-to-gross analysis, the Company's EM&V vendor found net savings are, on average, 83.8%[22] of gross savings. To drive participation levels needed to achieve the VCEA target with net savings, Dominion Energy would need to increase its investment in incentives, implementation vendor support, and marketing across all of its programs, particularly focusing on its IAQ program where the most savings potential remains (but where high costs contribute to low cost-effectiveness). To create a realistic scenario that requires the minimum utility investment needed to achieve net savings, Cadmus modeled the portfolio to reach the VCEA target precisely, with very little savings buffer to allow for unexpected adjustments. To achieve the required savings, the modeling exercise estimated the impacts of increasing incentives and marketing investment on program adoption. As outlined in section 1.2, achieving this level of net savings will require approximately $132 million over three years in additional customer funded investment compared to meeting compliance with gross savings.

Among states with statutory energy efficiency targets, there is no standard approach for using net versus gross energy savings as the compliance metric. The approach regulators choose may take various factors into consideration, such as the cost and energy savings potential to achieve savings targets in the context of that state's market environment and utility avoided costs, the cost to measure compliance, and priorities for EM&V spending. In some states, such as Arkansas, Utah, and Wisconsin, net savings are required for compliance, but evaluators have some flexibility in when and for what measures net-to-gross analysis must be conducted as part of the EM&V process. However, this is a costly analysis that can dominate EM&V costs and reduce the funds available for other important evaluation needs. To help mitigate this cost, some states, such as Michigan, Indiana, and Washington use net savings for compliance but utilities have the option to apply a deemed net-to-gross adjustment for most measures and net-to-gross analysis is only conducted periodically for measures and projects with the highest impacts and uncertainty. Several states, such as Iowa, Pennsylvania, Oregon, Washington, and Georgia, report gross savings for compliance, which recognizes all savings that occur within a given utility jurisdiction. Cadmus recommends that compliance based on gross savings—the combined savings from *all* participating customers— should be found consistent with the language of the VCEA, which sets targets based on "total annual energy savings" that are achieved and has the benefits of lower acquisition costs, lower EM&V costs, more precise measurement of savings, and lower aggregate spending requirements while still meeting the requirements of the VCEA to grow energy efficiency savings at a rapid and meaningful pace.

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[22] The VCEA compliance gross savings (Track A) includes self-directed savings from large commercial opt-out customers and voltage optimization that assume 100% net-to-gross. The Long-Term Plan program net savings are based on Dominion Energy's evaluations, program plans, and secondary data for added or new measures.

Regardless of the approach adopted in Virginia, given the significant difference in savings required to achieve the VCEA target with gross versus net savings, Dominion Energy will need to carefully plan and design its programs to reflect the required compliance path. As Cadmus' modeling shows, the Company would likely need to exceed its achievable savings potential in the near term by increasing incentive levels and investing in increased marketing to reach compliance using net savings (Track B). Such cost increases would, however, impact program cost effectiveness, and some existing measures with positive but marginal cost-effectiveness would likely no longer be cost effective, requiring the Company to fill an even larger savings gap with more constrained potential or seek approval for non-cost effective programs. Furthermore, the need to obtain regulatory approval for program design adjustments will dictate when the Company can implement these changes. Specifically, the Company would need to include the adjusted programs and budgets in its 2022 Phase XI DSM filing, with the expectation that those programs could be approved by late 2023 and launched no earlier than January 2024, giving the Company only two years to fill the any gaps relative to the 2025 target. Such an aggressive increase in savings may not be possible in this timeframe; therefore, Cadmus' model also assumed the Company would accelerate its investment into IAQ projects in 2023, effectively drawing funds from later program years, to pursue savings achievement over a longer period. We believe SCC confirmation of the Track A compliance path (based on gross savings) or guidance on an alternative path should be given as soon as possible to enable the Company to develop a workable compliance strategy with sufficient time to adjust its programs to achieve it.

1.6.2.4. Cost-Effectiveness Rules

Providing customers with access to cost-effective programs is a primary consideration in Virginia and Dominion Energy works closely with its stakeholders and selected vendors to design and implement cost-effective programs. Virginia Code § 56-576 notes that non-IAQ programs must pass three of the four cost-effectiveness tests to be considered "in the public interest."[23] While the law does not prohibit approval of programs that pass fewer than three of four cost-effectiveness tests, it sets a standard that Dominion Energy has maintained. To date, the Company has not submitted any new programs for approval (except IAQ programs) that do not pass the three of four tests threshold established in state law; however, to achieve its targets under the VCEA (particularly if compliance is based on net savings), the Company may need to submit programs for reasons other than passing cost-effectiveness tests.

Based on a review of cost-effectiveness rules across 50 states, most states (58%) primarily rely on the Total Resource Cost Test to consider whether a program or portfolio is cost-effective, with only two states[24] (other than Virginia) requiring the portfolio to pass multiple tests (the Utility Cost Test is the second most common test required, by 20% of states). Additionally, it is common for a state regulatory

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[23] The cost-effectiveness tests are the Participant Cost Test, the Utility Cost Test, the Ratepayer Impact Measure Test, and the Total Resource Cost Test. Low-income programs are not required to pass three out of four tests.

