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STATE CORPORATION COMMISSION

December 1, 2022

The Honorable Glenn A. Youngkin
Governor, Commonwealth of Virginia

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

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

Members of the Commission on Electric Utility Regulation

Members of the Joint Commission on Technology and Science

Ladies and Gentlemen:

Pursuant to Chapter 296 of the 2018 Virginia Acts of Assembly, please find enclosed the Combined Report of the State Corporation Commission, which includes the following:

- The Annual Report on Grid Modernization, Reliability and Integration of Renewables;
- The Annual Report on the Transmission Line Undergrounding Pilot; and
- The Annual Report on Construction of New Solar and Wind Projects.

The Combined Report also includes the Annual Report on Solar Demonstration Programs pursuant to Chapter 771 of the 2011 Virginia Acts of Assembly.

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

Respectfully submitted,

Jehmal T. Hudson
Chairman

Judith Williams Jagdmann
Commissioner

Enclosure

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

Reports to the Governor of the Commonwealth of Virginia,
the Chair of the Senate Committee on Commerce and Labor,
the Chair of the House Committee on Commerce and Energy,
the Joint Commission on Technology and Science,
and the Commission on Electric Utility Regulation
of the Virginia General Assembly

COMBINED REPORTS

INCLUDING:

Annual Report on Grid Modernization, Reliability,
and Integration of Renewables
Pursuant to Chapter 296 of the 2018 Virginia Acts of Assembly

Annual Report on the Transmission Line Undergrounding Pilot
Pursuant to Chapter 296 of the 2018 Virginia Acts of Assembly

Annual Report on Construction of New Solar and Wind Projects
Pursuant to Chapter 296 of the 2018 Virginia Acts of Assembly

Annual Report on Solar Demonstration Programs
Pursuant to Chapter 771 of the 2011 Virginia Acts of Assembly

December 1, 2022

Table of Contents

EXECUTIVE SUMMARY

This document contains the combined reports ("Report") of the Virginia State Corporation Commission ("Commission") pursuant to several provisions of law. The Commission has reviewed and investigated each of the areas or topics listed below, and reports as follows:

Grid Modernization, Reliability, and Integration of Renewables (The Grid Transformation and Security Act ("GTSA"), 2018 Virginia Acts of Assembly Chapter 296) and Infrastructure Investments to Improve Reliability (2022 Virginia Acts of Assembly Chapter 653):

Concerning reliability, Virginia electric utilities continue to participate in regional transmission planning through PJM Interconnection, L.L.C. ("PJM"), the entity that manages the electric grid primarily at transmission-level voltages. At the distribution level, the Commission monitors reliability in part through utility reports on measures related to tree-trimming and indices that measure frequency and duration of electricity service outages.

Utility-owned and third party owned renewable generation resources are being added to the electric distribution grid. Before connecting utility-scale resources to the electric grid, owners must coordinate with the affected local utility and with PJM. Under certain circumstances, the projects are also subject to Commission approval.

Concerning grid security and hardening activities, the Commission has previously given approval for Virginia Electric and Power Company d/b/a Dominion Energy Virginia ("DEV" or "Dominion") to implement, among other things, mainfeeder hardening, targeted corridor improvement, voltage island mitigation, hosting capacity analysis, and physical and cyber security.

Both DEV and Appalachian Power Company ("APCo") are expected to have sufficient capacity to meet peak energy demands in the near term, either through company-owned generation or market purchases. Both companies also continue to invest in the generation, transmission, and distribution of electricity. During 2021, such annual investments were:

Company	Generation	Transmission	Distribution
Dominion Energy Virginia	$549.0M	$760.0M	$782.0M
Appalachian Power Company	$50.2M	$421.9M	$219.0M

With respect to infrastructure investments to improve reliability, as part of the two most recent GTSA filings, Dominion is performing (i) mainfeeder hardening projects targeting improvements for poorly performing mainfeeder segments; (ii) targeted corridor upgrades that remediate ash tree mortality and apply herbicides for ground floor maintenance; (iii) voltage island mitigation projects; and (iv) fault location, isolation and service restoration projects ("FLISR").

