

COMMONWEALTH OF VIRGINIA
STATE CORPORATION COMMISSION
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PETITION OF

VIRGINIA ELECTRIC AND POWER COMPANY

CASE NO. PUR-2021-00127

For approval of a plan for electric distribution grid transformation projects pursuant to § 56-585.1 A 6 of the Code of Virginia

FINAL ORDER

On June 21, 2021, Virginia Electric and Power Company ("Dominion" or "Company") filed a petition with the State Corporation Commission ("Commission") for approval of a plan for electric distribution grid transformation projects ("Petition") pursuant to § 56-585.1 A 6 ("Subsection A 6") of the Code of Virginia ("Code") and the Commission's Rules Governing Utility Rate Applications and Annual Informational Filings of Investor-Owned Electric Utilities, 20 VAC 5-204-5 *et seq.* Specifically, Dominion seeks approval of Phase II of its ten-year plan to transform its electric distribution grid ("GT Plan" or "Plan"), which consists of proposed projects ("GT Projects") the Company seeks to deploy in 2022 and 2023 ("Phase II"). Pursuant to Subsection A 6, the Commission is required to issue its final order on the Petition within six months of the Company completing the filing of its Petition.¹

The Company asserts that "Phase II projects, in tandem with a continued focus on grid reliability, will be vital to effectively accommodating the expected penetration of DERs [Distributed Energy Resources] in the near term resulting from recent policy developments,

¹ The Commission's Staff ("Staff") filed an Amended Memorandum of Completeness/Incompleteness stating the Company filed additional information on July 7, 2021, and that subsequent to such filing, the Petition was incomplete only with respect to the Company's requested waivers. The Commission granted the Company's requested waivers in its July 14, 2021 Order for Notice and Hearing in this case.

including the VCEA [Virginia Clean Economy Act]² and FERC Order 2222.³ In addition to DER penetration, the Company asserts that grid modernization prepares the grid for customers' evolving expectations of electric reliability and resiliency as well as the stress imposed on the existing grid by adoption of new technologies, among other things.⁴

On July 14, 2021, the Commission issued an Order for Notice and Hearing that, among other things: established a procedural schedule for this case; set an evidentiary hearing date; directed Dominion to provide public notice of its Petition; and provided interested persons an opportunity to file comments on the Petition or to participate in the case as a respondent. Notices of participation were filed by: Appalachian Voices ("Environmental Respondent"); Walmart Inc. ("Walmart"); the Smart Thermostat Coalition ("STC"); and the Virginia Office of the Attorney General's Division of Consumer Counsel ("Consumer Counsel"). The Company, Environmental Respondent, Walmart, STC, and Staff pre-filed testimony in this matter.⁵

On October 8, 2021, the Commission convened a hearing on the Company's Petition and received public witness testimony as scheduled.⁶ The evidentiary portion of the hearing was held on October 12-13, 2021.⁷ The Commission received testimony and exhibits from Dominion, Environmental Respondent, STC, Walmart, and Staff. Post-hearing briefs were filed

² 2020 Va. Acts chs. 1193, 1194.

³ Dominion's Post-hearing Brief at 5. *See also Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 172 FERC 61,247 (2020).

⁴ Dominion's Post-hearing Brief at 12.

⁵ The Commission received written comments in this docket from multiple individuals and entities.

⁶ The Commission received the oral testimony of two public witnesses. Tr. 8-22.

⁷ Staff and all parties participated at the hearing.

by Dominion, Environmental Respondent, STC, Walmart, Consumer Counsel, and Staff on November 16, 2021.

NOW THE COMMISSION, having considered this matter, is of the opinion and finds as follows.

Legal Provisions

The Commission has analyzed the Petition in accordance with the statutory standards applicable to this matter.⁸

As amended by the Grid Transformation and Security Act ("GTSA"),⁹ Code § 56-576 defines an "electric distribution grid transformation project" to mean:

a project associated with electric distribution infrastructure, including related data analytics equipment, that is designed to accommodate or facilitate the integration of utility-owned or customer-owned renewable electric generation resources with the utility's electric distribution grid or to otherwise enhance electric distribution grid reliability, electric distribution grid security, customer service, or energy efficiency and conservation, including advanced metering infrastructure; intelligent grid devices for real time system and asset information; automated control systems for electric distribution circuits and substations; communications networks for service meters; intelligent grid devices and other distribution equipment; distribution system hardening projects for circuits, other than the conversion of overhead tap lines to underground service, and substations designed to reduce service outages or service restoration times; physical security measures at key distribution substations; cyber security measures; energy storage systems and microgrids that support circuit-level grid stability, power quality, reliability, or resiliency or provide temporary backup energy supply; electrical facilities and infrastructure necessary to support electric vehicle charging systems; LED street light conversions; and new customer

⁸ The Commission has also considered all of the evidence and arguments in the record of this proceeding. See *Board of Supervisors of Loudoun County v. State Corp. Comm'n*, 292 Va. 444, 454 n.10 (2016) ("We note that even in the absence of this representation by the Commission, pursuant to our governing standard of review, the Commission's decision comes to us with a presumption that it considered all of the evidence of record.") (citation omitted).

⁹ 2018 Va. Acts ch. 296.

information platforms designed to provide improved customer access, greater service options, and expanded access to energy usage information.

As amended by the GTSA, Subsection A 6 directs that:

A utility shall, without regard for whether it has petitioned for any rate adjustment clause pursuant to clause (vi), petition the Commission, not more than once annually, for approval of a plan for electric distribution grid transformation projects. Any plan for electric distribution grid transformation projects shall include both measures to facilitate integration of distributed energy resources and measures to enhance physical electric distribution grid reliability and security. In ruling upon such a petition, the Commission shall consider whether the utility's plan for such projects, and the projected costs associated therewith, are reasonable and prudent. Such petition shall be considered on a stand-alone basis without regard to the other costs, revenues, investments, or earnings of the utility; without regard to whether the costs associated with such projects will be recovered through a rate adjustment clause under this subdivision or through the utility's rates for generation and distribution services; and without regard to whether such costs will be the subject of a customer credit offset, as applicable, pursuant to subdivision 8 d. The Commission's final order regarding any such petition for approval of an electric distribution grid transformation plan shall be entered by the Commission not more than six months after the date of filing such petition.