[24] Utility portfolios in California must pass the Total Resource Cost Test and the Utility Cost Test. Utility portfolios in Connecticut must pass the Utility Cost Test and a modified (accounting for some societal benefits) Total Resource Cost Test.

commission to view cost-effectiveness at a portfolio level rather than a program level; the implications of this standard are significant for certain DSM programs, such as home audit programs, which commonly do not exceed a program-level benefit/cost ratio of 1.0 but offer significant educational benefits and serve as a key program entry point for customers. Using a portfolio-level rather than program-level cost-effectiveness threshold can allow utilities to continue offering these beneficial programs if they can offset the lower benefit/cost ratios using programs with particularly strong cost-effectiveness test results.

Finally, the SCC has historically emphasized the need for cost-effectiveness within a new program's first year or two. Energy efficiency programs often require a higher level of spending during their early years, requiring capital investment to develop human resources, delivery infrastructure, marketing and outreach, and data tracking needs, and may take three years or more to ramp up to full capacity. Achieving cost-effectiveness in a program's early years can be particularly challenging.

1.6.2.5. Changing Eligibility Requirements

In Virginia, the law has changed several times since the 2007 Re-Regulation Act regarding automatic exemption levels and opt-out requirements. At the time of the Company's programs beginning in 2010, customers with over 10 MW of demand were automatically exempt, and customers with between 500 kW and 10 MW of demand had the opportunity to opt out of paying the energy efficiency rider and eligibility to participate in DSM programs. In 2018, with the passage of the GTSA, the automatic exemption from energy-efficiency riders was lowered to exempt all customers with demand of 500 kW or more. In 2020, the Virginia Code § 56-585.1 A 5 was revised, eliminating the automatic exemption for customers with over 500 kW of annual energy demand and requiring an opt-out process for those seeking exemption from the energy efficiency riders, establishing a new threshold of 1 MW of annual demand to obtain such exemption (along with certain filing requirements established by SCC rules). Accordingly, between 2018 and 2020, the Company had no program offerings for its large business customers and focused its nonresidential programs on small- and medium-sized businesses.

Customers with the most energy demand are generally those with the greatest opportunities to save. Thus, in many utility jurisdictions, large business customers represent the most significant contributors to energy savings. The recent two-year gap in DSM program eligibility created a disadvantage for Dominion Energy, as the large commercial sector not only lacked access to DSM program opportunities, but also was not exposed to any marketing messages or direct outreach from account managers, implementation vendors or trade allies. While the reversal of the exemption provision will allow Dominion Energy to expand its reach once again to nonresidential customers with more than 500 kW energy demand and offer additional measures geared to those customers, it will take some time and concerted effort to increase their awareness. Energy savings that Dominion Energy programs might have encouraged among large-customers in the two-year gap period—for example, installation of higher efficiency equipment at the point of burnout of existing equipment or renovation of facilities or processes—should be considered lost opportunities for savings that will not be available again until the devices and process equipment installed during the gap period have reached *their* useful lifetimes. For practical purposes, the two-year eligibility gap will become a five-year gap by the time new programs targeting newly eligible large customers can be proposed (in 2022), approved (in 2023), and launched (in

2024). The Company's current offerings for these customers reflect 2018-2020 eligibility rules; targeted large customer offerings including a custom program and strategic energy management that would typically be designed around the needs of this customer segment will not be incorporated into the portfolio until at least 2024, based on recommendations outlined in this Plan. Large commercial projects also take longer to identify, plan, and install. Fully realizing the savings potential from this customer sector may not be possible during the current VCEA compliance period.

1.6.3. Operational Challenges and Management Strategies

Dominion Energy's current implementation and operational practices have developed over several years to accommodate the regulatory and market environments in which it operates. To facilitate significant transformation of its portfolio structure the Company may wish to adjust certain processes to both maximize its programs' performance and to streamline its contractual processes, but these adjustments should be handled with great care and are likely to take several years to fully realize.

1.6.3.1. Need for Enhanced Program Information

While the VCEA mandates that utilities use the services of a vendor to perform EM&V of its programs, the provision cites only that utilities calculate "annual and lifecycle net and gross energy and capacity savings, related emissions reductions, and other quantifiable benefits," as well as customer bill savings and program spending. The law does not require utilities to conduct process evaluations[25] of its programs and, given other legal and regulatory constraints on spending and cost-effectiveness, Dominion Energy has not yet conducted detailed process evaluations. While the Company's programs are largely consistent with industry best practices, are supported by implementation vendors with national experience and perspective, and are subject to periodic operational reviews by Dominion Energy and its implementation teams, these programs have not benefitted from customer-focused primary research and jurisdictionally specific analysis to support program optimization and continuous improvement.