Transmission Line Undergrounding Pilot (GTSA, 2018 Virginia Acts of Assembly Chapter 296):

The GTSA established a pilot program for underground electric transmission lines ("Undergrounding Pilot"), consisting of two qualifying projects to be constructed in whole or in part underground. Dominion's Haymarket Project – specifically, its I-66 Hybrid Route – was the first project the Commission approved as part of the Undergrounding Pilot. According to DEV, this project has been energized and is currently in service as of the end of March 2022. DEV reports that some construction activities, such as site area cleanup and right-of-way restoration, remain ongoing. The project cost, originally estimated to be approximately $171.9 million, is currently estimated at $230 million, which is unchanged from the Company's 2021 projection and represents an increase of approximately 33.8% over the original estimated cost.[1]

The Commission also approved, on June 24, 2021, another DEV construction project – Dominion's Partial Line #2010 230 kilovolt ("kV") Single Circuit Transmission Line Underground Pilot Project (Tysons-Future Spring Hill Substation) – as the second qualifying project under the Undergrounding Pilot program. This project, currently in the final engineering and pre-construction phase, has a projected in-service date of December 31, 2025 and will cost approximately $30.4 million.

Construction of New Solar and Wind Projects (GTSA, 2018 Virginia Acts of Assembly Chapter 296) and Storage Projects (2020 Virginia Acts of Assembly Chapter 1190):

Between July 1, 2018, and June 30, 2022, Virginia utilities placed into operation solar facilities totaling 821 megawatts ("MW") of nameplate generation capacity in the Commonwealth. Dominion also has under development approximately 1,903 MW of nameplate solar generation and 2,587 MW of nameplate offshore wind generation capacity off the Commonwealth's Atlantic shoreline.[2] APCo currently has 150 MW of nameplate solar generation capacity under development. Third parties are also developing facilities that may provide approximately 4,052 MW of additional nameplate solar generation capacity in the Commonwealth. DEV has constructed the Scott I Battery Storage Pilot, as well as, the Correctional Battery Storage Pilot, totaling 14 MW.[3] Cooperatives have constructed approximately 2.2 MW of energy storage facility.

[1] Due to a typographical error, the percentage increase stated in the December 1, 2021 Combined Reports addressing the Transmission Line Undergrounding Pilot was 34.8% and has been corrected herein.

[2] These figures refer to data provided by Dominion as of June 30, 2022. In next year's report, the Commission will update these amounts to include additional projects and purchased power agreements ("PPAs") proposed in Dominion's 2022 RPS Filing, Case No. PUR-2022-00124, filed on October 14, 2022.

[3] *Application of Virginia Electric and Power Company, to participate in the pilot program for electric power storage batteries pursuant to § 56-585.1:6 of the Code of Virginia, and for certification of a proposed battery energy storage system pursuant to § 56-580 D of the Code of Virginia*, Case No. PUR-2019-00124, 2020 S.C.C. Ann. Rept. 304, Final Order (February 14, 2020).

Solar Demonstration Programs (2011 Virginia Acts of Assembly Chapter 771):

The Commission has approved two programs under this legislation. First, Dominion's Solar Purchase Program features a tariff designed to facilitate customer-owned distributed solar generation. Second, as part of Dominion's Solar Partnership Program, nine solar projects were constructed by qualifying commercial, industrial, high school, and university customers. These facilities continue to be operational, with a total capacity of 6.4 MW. Total capital expenditures to date represent approximately $27.7 million of the $80 million program cap.

INTRODUCTION

Statutory Background

This document contains the Report of the Commission pursuant to the referenced provision(s):

- Grid Modernization, Reliability, and Integration of Renewables: Enactment Clause 19 of the GTSA directs the Commission to submit annual reports by December 1 of each year assessing: (i) the reliability of electrical transmission or distribution systems; (ii) the integration of utility or customer owned renewable electric generation resources with the utility's electric distribution grid; (iii) the level of investment in generation, transmission, or distribution of electricity; (iv) the need for additional generation of electricity during times of peak demand; and (v) distribution system hardening projects and enhanced physical security measures.[4] Chapter 653 of the 2022 Virginia Acts of Assembly directs the Commission to include Dominion's reliability metrics and a description of any infrastructure investments made by Dominion over the reporting period.