Subsection A 6 further declares that: "[e]lectric distribution grid transformation projects are in the public interest."

Code § 56-585.1 D provides:

The Commission may determine, during any proceeding authorized or required by this section, the reasonableness or prudence of any cost incurred or projected to be incurred, by a utility in connection with the subject of the proceeding. A determination of the Commission regarding the reasonableness or prudence of any such cost shall be consistent with the Commission's authority to determine the reasonableness or prudence of costs in proceedings pursuant to the provisions of Chapter 10 (§ 56-232 et seq.).

The Commission also recognizes related legal and policy developments that envision increased interconnection of DERs on the distribution grid, including the passage of the VCEA and the issuance of FERC Order 2222. For example, the VCEA, among other things, expands net energy metering¹⁰ and requires Dominion to "meet one percent of the [renewable energy portfolio standard] Program requirements in any given compliance year with . . . resources of one megawatt or less located in the Commonwealth . . ."¹¹ Additionally, as described by Dominion, FERC Order 2222:

requires each regional transmission operator to create models for DERs to aggregate and participate in their wholesale markets on a comparable level with other resources [and] defines DER broadly to include "any resource located on the distribution system," which can include "storage resources, distributed generation, demand response, energy efficiency, thermal storage, and electric vehicles and their supply equipment."¹²

This proceeding is the third GT Plan petition filed by Dominion pursuant to Subsection A 6. It is also the first GT Plan petition filed since passage of the VCEA. The Company first proposed its GT Plan in Case No. PUR-2018-00100,¹³ which the Company calls "Phase IA." The Company proposed additional GT Plan investments in Case No. PUR-2019-00154,¹⁴ which

¹⁰ Code § 56-594 E.

¹¹ Code § 56-585.5 C.

¹² Ex. 2 (Petition) at Exhibit 1, GT Plan Document at 6.

¹³ *Petition of Virginia Electric and Power Company, For approval of a plan for electric distribution grid transformation projects pursuant to § 56-585.1 A 6 of the Code of Virginia*, Case No. PUR-2018-00100, 2019 S.C.C. Ann. Rept. 234, Final Order (Jan. 17, 2019) ("2018 GT Plan Final Order").

¹⁴ *Petition of Virginia Electric and Power Company, For approval of a plan for electric distribution grid transformation projects pursuant to § 56-585.1 A 6 of the Code of Virginia, and for approval of an addition to the terms and conditions applicable to electric service*, Case No. PUR-2019-00154, 2020 S.C.C. Ann. Rept. 318, Final Order (Mar. 26, 2020) ("2019 GT Plan Final Order").

the Company calls "Phase IB."¹⁵ Dominion projects that Phase II, as proposed in this proceeding, would require capital spending of \$666.5 million¹⁶ and a lifetime revenue requirement of approximately \$1.8 billion, including financing costs.¹⁷

For purposes of this Order, the Commission has grouped the Company's proposed Phase II projects into several categories of related elements. These categories and the costs of each for Phase II are as follows: (i) advanced metering infrastructure ("AMI"): \$198.3 million; (ii) the customer information platform ("CIP"): \$203.9 million; (iii) grid infrastructure, which comprises targeted corridor improvement: \$16.3 million, and voltage island mitigation: \$11.4 million; (iv) Grid Technologies, which includes: intelligent grid devices ("IGD"): \$29.12 million, fault location, isolation, and service restoration ("FLISR"): \$10.9 million, a distributed energy resource management system ("DERMS"): \$5.2 million, the enterprise asset management system ("EAMS"): \$20 million, voltage optimization enablement: \$97.1 million, and substation technology deployment: \$32.1 million; (v) telecommunications: \$102 million;

¹⁵ The Company has a pending proceeding before the Commission to recover costs associated with its GT Plan wherein the Company seeks approval of a rate adjustment clause ("RAC"), Rider GT, to recover costs related to GT Projects approved in Phase 1A and Phase 1B. *See Petition of Virginia Electric and Power Company, For approval of a rate adjustment clause, designated Rider GT, under § 56-585.1 A 6 of the Code of Virginia*, Case No. PUR 2021-00083, Doc. Con. Cen. No. 210820230, Petition of Virginia Electric and Power Company and Request for Limited Waivers (Aug. 13, 2021).

¹⁶ Ex. 34 (Woomer Rebuttal), Rebuttal Schedule 1. Phase II GT Plan spending, including both capital and operations and maintenance ("O&M") expenses, is projected to be \$776.12 million. *Id.* See also Ex. 33 (Staff-PE-1), Rebuttal Table 2.

¹⁷ Ex. 13 (Lee Direct), Schedule 1 at 1. Staff calculated the estimated lifetime revenue requirement, which includes O&M expenses, depreciation expense, financing costs, and property taxes as \$1.35 billion. Ex. 33 (Staff-PE-1), Rebuttal Table 1. Staff's calculation updated the Company's estimated lifetime revenue requirement based on the Company's inadvertent inclusion of amounts not attributable to its Phase II proposals for AMI, CIP, and cyber security. Staff excluded such amounts in its calculation, and also corrected a minor difference in the Company's calculation of the physical security project lifetime revenue requirement. Ex. 32 (Clayton Direct) at n.1. The estimated lifetime revenue requirement was further updated based on the Company's presentation of updated amounts for CIP and the cyber security project in rebuttal testimony.

(vi) cyber security: \$9.3 million; (vii) physical security: \$37.5 million; and (viii) customer education: \$3 million.¹⁸

The Commission notes that several of the Company's proposals in this proceeding are incremental continuations of projects the Commission previously approved in Phase IA¹⁹ and Phase IB.²⁰ Other proposals are for projects for which the Commission previously denied approvals, without prejudice, in Phase IA and Phase IB.