Process evaluations are typically designed around a set of defined objectives and research questions that can give evaluators important insights about how programs function within local markets and why they are successful or unsuccessful at achieving their goals, including factors such as customer awareness, barriers, motivation, experience, and satisfaction along with the degree to which trade allies or program partners promote the programs. Process evaluation outcomes include detailed, actionable recommendations for improving programs based on empirical research and industry-accepted analytical methods. The recommendations typically include program modifications aimed at maximizing program performance, optimizing customer experience, increasing trade ally participation, improving the effectiveness of program marketing, and, in turn, maximizing overall portfolio savings.

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[25] Whereas impact evaluation estimates how much energy savings a program delivers, process evaluation involves focused research by an objective, independent party using industry accepted research and analytical methods to help utilities understand how their programs function in the market and how well they influence customer behavior.

Process evaluation research can vary by utility jurisdiction and be highly influenced by energy efficiency program and market maturity; it is important to understanding how to best optimize programs to maximize energy savings and customer satisfaction within that context. A well-designed process evaluation can also be used to test alternative program design and delivery strategies and to identify those strategies that produce the most advantageous results. Without this program optimization review, Dominion Energy may not have sufficient information to fully realize the savings potential of its programs.

The recommended next steps outlined in Chapter 7 of this Plan include conducting targeted program optimization reviews using industry-accepted process evaluation techniques for programs with the largest potential impacts, uncertainty, or customer effects, as well as reviewing its existing program key performance indicators (KPIs, centered on savings, costs, and participation) to identify process evaluation priorities. Ideally, research should be conducted on prioritized programs to establish a baseline for expanded program KPIs such as barriers, customer satisfaction, and trade ally engagement. Over time, process evaluation techniques can be used to measure progress on those metrics and provide insights that the Company could use to refine and continuously improve the effectiveness of its programs.

1.6.3.2. Need to Align Vendor Contracts with Streamlined Portfolio

To ensure that Dominion Energy's programs are delivered seamlessly by experienced professionals as cost-effectively as possible, the Company conducts a rigorous competitive bidding process for each new program to select a qualified implementation vendor. The Company then aligns each selected vendor's contract period of performance with the relevant program phase timeline. Thus, because of its historical program development process and annual filing cadence as outlined in section 0, the Company currently administers contracts with several different implementation vendors with varying periods of performance and expiration dates ranging from 2022 to 2027.

Maintaining the integrity of Dominion Energy's vendor contracts is important. Renegotiating or repackaging its implementation vendor contracts would not only have a negative impact on the Company's reputation among its industry partners and require a significant administrative effort that could impact its budgets and program tracking processes, but it could also impact its partners' businesses. Honoring its vendor contracts is among the Company's highest priorities.

One key strategy Cadmus identified for optimizing program performance, enabling a more proactive and strategic program development process, and creating budget flexibility and stability is to move toward consolidating Dominion Energy's projected 37 active and approved DSM programs under a broader program structure. Dominion Energy's stakeholders identified this type of program consolidation as a high priority and Cadmus' benchmarking research revealed that a more streamlined program portfolio offering broader customer engagement opportunities is a common best practice among utilities across the U.S. However, it is not possible to align the Company's vendor contracts under this structure until its current contracts conclude. Offering the consolidated programs outlined in this Plan without renegotiating its contracts will require the Company to continue to administer multiple existing vendor

contracts for each bundled program until it can bring the periods of performance into alignment by the end of 2027. Chapter 7 includes recommended steps for managing this process.

Table 10 summarizes the management strategies by category that Cadmus recommends for addressing these challenges.

Table 10. Portfolio-Level Challenges and Management Strategies

Category	Risk/Challenge	Recommended Management Strategies
Market	Limited customer awareness	• Develop and execute an overarching portfolio marketing strategy • Expand relationships with local trade allies and organizations and track trade ally awareness, engagement, and satisfaction • Evaluate and track customer awareness, engagement, and participant satisfaction through process evaluations • Continue to seek innovative and emerging technologies and delivery methods to reach additional customers
	Declining potential due to changes in codes and standards and maturing market	• Optimize program design and delivery by presenting customers with bundled programs to encourage cross-promotion and deeper energy savings per customer and to capture as much potential as possible • Add new program opportunities to engage large nonresidential customers • Invest in efforts to increase customer, trade ally, and partner organization awareness and to accelerate energy savings to meet VCEA goals • To achieve a net savings compliance path (if necessary), increase incentives and marketing investment as possible within regulatory requirements to increase participation • Continue to seek innovative and emerging technologies and delivery methods to reach customers
	Lingering impacts from COVID-19	• Expand targeted customer communications, consistent with the planned portfolio marketing strategy, to inform them of ways to engage with energy efficiency as the market evolves • Seek SCC approval to increase flexibility to vary program budgets within appropriate limits • Continue to seek stakeholder feedback and new ideas
Regulatory	Annual filing cadence leads to reactive design and planning and narrowly focused programs	• After filing a more streamlined portfolio with broader programs as presented in this long-term Plan, focus filings on adding new measures or design modifications for the existing programs and on innovative pilots, as opposed to adding new narrowly focused programs • File new programs less frequently • Initiate process evaluations of priority programs to identify areas of improvement and to inform potential program modifications within the context of VCEA goal attainment
	Budget inflexibility limits potential program reach	• Reorganize the portfolio into comprehensive bundled programs, which allows for greater flexibility to meet customer demand and respond to market changes while adhering to budget caps • Seek SCC approval to increase flexibility to vary program budgets and shift funds within consolidated program and appropriate limits
	Most programs must pass three of four cost-effectiveness tests to be	• Continue to coordinate with stakeholders through the policy subcommittee to identify possible opportunities to reexamine cost-effectiveness inputs and rules