The case participants' positions on the Company's Phase II proposals differ. Staff supports the Commission's approval of the Company's proposals for the CIP, the grid infrastructure components, physical security, cyber security, telecommunications, and customer education.²¹ Staff also supports approval of the Grid Technologies components of voltage optimization enablement, EAMS, IGD and FLISR, but takes no position on the Company's substation technology deployment proposal.²² Staff does not oppose the Company's AMI proposal.²³ Staff opposes approval of the Grid Technologies component of DERMS.²⁴

¹⁸ Ex. 33 (Staff-PE-1), Rebuttal Table 2.

¹⁹ In the 2018 GT Plan Final Order, the Commission approved the costs of elements for cyber and physical security, and for some telecommunications elements. The Commission did not approve the costs associated with AMI and related elements; IGD, operations and automated control systems, and emerging technology; and grid hardening.

²⁰ In the 2019 GT Plan Final Order, the Commission approved the costs of cyber security, stakeholder engagement and customer education, the CIP, pilot programs and hosting capacity analysis, and certain components of grid hardening, subject to certain requirements. The Commission did not approve the costs associated with AMI, the self-healing grid and related investments, and certain other components of grid hardening.

²¹ Staff's Post-hearing Brief, Attachment A (Revised).

²² *Id.*

²³ Staff does not oppose approval of the AMI proposal if the Commission determines that its previous concerns as expressed in the 2018 and 2019 GT Plan Final Orders have been addressed by the Company in Phase II. *See* Ex. 26 (Cizenski Direct) at 12.

²⁴ Staff's Post-hearing Brief, Attachment A (Revised).

Consumer Counsel takes no position on the Company's proposals for AMI, telecommunications, and the grid infrastructure components.²⁵ Consumer Counsel opposes approval of all of the Company's proposed Grid Technologies components, but is not opposed to the CIP, physical security, cyber security, and customer education proposals.²⁶ Walmart does not oppose any Phase II proposal.²⁷ STC did not assert a position to approve or disapprove any Phase II proposal.²⁸ Environmental Respondent argues that the Commission should deny the Company's Phase II proposal in its entirety.²⁹

After consideration of the entire record and the applicable law, as set forth in more detail below, we find that the Phase II GT Projects and associated costs approved herein are reasonable and prudent, subject to certain requirements, including cost caps, as discussed further herein. We also direct the Company to take specific actions regarding the implementation of approved Phase II GT Projects as well as the filing of its next GT Plan petition, as discussed herein.

In making its findings and determinations, the Commission has followed all applicable statutory provisions. In considering the Company's cost-benefit analysis results, we find, as in the 2019 GT Plan Final Order, that the Company's cost-benefit analysis is relevant and should be

²⁵ Consumer Counsel's Post-hearing Brief, Issues Matrix.

²⁶ *Id.*

²⁷ Walmart requests that the Commission order Dominion to take certain steps related to the implementation of Green Button Connect My Data ("CMD") functionality, which Walmart argues will enable commercial and industrial customers to fully access the benefits of the interval usage data provided by AMI and the CIP. In the alternative, Walmart requests that the Commission initiate a proceeding in advance of the Company's next GT Plan filing to address any potential questions regarding implementation of CMD functionality. Walmart's Post-hearing Brief at 4-5.

²⁸ STC did express concerns related to, among other things, the Company's failure to include smart thermostats in its AMI proposal. *See* STC's Post-hearing Brief.

²⁹ Environmental Respondent asserts that, if the Commission does not deny the Company's Phase II proposal outright, the Commission should condition AMI approval on the Company's implementation of a universal peak time rebate and CMD functionality. Environmental Respondent's Post-hearing Brief at 28-29.

weighed along with other relevant evidence in the record. We have evaluated the Company's proposed spending on a project-by-project basis in consideration of all evidence in the record to determine whether such proposals are reasonable and prudent, recognizing that the General Assembly has declared GT Projects to be in the public interest.

We continue to decline to establish a specific cost-benefit test for approval of any proposed project.³⁰ The Company should, however, continue to perform a robust cost-benefit analysis with various sensitivities going forward. The Company should also include a more thorough projection of DER penetrations, and anticipated reliability impacts, within the Company's service territory going forward.

Advanced Metering Infrastructure

The Commission approves the Company's proposal to continue deployment of AMI by deploying approximately 1.1 million smart meters and associated infrastructure during Phase II.³¹ Our decision is impacted by the following factors, among others:

- In contrast to prior GT Plan filings, Dominion has implemented, as of January 2021, an experimental time-of-use rate, Schedule 1G.³² In approving Schedule 1G, the

³⁰ Several case participants took issue with the Company's use of the U.S. Department of Energy's Interruption Cost Estimate ("ICE") calculator in conducting its cost-benefit analysis. Ex. 30 (Volkman Direct) at 15-17; Ex. 20 (Alvarez Direct) at 13-16. While we make no finding herein restricting the use of the ICE calculator, we direct the Company to research available alternatives to its use and provide a cost-benefit analysis using at least one additional alternative methodology, if available, in the Company's next GT Plan filing. If no such alternative is available, the next GT Plan filing should describe the Company's research efforts and discuss why other options are not comparable to the ICE calculator. Further, the Company shall modify its use of the ICE calculator by developing an improved methodology for quantifying the reliability benefits from GT Plan components that impact only a subset of customers, which the Company has agreed to do. Tr. 313. See Ex. 42 (Trump Rebuttal) at 12-13.

³¹ We note the Company's commitment that costs associated with Phase II AMI deployment will not be subject to a RAC petition. Ex. 13 (Lee Direct) at 3.

³² Ex. 26 (Cizenski) at 21; *Application of Virginia Electric and Power Company, For approval to establish an experimental residential rate schedule, designated Time-Of-Use Rate Schedule 1G (Experimental)*, Case No. PUR-2019-00214, 2020 S.C.C. Ann. Rept. 388, Final Order Approving Experiment (May 20, 2020).

Commission found that its implementation is "an initial step toward the potential development of a systemwide rate design for [Time of Use, "TOU"] rates."³³

- As part of this Petition, Dominion has provided a timeline for system-wide implementation of time-varying rates and a timeframe in which it will request Commission approval of an opt-in system-wide peak time rebate program.³⁴
- Automated Meter Reading ("AMR") meters have considerable functional limitations compared to AMI meters, which enable advanced time-varying rates, enhance demand-side management ("DSM") programs, and enhance grid operations by functioning as end-of-line sensors. These sensors generate premise-level data that is increasingly important given the expansion of DERs behind customer meters (such as electric vehicles and self-generation facilities).³⁵
- AMR meters have limited vendor support due to their obsolescence.³⁶
- Dominion competitively bid for each major AMI component, including smart meter suppliers.³⁷
- Dominion's meter cost per customer compares favorably to other industry experience.³⁸

As part of the Commission's AMI approval, we direct the Company to describe in its next GT Plan filing how it is optimizing AMI deployment in coordination with its DSM programs and TOU rates. With regard to the Environmental Respondent's request that the Commission require the Company to develop and incorporate a universal peak time rebate with its AMI rollout,³⁹ we

³³ *Application of Virginia Electric and Power Company, For approval to establish an experimental residential rate schedule, designated Time-Of-Use Rate Schedule IG (Experimental)*, Case No. PUR-2019-00214, 2020 S.C.C. Ann. Rept. 388, Final Order Approving Experiment (May 20, 2020).

³⁴ Ex. 2 (Petition) at Exhibit 1, GT Plan Document, Appendix D at 5; Ex. 26 (Cizenski Direct) at 21.

³⁵ Ex. 4 (Johnson Direct) at 16.

³⁶ *Id.* at 8.

³⁷ *Id.* at 13-14; Filing Schedule 46 B, Statement 1.

³⁸ Ex. 4 (Johnson Direct) at 14-15.

³⁹ Environmental Respondent's Post-hearing Brief at 28.

decline to make such a requirement at this time.⁴⁰ The peak time rebate program, like other options including smart thermostat programs, can be explored as part of the Company's ongoing DSM-focused stakeholder process.⁴¹

Customer Information Platform

We approve Dominion's proposed Phase II CIP proposal as a continuation of our previous approval in Phase IB of the GT Plan. The Company represents that the CIP will modernize the customer relationship, provide customers with better information, and enable programs such as time-varying rates.⁴² The Company has confirmed, and we require that, the CIP will include "the ability to retrieve and download energy usage interval data for multiple accounts in one file as recommended by Walmart, including in Green Button Download My Data ("DMD") format."⁴³

Walmart asserted that Dominion should be required to make the CIP compatible with Green Button CMD functionality to allow Walmart and other customers to authorize a third-party vendor to obtain customers' interval data directly from Dominion in lieu of the customer having to transfer such data from Dominion to its vendor.⁴⁴ Dominion raised data access concerns with CMD implementation and cited a March 30, 2020 report from a

⁴⁰ We also note the Company has represented that it plans to propose a system-wide opt-in peak time rebate program as part of its DSM update filing in December 2022. *See* Ex. 2 (Petition) at Exhibit 1, GT Plan Document, Appendix D at 5.

⁴¹ The Commission recognizes that ideas brought to the stakeholder group are for discussion. Whether or not such ideas are selected for proposal as part of a future GT Plan petition, or ultimately approved by the Commission, depends on a variety of factors, including the ability to turn that idea into a project that passes a cost-benefit analysis.

⁴² Ex. 7 (Jennings Direct) at 8-9.

⁴³ Dominion's Post-hearing Brief at 21.

⁴⁴ Walmart's Post-hearing Brief at 1. CMD provides different functionality than DMD. *See, e.g.*, Ex. 15 (Teague Direct) at 7-8.

stakeholder process on energy-related data access and privacy, which stated that the stakeholder group did not reach consensus on DMD or CMD and specifically noted multiple issues with CMD.⁴⁵ With these concerns in mind, we will require the Company to provide, in its next GT Plan filing, information on implementing CMD functionality including, but not limited to: (i) the overall cost of adding and supporting CMD functionality; (ii) how such costs should be borne by customers; (iii) how many customers Dominion would expect to use the CMD option if it were available; and (iv) how any data access issues will be addressed.⁴⁶ Dominion shall provide the foregoing information in its next GT Plan filing whether or not the Company proposes to implement CMD. Further, though the Commission will not at this time require Dominion to ensure that the CIP is CMD compatible, the Commission prohibits the Company from intentionally constructing the CIP in a manner that would create an impossibility for the Company to later add CMD functionality.

Cyber Security

For Phase II, the Company proposes to deploy cyber security necessary to protect the information technology and operational technology proposed for other Phase II projects.⁴⁷ As represented by the Company, such cyber security investments are needed to enhance the security of the grid to prevent and mitigate damage caused by cyber-attacks.⁴⁸ In consideration of the

⁴⁵ Dominion's Post-hearing Brief at 22-23; Ex. 15 (Teague Direct), Attachment ADT-2, at 39-40. The stakeholder group and report were required by 2019 Va. Acts ch. 2332.

⁴⁶ Ex. 15 (Teague Direct), Attachment ADT-2, at 39-40.

⁴⁷ Ex. 9 (Bransky Direct) at 11.

⁴⁸ *Id.* Staff supports this proposal. *See* Ex. 26 (Cizenski Direct) at 13.

record in this proceeding and our determinations in the 2018 and 2019 GT Plan Final Orders,⁴⁹ the Commission approves the Company's Phase II cyber security proposal as needed to support the Phase II GT Projects that the Commission approves herein.