Category	Risk/Challenge	Recommended Management Strategies
	deemed as "in the public interest"	• Continue to organize programs to incorporate measures with good savings potential but marginal cost-effectiveness by offsetting them with highly cost-effective measures • Offer a nonresidential custom program that mitigates cost-effectiveness risk through a verification process prior to distributing incentives
	Changing rules regarding program eligibility has minimized large customers' access to programs and exposure to DSM messaging	• Implement the recommendations in this plan to focus on capturing near term savings to the extent possible • Begin conducting outreach to and engaging with large business customers as soon as possible; encourage them to participate in the existing program offerings for which they are eligible and seek to understand their long-term energy saving needs and interests • Develop program design parameters for large business custom and strategic energy management programs and include program proposals in the 2022 Phase XI filing
	Lack of complete information about the programs' performance	• Prioritize program process evaluations according to program impacts, savings uncertainty, and customer effects • Work with an external evaluator to develop enhanced KPIs, such as customer awareness and satisfaction, trade ally participation, and response time, to guide evaluation research • Revisit KPIs for implementation vendors to ensure their ongoing accountability toward goal achievement • Continue to work with stakeholders to solicit ongoing feedback and new ideas
Operational	Vendor contracts are not aligned with a consolidated program structure	• Continue to manage existing vendor contracts under the consolidated program structure • Create a schedule and plan for aligning all vendor contract periods of performance over the next five years • Develop tools, resources, and guidelines to assist existing program implementation vendors to cross-promote energy efficiency opportunities during appropriate customer interactions

Chapter 7 provides additional details on the recommended management strategies outlined with specific operational steps to transition the Company's portfolio while ensuring existing program and vendor continuity.

1.7. Overarching Strategy to Achieve Portfolio Objectives

Achieving the VCEA goals will be challenging. Virginia's changing market dynamics will require the Company to exceed its forecast achievable energy efficiency potential over the next four years by essentially front-loading savings now to achieve its 2025 goal, thus creating uncertainty in the years that follow. This will require the Company to make significant investments to increase awareness of its programs and provide both financial and technical support that compel customers to participate.

Primary Strategies to Achieve Objectives

- Restructure the portfolio
- Increase program awareness
- Create a continuous improvement framework

This Plan outlines a path to achieve Dominion Energy's VCEA targets and mitigate its risks and challenges through three primary strategies: restructuring the portfolio, increasing program awareness, and creating a framework to achieve continuous improvement.

Restructure the Portfolio

First and foremost, this Plan proposes a restructured and expanded program portfolio intended to achieve several key objectives:

- **Budget Management.** By combining Dominion Energy's existing portfolio of narrowly focused programs into a consolidated portfolio (initially by presenting existing programs to customers as a unified portfolio and over time transitioning to broader programs as regulator guidance and contractual obligations allow), the Company will be better able to manage costs because the larger, pooled program budgets can be directed toward the measures and pathways that garner the most customer interest. This will reduce the risk of exhausting smaller program budgets before the approved end date and will create economies of scale that can reduce program acquisition costs over time.
- **More Participation Options.** The comprehensive structure also creates multiple pathways for customers to engage more deeply with programs by presenting a wide range of efficiency opportunities so customers can choose the efficiency strategies best suited to their needs. This Plan addresses a broad range of incentive structures (upstream, downstream, and midstream); delivery models (direct install, self-install, and contractor install); building types (single family, multifamily, and small and large nonresidential facilities); technical support (such as home and building assessments); efficiency services (including appliance pick-up, equipment tune-up, and building optimization); and information and engagement (such as home and business energy reports) intended to minimize participation barriers and provide customers with as many paths as possible to improve their home or business efficiency. This structure also improves cross-promotional opportunities that encourage customers to continue their energy efficiency journey and learn to view Dominion Energy as a trusted energy efficiency resource.
- **More Comprehensive Programs.** The proposed consolidated program structure outlined in this Plan largely relies on bundling and repackaging Dominion Energy's existing programs. This