Telecommunications

Dominion proposes to build upon the progress made with its Phase I telecommunications-related approvals by continuing to deploy the Tier 2 network, extending high-speed connectivity and multi-protocol switching technology.⁵⁰ We approve the telecommunications component of Phase II.⁵¹

Customer Education

For Phase II, the Company plans to continue investments in customer education, including stakeholder engagement, as necessary to support other projects.⁵² Staff found that the customer education proposal, if properly implemented, would provide valuable opportunities to improve customer awareness of new programs and obtain customer input on such programs.⁵³ We agree. As noted by the Company, customer education will ensure that the full benefits of other GT Projects are realized by educating customers on the opportunities that such projects

⁴⁹ See 2018 GT Plan Final Order, 2019 S.C.C. Ann. Rept. at 236; 2019 GT Plan Final Order, 2020 S.C.C. Ann. Rept. at 321.

⁵⁰ Ex. 8 (Carroll Direct) at 4.

⁵¹ This proposal continues the upgrade of the Company network while allowing the Company to prioritize customer needs without reliance on third parties when issues arise.

⁵² Dominion's Post-hearing Brief at 47. See also Ex. 2 (Petition) at Exhibit 1, GT Plan Document, Appendix C at 1; Ex. 6 (Frost Direct) at 11.

⁵³ Ex. 26 (Cizenski Direct) at 14.

provide.⁵⁴ The Commission approves customer education costs to the extent they are necessary to support the Phase II GT Projects approved herein.⁵⁵

Physical Security

For Phase II, the Company proposes to continue its previously-approved program by hardening an additional twelve critical distribution substations.⁵⁶ In the 2018 GT Plan Final Order, we approved the Company's Phase IA physical security proposal, noting that "the Commission generally supports reasonable utility spending to support enhanced utility security."⁵⁷ Staff found that the Company's Phase II physical security proposal should serve, among other things, to help mitigate adverse events and improve reliability.⁵⁸ We agree and approve the costs of the proposed Phase II physical security component.

Grid Infrastructure

The Company's proposed grid infrastructure component of Phase II consists of two projects: targeted corridor improvement and voltage island mitigation.⁵⁹ The Phase II targeted corridor improvement project, which would target ash tree mortality and ground floor maintenance, would continue the work approved by the Commission in Phase I,⁶⁰ and the Company states that its approval should continue to improve reliability and improve access to

⁵⁴ Ex. 6 (Frost Direct) at 11. The Company gives the examples of time-varying rates and access to interval data as specific opportunities for customers.

⁵⁵ *Id.*

⁵⁶ The Company proposes to strengthen the substation perimeter, secure access points to and within the substations, and improve capabilities to monitor and detect threats. Ex. 9 (Bransky Direct) at 7.

⁵⁷ 2018 GT Plan Final Order, 2019 S.C.C. Ann. Rept. at 236.

⁵⁸ Ex. 26 (Cizenski Direct) at 18.

⁵⁹ Ex. 5 (Wright Direct) at 8; Ex. 2 (Petition) at Exhibit 1, GT Plan Document at 22.

⁶⁰ Ex. 5 (Wright Direct) at 12-13.

right-of-way.⁶¹ The voltage island mitigation project in Phase II would address four voltage islands.⁶²

The proposed projects are limited in scope, enhance reliability, are consistent with previously approved programs, and the costs are based on existing contracts.⁶³ We approve these projects for Phase II. We further direct the Company to track and report the measurable benefits of the voltage island mitigation projects.⁶⁴

Grid Technologies

For Phase II, the Company has proposed multiple projects that it labels as "Grid Technologies" projects. The Grid Technologies projects are: IGD, FLISR, EAMS, voltage optimization enablement, substation technology deployment, and DERMS.⁶⁵

According to the Company, IGD will provide the data necessary to understand and manage grid voltages and power flows along distribution feeders and will improve the hosting capacity analysis approved in Phase I of the GT Plan.⁶⁶ FLISR is a control system to automatically isolate outages and reroute power to restore service quickly.⁶⁷ The Company proposes to deploy IGD on 32 feeder segments, focusing on areas where customers have poor service reliability and will receive an immediate benefit from the pairing of IGD with FLISR,

⁶¹ *Id.* at 13-14.

⁶² *Id.* at 17-18. In Phase I, the Commission approved mitigation of two voltage islands. *Id.* at 16; Dominion's Post-hearing Brief at 24; Staff's Post-hearing Brief at 15.

⁶³ Ex. 26 (Cizenski Direct) at 25.

⁶⁴ Ex. 5 (Wright Direct) at 19.

⁶⁵ Ex. 2 (Petition) at Exhibit 1, GT Plan Document at 22-26.

⁶⁶ Ex. 5 (Wright Direct) at 21.

⁶⁷ *Id.* at 25.

thereby reducing outage-related O&M expense.⁶⁸ Staff supports these projects though Staff recommends that, if the Commission approves these two components, the Company be required to track and report the planned and actual costs and reliability improvements for the feeder segments on which these components are deployed.⁶⁹

Dominion explains that EAMS is a system that aggregates operational, inspection, and maintenance data for various distribution assets and will provide the Company with the capability to manage many aspects of equipment at all points in the equipment's life cycle.⁷⁰ Like the IGD and FLISR proposals, the Company asserts that Phase II EAMS deployment should enhance reliability, as well as safety, as DER growth accelerates.⁷¹

Dominion's voltage optimization enablement proposal includes initial improvements to allow the Company to lower voltage levels within prescribed limits on feeders where AMI has been deployed.⁷² The Company claims the full voltage optimization program would result in lower energy consumption for most customers without a noticeable difference in service level.⁷³

⁶⁸ *Id.* at 24-27.

⁶⁹ Staff's Post-hearing Brief at 20; Ex. 30 (Volkman Direct) at 27.

⁷⁰ Ex. 5 (Wright Direct) at 30.

⁷¹ *Id.*

⁷² *Id.* at 35.

⁷³ Dominion's Post-hearing Brief at 4; Ex. 5 (Wright Direct) at 35. Dominion seeks approval of costs for infrastructure work as part of this filing and to include cost recovery related to software, implementation, and evaluation, measurement, and verification in its 2021 DSM filing. Ex. 44 (Wright Rebuttal) at 4. On December 14, 2021, Dominion made its DSM filing ("2021 DSM Update"), wherein it has proposed a Voltage Optimization Energy Efficiency Program. *See Application of Virginia Electric and Power Company, For approval of its 2021 DSM Update pursuant to § 56-585.1 A 5 of the Code of Virginia*, Case No. PUR-2021-00247, Doc. Con. No. 211220149, Application (Dec. 14, 2021). This Order addresses the Company's voltage optimization enablement proposal only.

The Company proposes a substation technology deployment project composed of two components. First, Dominion proposes the targeted modernization of specific distribution substations and deployment of power quality monitoring equipment at other critical locations.⁷⁴ Specifically, Dominion proposes to upgrade equipment and install technologies to protect, monitor, and control the distribution grid at select locations that serve customers in urban areas with higher trends of DER and electric vehicle adoption.⁷⁵ According to the Company, these substations operate at low voltage⁷⁶ and have no existing operational visibility or control capability.⁷⁷ The proposed project also includes the installation of power quality monitoring equipment at 200 locations, which the Company asserts will improve its grid performance and provide necessary situational awareness for daily grid operations and DER integration.⁷⁸ Second, Dominion requests approval to pilot new substation technologies at five specific locations to gain experience and collect data on these technologies.⁷⁹ Staff verified that the feeders associated with the targeted substations have a voltage level indicating a typically lower hosting capacity to support DERs than higher voltage feeders.⁸⁰

Dominion also proposes DERMS, which the Company explains is centralized software to manage DERs and associated programs by collecting data from various sources to monitor

⁷⁴ Ex. 44 (Wright Rebuttal) at 8.

⁷⁵ *Id.* at 8-9; Ex. 5 (Wright Direct) at Schedule 6. *See also* Dominion's Post-hearing Brief at 40. Dominion claims there is an urgent need for this component given the increasing importance of the interaction effects between transmission and distribution systems. *Id.*

⁷⁶ All nine substations are at 13.2 kV voltage level and below. Tr. 311-312, 508.

⁷⁷ Ex. 44 (Wright Rebuttal) at 10.

⁷⁸ *Id.* at 9.

⁷⁹ *Id.*

⁸⁰ Staff's Post-hearing Brief at 22-23; Tr. 311-312.

DERs, analyzing that data, and then recommending or issuing commands to DERs to maintain operation of the grid.⁸¹ The Company asserts that DERMS is needed to manage the increasing levels of DERs on the Company's system in a manner that maintains a safe and reliable grid, as well as to prepare to support wholesale market participation for DER aggregations as mandated by FERC Order 2222.⁸² Dominion also represents that DERMS is scalable, permitting the Company to deploy DERMS now for a relatively low initial capital cost of approximately \$5.2 million and then scale it as DER penetration increases.⁸³ Staff opposes approval of DERMS. Staff determined the current DER penetration to be relatively low compared to that of other utilities across the country and also highlighted uncertainty surrounding PJM's⁸⁴ FERC Order 2222 compliance filing.⁸⁵ Staff argued that the majority of the Company's distribution system is able to safely and reliably accommodate higher DER penetrations and found the implementation of a DERMS in Phase II to be premature.⁸⁶

In response to these concerns, the Company offered an alternative proposal for DERMS implementation. The Company suggested that the Commission's approval of the DERMS proposal could be conditioned on the Company filing a report once PJM files its FERC Order 2222 compliance filing to confirm whether the Company's proposed DERMS project would

⁸¹ Ex. 4 (Johnson Direct) at 31, 33, 37; Tr. 34.

⁸² Ex. 4 (Johnson Direct) at 37.

⁸³ *Id.* at Schedule 8; Dominion's Post-hearing Brief at 31.

⁸⁴ PJM Interconnection, L.L.C., regional transmission organization.

⁸⁵ Ex. 30 (Volkman Direct) at 7-10, 36. Consumer Counsel and Environmental Respondent expressed similar concerns. *See* Consumer Counsel's Post-hearing Brief at 5-9; Environmental Respondent's Post-hearing Brief at 6-9.

⁸⁶ Ex. 30 (Volkman Direct) at 36.

satisfy PJM's requirements.⁸⁷ The Company represents that it will postpone implementing DERMS until such time as the report is filed.⁸⁸

With respect to the proposed Grid Technologies projects, we first approve IGD and FLISR deployment, EAMS, voltage optimization enablement, and substation technology deployment. As to IGD and FLISR, we approve the projects as targeted to 32 mainfeeders. We note that, unlike the Company's Phase IB proposal, the IGD and FLISR proposals in this Petition are limited, targeted at feeder segments with below-average reliability.⁸⁹ Our approval of the pilot-like IGD and FLISR proposals should, as Staff Witness Volkmann asserts, "provide[] an opportunity for Dominion to demonstrate the realization of the expected reliability improvements."⁹⁰ As part of our approval herein, we require the Company to track and report the planned and actual costs and reliability improvements for the feeder segments on which the technologies are deployed.

Regarding voltage optimization enablement, the Environmental Respondent noted correctly that substantive parts of this program are being proposed as part of the Company's pending 2021 DSM Update.⁹¹ As such, the Commission's approval in this case is contingent upon the Commission's approval of the Voltage Optimization Energy Efficiency Program Dominion has proposed in its 2021 DSM Update.

⁸⁷ Ex. 36 (DEV-PE-16).

⁸⁸ *Id.* Dominion's Post-hearing Brief at 32-33.

⁸⁹ Ex. 30 (Volkmann Direct) at 12, 26.

⁹⁰ *Id.* at 27.

⁹¹ Tr. 59 ("Dominion requests \$442 million to enable voltage optimization. That is across the ten-year plan that they have put in to the record That's [sic] \$442 million won't optimize the voltage. That will just enable the capability. The company says it will file the next step in its DSM filing, which, of course, will come with additional costs that haven't been quantified yet."). *See also* Dominion's Post-hearing Brief at 38; Dominion's 2021 DSM Update filed in Case No. PUR-2021-00247, *supra* n.73.