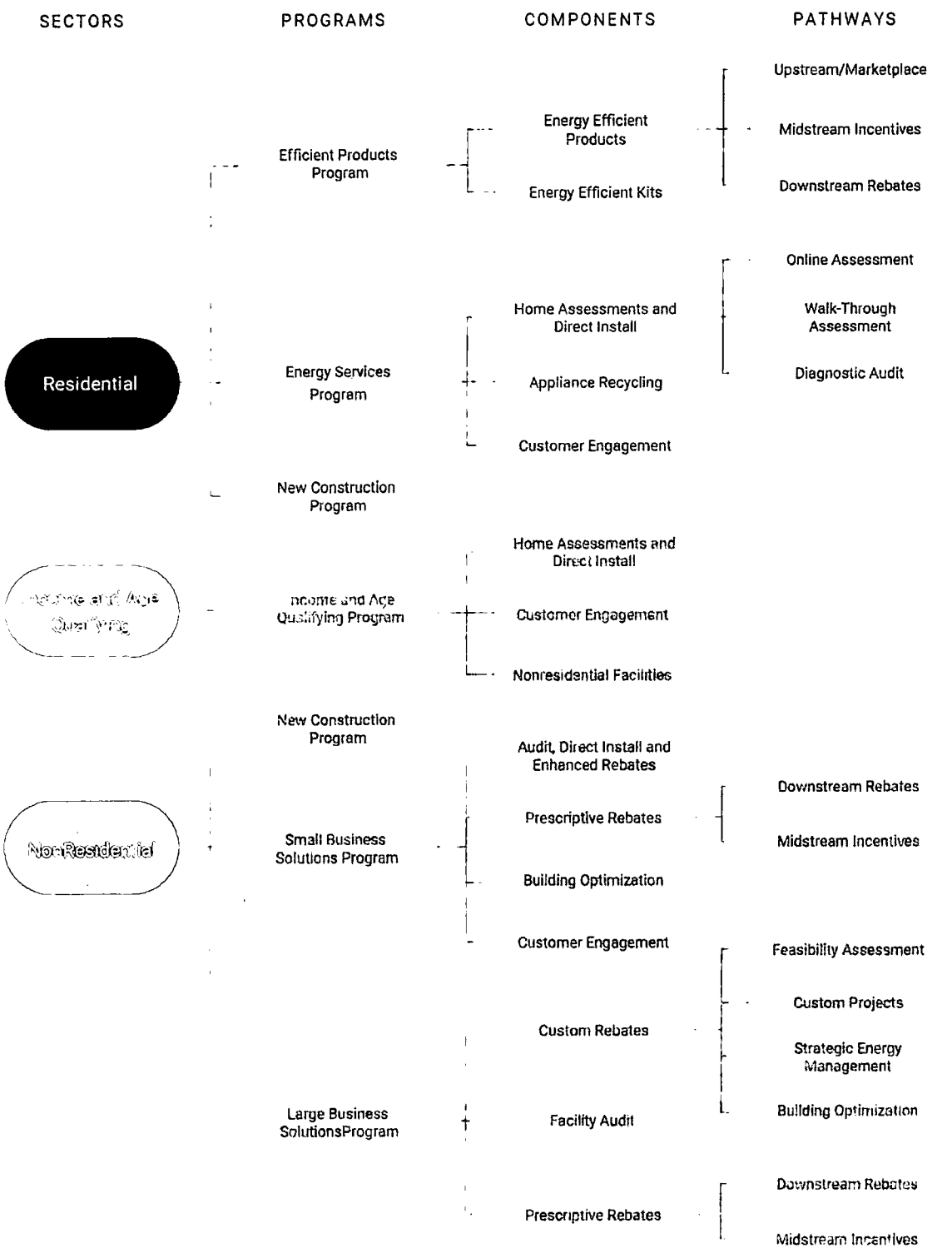
revised structure allows Dominion Energy to integrate measures and services, such as home and building assessments that support program participation but may not meet the required cost-effectiveness threshold, by combining them with program offerings that have higher benefit/cost ratios. However, maintaining continuity of its existing program operations and implementation vendor contracts will be necessary over the remaining VCEA compliance period. During this period, the Company can begin to work with its existing vendors and program partners to shift from a narrow program perspective to a comprehensive one. For example, offering support to implementation vendors and trade allies to facilitate cross-program promotion, share leads, and to follow up on opportunities will help produce the benefits of comprehensive programs while enabling existing program-specific implementation vendor contracts to continue uninterrupted. The Company can also leverage retailer relationships from its legacy upstream lighting program to promote rebates for appliances and other measures available through retail channels while evaluating options to expand its online marketplace to offer new types of energy efficient products to its customers.

- **Reduced Staff Burden.** The proposed program structure is intended to create a more streamlined planning and filing environment for Dominion Energy staff, SCC staff, and stakeholders. By establishing umbrella type programs coupled with requests for five-year budget approval and relaxed program end dates, the Company should be able to limit its annual filings to the required rate adjustments and to only submit mid-phase DSM filings when needed to modify the existing programs.
- **Expanded Reach.** The recommended program structure integrates new program components to engage large nonresidential customers, including adding custom projects and strategic energy management pathways, in recognition of the significant contribution of large customer programs to utility portfolios across the U.S. However, given the regulatory planning and approval timeline in Virginia, it is unlikely the Company will be able to realize savings from custom projects before 2024. The VCEA's inclusion of customers with over 500 kW of annual demand creates an opportunity for Dominion Energy to ramp up the energy savings contribution from its largest customers in the near-term through increased engagement with its existing programs as well as by expanding its offerings in Phase XI.

Figure 5 summarizes the proposed portfolio structure that encompasses fewer programs with multiple components and pathways customers can pursue depending on their needs.