As to DERMS, we recognize that a premature implementation of DERMS, without any assurance of compliance with FERC Order 2222 related requirements, could result in unnecessary investment by the Company and unnecessary costs to consumers. We also note, however, that Dominion, who bears the risk for grid reliability, asserts that DERMS is needed now to maintain a reliable grid with increasing DER penetrations (including distributed generation, energy storage, electric vehicles, and demand response assets), that DERMS will take approximately 18-24 months to implement, and that DERMS is scalable, with a starting capital cost of \$5.2 million.⁹² To balance these competing concerns, we condition approval upon notification that the Company's proposed DERMS meets the FERC Order 2222 requirements.⁹³ Dominion must file two reports in this docket, one report when PJM makes its FERC Order 2222 compliance filing, and a second report promptly after FERC has ruled upon PJM's compliance filing. Such reports must confirm that, to the best of the Company's knowledge, the Company's proposed DERMS meets the requirements of FERC Order 2222. The Company shall also report on the various uses of DERMS, including visibility of DERs across its system and the Company's ability to leverage DER smart inverter functionalities to provide grid support.⁹⁴

Cost Caps

The Commission approves Dominion's spending on the Phase II components of the GT Plan noted herein up to the amount of capital and O&M costs proposed for each component by

⁹² Ex. 4 (Johnson Direct) at 42, 43; Tr. 425-426.

⁹³ Any funds Dominion spends on DERMS, including the initial capital outlay of \$5.2 million, are at the Company's own risk and subject to disallowance for recovery from ratepayers should DERMS fail to meet FERC Order 2222 requirements.

⁹⁴ The Company shall include the information on the various uses of DERMS, including visibility of DERs across the Company's system and the Company's ability to leverage DER smart inverter functionalities to provide grid support, in the Company's annual GT Plan reports to be filed on or before March 31 of each year, as discussed in the "Reporting Requirements" section of this Order.

the Company in its Petition, as updated on rebuttal.⁹⁵ We do not find it reasonable and prudent for the Company to incur costs above these amounts. To the extent Dominion incurs costs exceeding these limits, the Company must prove such costs to be reasonable and prudent in a future proceeding before the Company will be permitted to recover such costs from ratepayers.⁹⁶ The imposition of cost caps herein is consistent with our 2019 GT Plan Final Order.⁹⁷

Reporting Requirements

On or before March 31, 2022, and each year thereafter until further order of the Commission, the Company shall file an annual report on the approved elements of the Plan, including Phases IA, IB, and II, consistent with the Company's current and proposed reporting metrics.⁹⁸ In this case, Staff recommended further metrics for Dominion's reports,⁹⁹ and the Company has agreed to work with Staff to refine the metrics list for tracking the success of the GT Plan in Phase II.¹⁰⁰ The Company and Staff forthwith shall meet to refine the metrics list and shall file a letter documenting the agreed-upon metrics before Dominion's next annual report is filed. Starting with the next annual report, Dominion also shall include the agreed-upon metrics.

Further, Dominion shall provide information on how each Grid Technologies project will support integrated planning at the distribution system level and how such information will be

⁹⁵ See discussion on pages 6-7, *supra*; Ex. 33 (Staff-PE-1), Rebuttal Table 2.

⁹⁶ The cost caps established herein shall be by individual program and shall be separate for capital and O&M costs. See Ex. 33 (Staff-PE-1), Rebuttal Table 2.

⁹⁷ 2019 GT Plan Final Order, 2020 S.C.C. Ann. Rept. at 327.

⁹⁸ Ex. 3 (Woomer Direct) at 16, Schedule 2.

⁹⁹ Ex. 30 (Volkman Direct) at 18-19.

¹⁰⁰ Dominion's Post-hearing Brief at 50; Tr. 376.

used to inform the Company's next Integrated Resource Plan.¹⁰¹ In accordance with Staff's recommendation and as noted above, Dominion's annual reports also shall include the Company's planned and actual costs and reliability improvements for the feeder segments on which IGD and FLISR are deployed. Also as noted above, the Company must track and report the measurable benefits of the voltage island mitigation projects and must report on the various uses of DERMS, including visibility of DERs across its system and the Company's ability to leverage DER smart inverter functionalities to provide grid support.

Company's Residential Bill Compliance

In the Company's 2020 Integrated Resource Plan case,¹⁰² both Staff and Consumer Counsel raised the issue of lack of transparency with respect to the Company's residential customer bill format.¹⁰³ In that proceeding, the Commission directed the Company to address three items in its next GT Plan filing: (i) the Company's plan and progress towards the redesign of the residential bill; (ii) whether the current bill continues to be sufficient under 20 VAC 5-312-90;¹⁰⁴ and (iii) alternative bill format proposals for the Commission's consideration.¹⁰⁵

¹⁰¹ Among other things, Code § 56-599 B requires "[i]n preparing an integrated resource plan, each electric utility shall systematically evaluate . . . [l]ong-term electric distribution grid planning and proposed electric distribution grid transformation projects"

¹⁰² *Commonwealth of Virginia, ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUR-2020-00035, Doc. Con. Cen. No. 20121007, Final Order at n.77 (Feb. 1, 2021) ("2020 IRP Final Order").

¹⁰³ *Id.*

¹⁰⁴ Rule 20 VAC 5-312-90 I states that "[s]ufficient information shall be provided or referenced on the bill so that a customer can understand and calculate the billing charges."

¹⁰⁵ 2020 IRP Final Order at n.77.

In response to these directives, among other things, the Company contends that its current bill format is sufficient and that it plans to complete its bill redesign in 2024, after what it calls the "Core Project" of the CIP is complete in 2023.¹⁰⁶ Staff and Consumer Counsel noted several areas of concern with the Company's current residential bill, both for paper bill and electronic-bill customers.¹⁰⁷ Among other items, Staff and Consumer Counsel noted the paper bill's lack of detail with respect to RAC rates and how to calculate these charges.¹⁰⁸ In addition, Staff and Consumer Counsel also raised the issue that a customer wishing to use the Company's online bill calculator worksheet to understand the bill must have Microsoft Excel software in order to utilize the tool.¹⁰⁹ Staff proposed several options for consideration that would make the current residential customer bill more transparent in the interim prior to the Company's planned bill redesign in 2024, including the option for the Company to include a bill insert with a table of the current billing rates for base rates and RACs.¹¹⁰

We agree with Staff and Consumer Counsel on the importance of customers receiving bills that they can understand. We also note that since 2007 the Company has expanded the use of RACs that add charges to customers' bills.¹¹¹ The Company states that it will continue to take steps to ensure that the online bill calculator worksheet is available and user-friendly for all

¹⁰⁶ Ex. 39 (Jennings Rebuttal) at 4-5.

¹⁰⁷ Ex. 31 (Lohmeyer Direct) at 10-15; Consumer Counsel's Post-hearing Brief at 11-15.

¹⁰⁸ Ex. 31 (Lohmeyer Direct) at 13; Consumer Counsel's Post-hearing Brief at 12-13.

¹⁰⁹ Ex. 31 (Lohmeyer Direct) at 13; Consumer Counsel's Post-hearing Brief at 15.

¹¹⁰ Ex. 31 (Lohmeyer Direct) at 14-16.

¹¹¹ *Id.* at 5-6, 15.

customers, including those without Microsoft Excel software.¹¹² We hereby require the Company to do so. Further, we direct the Company to make available to any customer, upon request, a table that lists all current applicable charges and rates pertaining to that customer's bill as recommended by Staff and supported by Consumer Counsel.¹¹³ The Company is further directed to notify customers, on their bills, of the availability of the table, as well as the appropriate phone number and e-mail address to make such request. The Company shall provide this notice under the "Important Customer Information from Dominion Energy Virginia" section of the bill or, alternately, at another location on the customer bill with equivalent visibility subject to the approval of Staff.

We also note that Dominion has averred that the CIP Core Project will be "live" in the second quarter of 2023¹¹⁴ and that this component will enable bill redesign.¹¹⁵ Dominion also has represented that the bill redesign will be informed by customer feedback and that the Company will ensure the redesigned bill meets customers' expectations and prevents customer confusion.¹¹⁶ We direct the Company to plan for the timely receipt of customer feedback to allow bill redesign as soon as practicable after the CIP Core Project is live.

Dominion has also proposed to confer with Staff "on alternative paper bill formats prior to implementation to gain Staff's feedback" and to "provide a status update on the paper bill redesign including the research in its next Grid Transformation Plan proceeding."¹¹⁷ We require

¹¹² Dominion's Post-hearing Brief at n.338.

¹¹³ Ex. 31 (Lohmeyer Direct) at 14-16; Consumer Counsel's Post-hearing Brief at 15-16.

¹¹⁴ Ex. 2 (Petition) at Exhibit 1, GT Plan Document at 21.

¹¹⁵ Ex. 7 (Jennings Direct) at 10; Dominion's Post-hearing Brief at 57.

¹¹⁶ Dominion's Post-hearing Brief at 57, 59.

¹¹⁷ *Id.* at 58.

the Company to confer with Staff as the Company has proposed, with the first meeting on alternative paper bill formats to occur as soon as reasonably practicable and in no event later than April 2023. During this first meeting, the Company also shall provide to Staff its plans to obtain customer feedback on the bill redesign, including dates of planned events or activities to obtain such feedback.

Environmental Justice

The Company has represented that it evaluated each of the Phase II GT Projects, consistent with the Virginia Environmental Justice Act,¹¹⁸ to determine whether environmental justice concerns exist.¹¹⁹ The evaluation revealed that certain Phase II GT Plan components will require work in environmental justice communities.¹²⁰ The Company also has represented that it engaged a third party consultant to further evaluate these Phase II components and will use the results thereof to inform its environmental strategy as it relates to the GT Plan.¹²¹ Staff requested that the Commission require the Company to submit the third party's results to Staff upon completion.¹²² We direct the Company to submit those results to Staff within 60 calendar days of the Company's receipt thereof.

Interconnection Issues

Staff raised several concerns related to Dominion's current DER interconnection process, particularly concerning the length of time to complete interconnection studies and the cost to

¹¹⁸ Code § 2.2-234 *et seq.*

¹¹⁹ Ex. 2 (Petition) at Exhibit 1, GT Plan Document at 17-18.

¹²⁰ *Id.* at 18.

¹²¹ *Id.*

¹²² Ex. 26 (Cizenski Direct) at 37.

interconnect a third party's facilities to Dominion's distribution system.¹²³ In response, Dominion made several commitments, which the Commission hereby directs to be implemented. Specifically, Dominion shall: (i) update its public small generator interconnection queue on a quarterly basis;¹²⁴ (ii) conduct planned upgrades to the Company's hosting capacity analysis¹²⁵ and evaluate options for adding additional information requested by Staff to the hosting capacity analysis;¹²⁶ (iii) finalize and publish a unit cost guide for DER developers by mid-2022;¹²⁷ and (iv) report semi-annually on interconnection process performance in a public report meeting the criteria discussed by Company Witness Frost and Staff Witness Volkmann.¹²⁸

Additionally, this Commission will, by separate order, open a separate docket to explore utility DER interconnection issues in a comprehensive manner.

Accordingly, IT IS SO ORDERED, and this matter is CONTINUED.

A COPY hereof shall be sent electronically by the Clerk of the Commission to all persons on the official Service List in this matter. The Service List is available from the Clerk of the Commission.

¹²³ *Id.* at 27; Staff's Post-hearing Brief at 18.

¹²⁴ Ex. 38 (Frost Rebuttal) at 7.

¹²⁵ Ex. 5 (Wright Direct) at 6.

¹²⁶ Ex. 38 (Frost Rebuttal) at 8.

¹²⁷ *Id.*

¹²⁸ Dominion's Post-hearing Brief at 56-57; Ex. 38 (Frost Rebuttal) at 9-10; Tr. 314, 432.