CADMUS

Figure 5. Proposed Demand-Side Management Portfolio Structure



INCREASE PROGRAM AWARENESS

This long-term Plan also emphasizes the importance of a significantly expanded effort to improve general awareness of Dominion Energy's energy efficiency programs and the benefits of energy efficiency. As revealed by Cadmus' research, the Company's customers have low program awareness across all sectors, but high levels of interest in pursuing energy efficiency upgrades. Dominion Energy can capitalize on this significant opportunity by creating a portfolio-level marketing function to supplement the existing program marketing provided by its implementation vendors, by increasing its trade ally network, and by expanding outreach to organizations that serve income-qualified customers and hard-to-reach communities. As discussed, the Company is already pursuing plans to do so in the near term.

CREATE A CONTINUOUS IMPROVEMENT FRAMEWORK

Finally, this Plan includes strategies to create and maintain a framework to assess, improve, and track program design, operations, and delivery. Under its current regulatory and program environment, Dominion Energy has historically limited EM&V to the quantitative metrics required to report compliance; the SCC does not require Dominion Energy to invest in research designed to provide details on how its programs are perceived in the marketplace, what barriers may exist that prevent customers from participating, inherent inefficiencies in program delivery, or opportunities for improvement. Using KPIs to support ongoing process evaluations is a best practice for DSM programs. In most jurisdictions, comprehensive EM&V that includes prioritized process evaluation entails an investment of 5% to 10% of overall portfolio costs. Under the SCC's final order in the 2020 EM&V docket, it ruled that "overall EM&V budgets for future DSM programs should be in the range of 5% to 7% of program spending." This level of spending may be sufficient to support both impact and process evaluations of prioritized programs, but additional review may be needed to understand how EM&V budgets can be best allocated toward priority regulatory requirements and other program needs. Targeted process evaluation will provide research specifically designed to help Dominion Energy understand its programs' performance, identify specific actions the Company can take to improve that performance, and measure and track program performance on each metric.

Chapter 7 of this Plan provides specific recommendations to help Dominion Energy operationalize the strategies outlined above and transition its DSM portfolio. It further provides several longer-term recommendations to help the Company maintain its energy conservation achievements beyond the VCEA timeline, address changing and uncertain market conditions, and continue to work toward its corporate sustainability goals.

The following chapters outline the recommended programs to achieve VCEA targets using Track A (gross savings).

2. Residential Sector

This Plan proposes that the Company consolidate its residential portfolio into three comprehensive programs designed to provide residential customers with a diverse range of opportunities to reduce their electricity usage. Customers of all housing types and ownership status will have opportunities to participate in energy efficiency.[26] This long-term Plan presents a broad range of options that would provide customers with enhanced opportunities to participate in whatever manner best meets their needs, from installing a single measure to performing a whole-home retrofit. As envisioned, the programs would offer customers the ability to learn about their home's energy characteristics and ways to save through efficient behaviors, and with opportunities to recycle old, inefficient appliances, obtain rebates for a wide array of energy-efficient equipment, and build an efficient new home.

This section provides sector-level objectives and goals, a customer profile, and detailed description of each program implementation strategy.

2.1. Sector-Level Objectives and Goals

Residential, non-income-qualified customers are estimated to contribute 48.5% of the overall portfolio's energy savings. Additionally, the residential programs are designed to achieve several sector-level objectives:

- Offer comprehensive market-rate programs that provide a positive experience for participating customers.
- Provide information on opportunities to improve energy efficiency in customers' homes as well as education and informational resources to help them adopt efficient behaviors.
- Enhance residential-focused marketing and outreach to increase program awareness.
- Provide a framework to cross-promote programs for deeper customer engagement.
- Continue to build a robust trade ally network.

Table 11 and Table 12 present estimated annual investment required to implement the residential programs outlined in this Chapter, along with projected energy savings, demand reduction, and GHG reductions associated with their implementation based on gross and net energy, respectively.

Table 11. Residential Sector Annual Estimated Gross Savings and Budget

Year	2022	2023	2024	2025	2026	Total [a]
Investment ($)	$33,811,607	$35,758,741	$27,750,253	$28,659,414	$29,632,179	$155,612,194
Electric Savings (MWh)	267,414	282,984	155,459	160,780	167,305	1,015,634
Peak Demand Reduction (MW)	52	52	36	37	39	N/A
GHG Reductions (mCO2e)	229,318	242,670	133,312	137,875	143,471	870,946

[a] The table totals represent the incremental sum of values that include considerations of attrition from prior installed measures.

[26] Section 3 provides an overview of programs targeting income-qualified customers.

Table 12. Residential Sector Annual Estimated Net Savings and Budget

Year	2022	2023	2024	2025	2026	Total [a]
Investment ($)	$33,811,607	$35,758,741	$27,750,253	$28,659,414	$29,632,179	$155,612,194
Electric Savings (MWh)	205,900	218,980	129,320	134,760	140,760	814,565
Peak Demand Reduction (MW)	39	40	29	30	32	N/A
GHG Reductions (mCO2e)	176,567	187,784	110,897	115,562	120,707	698,522

[a] The table totals represent the incremental sum of values that include considerations of attrition from prior installed measures.

2.2. Sector-Level Profile

To better understand Dominion Energy's residential customers, Cadmus conducted secondary research to identify common traits and distinguishing features and completed a survey of non-income-qualified residential customers, which received over 600 responses.

Non-Income and Age Qualified Definition

Survey respondents reporting household annual income **above 60%** of the state median income.

Serving three large metropolitan areas, Northern Virginia, Washington DC, Richmond, and the Tidewater/Hampton Roads region, along with surrounding smaller cities and towns, Dominion Energy provides electricity to more than 2.5 million homes and businesses in Virginia. According to the 2020 census, Virginia's population has increased by around 630,000 people (7.9%) since 2010 and is currently estimated at 8,631,393. Statewide, Virginia is projected to add over 800,000 new residents every decade, reaching 10.5 million by 2040.[27] Accordingly, Dominion Energy has the highest projected summer peak load growth rate through 2028 (0.8%) in the PJM regional transmission organization (where the PJM peer average is 0.4%).[28]

Compared to Virginians statewide, Dominion Energy's non-income-qualified survey respondents were more likely to be homeowners (88% versus 66%), have fewer household occupants (averaging 2.4 versus 2.6), be in the 55 to 74 age range (51% versus 22%), and to have a bachelor's degree or higher (73% versus 39%). Taken together, these factors reflect a narrower constituency among Dominion Energy customers compared to the Virginia population, skewed toward higher incomes. Figure 6 presents a snapshot of survey respondent characteristics compared to Virginia residents statewide (both non-income-qualified and income-qualified).

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[27] World Population Review. 2021. "Virginia Population 2021." Data from American Community Survey and Census Bureau. https://worldpopulationreview.com/states/virginia-population

[28] Dominion Energy. n.d. "Dominion Energy® Electric Transmission Overview." PowerPoint presentation. https://www.fairfaxcounty.gov/planningcommission/sites/planningcommission/files/assets/documents/pdf/telecommuniactions/dominion%20presentation.pdf

Figure 6. Residential Survey Respondent Demographics

	Dominion Energy Customers		Virginia Statewide
	Non-IAQ	IAQ	
Homeowners	88%	60%	66%
Single-Family Homes	76%	59%	73%
Household Size (average)	2.38	2.74	2.61
Age 55 to 74	51%	45%	22%
Advanced Education (BA or higher)	73%	23%	39%

Key findings from Cadmus' survey, summarized below, reflect non-income-qualified customer characteristics that can inform the marking and outreach strategy outlined in chapter 5 this long-term Plan.

Non-income-qualified residential customers are largely unfamiliar with Dominion Energy programs and are looking for the Company to provide them with information. Most survey respondents (79%) reported being *a little bit familiar* to *not at all familiar* with Dominion Energy's DSM programs and less than half (43%) reported having heard about a program in the past year. When asked how they want to receive information about energy efficiency programs, respondents identified Dominion Energy emails (70%) and energy bills (33%) as their top two choices.

The combination of limited program awareness with the view of Dominion Energy as a trusted source of information suggest that increased program promotion and general portfolio marketing could help increase residential customer awareness.

Limited energy efficiency knowledge is a barrier to engagement; however, customers are interested in DSM programs and are willing to invest a modest amount to improve their home's efficiency. Non-income-qualified residential customers are generally unfamiliar with how to save energy in their homes, with many believing that energy efficiency upgrades are too expensive, not worth the time or financial investment, or that their home is already energy efficient. However, most respondents (84%) are interested in participating in programs that help them reduce energy bills, provide free energy saving devices, reduce energy waste, and help the environment.

Respondents expressed strong interest in rebates on energy-efficient appliances (44%) and discounted LED lighting or fixtures (42%). Over half (51%) said they would be likely to purchase an efficient furnace with a rebate set at 25% of incremental cost. These findings indicate that customers are motivated by

opportunities to save and not deterred by a modest upfront cost if the opportunity provides overall savings. The findings additionally suggest an opportunity for Dominion Energy to reduce participation barriers by making customers more aware of existing programs, educating them about how they can save energy in their homes, and linking energy savings to reduced energy costs.

2.3. Sector-Level Strategies

This section provides detailed descriptions of each residential program including objectives, customer targets and eligibility, qualifying measures and incentives, implementation and marketing strategies, estimated budget and impacts, and results from Cadmus' cost-effectiveness screen.

2.3.1. Residential Energy Services Program

As envisioned within this Plan, through the Residential Energy Services program, Dominion Energy will provide customers with education about energy savings behaviors and opportunities to increase their home's energy efficiency, as well as incentives for energy efficiency services such as home energy assessments, equipment tune-ups, and appliance recycling. Dominion Energy will also offer direct install measures and incentives for energy efficiency upgrades such as insulation, air sealing, and heat pumps when a customer receives a home energy assessment. The Company will offer the Residential Energy Services program to all residential customers, though eligibility criteria may differ by program component.

Home Assessments and Direct Install. Eligible customers will be able to choose between three energy assessment pathways to learn how they can improve their home's energy efficiency. Participants for each pathway will receive a report detailing recommended energy efficiency improvements.

- **Online Assessment.** Customers will complete a self-directed online audit, which entails answering a series of questions about their home. Based on their responses, customers will receive efficiency recommendations and a free, customized energy-efficient kit.
- **Walk-Though Assessment.** Pre-qualified vendors will complete a 30- to 60-minute assessment of a customer's home, either in person or virtually over the phone. Customers will receive free energy saving items such as LED bulbs through in-person direct installation or a customized kit that is mailed to them after completing the virtual assessment. Assessment participants will be eligible to receive incentives for a wide range of efficiency upgrades such as heat pump tune-ups, insulation, duct sealing, and HVAC system replacement.
- **Diagnostic Audit.** Pre-qualified vendors will perform a comprehensive, diagnostic, whole-house energy audit, including diagnostic testing to assess opportunities for home weatherization and energy-efficient equipment upgrades. During the two- to-four-hour audit, the vendor will install free direct install measures and customers will be eligible to receive incentives for a wide range of efficiency upgrades such as heat pump tune-ups, insulation, duct sealing, and HVAC system replacement.

Appliance Recycling. Eligible customers will receive free pick-up services and a rebate when they recycle older refrigerators or freezers.

Customer Engagement. Customers will be provided with information about their home's energy consumption via an electronic or paper Home Energy Report. The Home Energy Report will provide customized suggestions on how to save energy based on a home's characteristics.

2.3.1.1. Objectives

There are several objectives for the Residential Energy Services program:

- Produce long-term energy savings through services that provide education, assessments, and energy savings solutions across housing types and ownership status.
- Encourage customers to view energy efficiency in a holistic manner and pursue deep energy efficiency solutions.
- Establish Dominion Energy as a trusted source of energy efficiency information for customers.
- Promote other energy efficiency programs offered by Dominion Energy.
- Encourage customers to dispose of their existing, inefficient refrigerators and freezers in an environmentally responsible manner.
- Reduce the use of secondary, inefficient refrigerators and freezers.
- Achieve high customer and trade ally satisfaction.

2.3.1.2. Customer Target and Eligibility

The Residential Energy Services program will target all residential customers in Dominion Energy's service territory, while some components and pathways within the program will target specific customer segments.

- The **Online Assessment** will target residential customers who are interested in improving the energy efficiency of their home but may not have access or the decision-making authority to make large upgrade (renters and individual condo owners).
- The **Walk-Through Assessment** will target homeowners with smaller savings potential, such as customers with newer or manufactured homes, who are interested in energy efficiency and may consider upgrading home appliances or equipment.
- The **Diagnostic Audit** will target homeowners with higher-than-average energy bills, who live in neighborhoods with older building stocks or have a desire to maximize the energy efficiency of their home.
- The **Appliance Recycling** component will target residential customers with an operable secondary refrigerator or freezer in their home or who are replacing their primary refrigerator or freezer.
- The **Customer Engagement** component will target residential customers with high energy usage.

Table 13 shows the program eligibility parameters by component.

Table 13. Residential Energy Services Program Customer Eligibility Parameters

	Eligible Customers		
	Home Assessments and Direct Install	**Appliance Recycling**	**Customer Engagement**
Customer Class	Residential customer rate class		
Building Type	Single family or multifamily		
Building Vintage	Existing construction		
Home Ownership	Customer must be owner or provide owner's authorization to participate		Owner or renter
Other	N/A	Unit must be plugged in and operable at the time of pick-up	Customers must be selected by Dominion Energy as part of the treatment group

2.3.1.3. Qualifying Measures and Incentives

All residential customers will be eligible to receive one of several types of home energy assessment at no cost; each participant may receive a range of low-cost efficiency measures with no out-of-pocket cost and have access to incentives for weatherization upgrades, HVAC system and water heater replacements, and equipment services (such as HVAC tune-ups). Participants who recycle a secondary refrigerator or freezer will receive a $20 rebate and free pick-up and disposal of their appliance. A detailed list of program measures, measure qualifications, and customer incentives is provided in *Appendix A*. Dominion Energy will provide Home Energy Reports at no cost to customers on an opt-out basis.

The Residential Energy Services program will consist of the following measure categories.

Home Assessments and Direct Install	Appliance Recycling	Customer Engagement
• Diagnostic audit with blower door test • Direct install LEDs, water conservation measures, and advanced power strips • Weatherization improvements (such as air sealing and insulation), HVAC tune-ups, and heat pump and water heater upgrades	• Refrigerator recycling on units over 10 years • Freezer recycling on units 10 years or older	• Electronic report • Paper report

2.3.1.4. Implementation Strategy

The residential Energy Services program bundles existing Dominion Energy programs that have been analyzed to verify their cost-effectiveness and approved by the SCC.[29] Dominion Energy will use an implementation vendor to deliver each program component. For each component, the Company will

[29] Appendix B provides a summary of existing programs comprised in the long-term Plan's proposed comprehensive programs.