- Transmission Line Undergrounding Pilot: Enactment Clause 2 of the GTSA directs the Commission to submit annual reports by December 1 of each year assessing the progress of the Undergrounding Pilot for electrical transmission lines of 230 kV or less;[5]

- Construction of New Solar and Wind Projects: Enactment Clause 14 of the GTSA, as amended by 2020 Virginia Acts of Assembly Chapter 1190, directs the Commission to submit annual reports by December 1 of each year assessing: (i) the aggregate annual new construction and development of new utility-owned and utility-operated generating facilities utilizing energy derived from sunlight; (ii) the integration of utility-owned renewable electric generation resources with the utility's electric distribution grid; (iii) the aggregate additional utility-owned and utility-operated generating facilities utilizing energy derived from sunlight placed in operation since July 1, 2018; (iv) the need for additional generation of electricity utilizing energy derived from sunlight in order to meet the objective of the General Assembly on or before July 1, 2028; and (v) the aggregate annual new construction or purchase of energy storage facilities;[6] and

- Solar Demonstration Programs: 2011 Virginia Acts of Assembly Chapter 771 directs the Commission to submit annual reports on any demonstration programs approved pursuant to that Act. However, the information required with regard to Solar Demonstration Programs corresponds with the information required in the GTSA reports listed above and therefore is included in this consolidated report.

[4] This requirement is codified at Code § 56-596.3.

[5] This requirement is codified at Code § 56-585.1:5 G.

[6] This requirement is codified at Code § 56-596.1.

Background of the Grid Transformation and Security Act

In 2018, the General Assembly passed the GTSA, which, among other things: (i) provided for triennial reviews of base rate earnings for APCo beginning in 2020 and for Dominion beginning in 2021; (ii) provided for Dominion and APCo to file, at their discretions and not more than once annually, for approval of a plan for electric distribution grid transformation projects; (iii) created a new rate adjustment clause option for these utilities to recover the costs of distribution grid transformation projects; and (iv) changed the timing for these utilities to file IRPs with the Commission from annually to once every three years. As a result, each utility now makes an IRP filing in the year before that utility files its triennial base rate review. Additionally, the GTSA directed the Commission to submit annual reports on the following three topics:

1. Grid Modernization, Reliability, and Integration of Renewables, to be submitted annually by December 1;
2. Transmission Line Undergrounding Pilot, to be submitted annually by December 1, through 2024; and
3. Construction of new Solar and Wind Projects, to be submitted annually by December 1, through 2028.

2020 Virginia Acts of Assembly Chapter 1190 subsequently amended the GTSA to require the Commission to include information on energy storage in its annual report on new Solar and Wind Projects.

Background of the Solar Demonstration Report

Through this document, the Commission is also providing a report related to Solar Demonstration Programs. The applicable laws do not specify a particular filing date for this report. However, the information required with regard to Solar Demonstration Programs provided in the report corresponds with the information required by the GTSA reports listed above.

A glossary of terms used throughout the Report can be found in Appendix 1.

GRID MODERNIZATION, RELIABILITY, AND INTEGRATION OF RENEWABLES

Under the GTSA, DEV and APCo are required to petition the Commission, not more than once annually, for approval of a plan for electric distribution grid transformation projects. Pursuant to Code § 56-585.1 A 6, the GTSA requires that "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."

Utility GTSA Filings

No grid modernization-related petitions were filed by either DEV or APCo during the past year. However, on January 7, 2022, the Commission issued a Final Order on DEV's Phase II GTSA petition ("Phase II Plan").[7] That Phase II petition, filed on June 21, 2021, represented DEV's third petition with the Commission related to grid modernization.[8] With that latest filing, DEV sought approval of Phase II of DEV's ten-year grid transformation plan ("GT Plan"), which covers the years 2022 to 2023. As proposed, DEV's forecasted investment in Phase II of the GT Plan was as follows:

Portion of GT Plan	Total Capital Investment	Operations/Maintenance Costs
Phase II (2022-2023)	$666.5 million	$109.6 million
Full 10-year GT Plan	$2.88 billion	$ 345.4 million

[7] *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-2021-00127, Doc. Con. Cen. No. 220110126, Final Order (January 7, 2022) ("Phase II Final Order").

[8] The Commission has previously considered two GT Plan filings by DEV, consisting of Phase IA and Phase IB of DEV's GT Plan, respectively. *See 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); *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,* PUR-2019-00154, 2020 S.C.C. Ann. Rept. 318, Final Order (March 26, 2020).

For purposes of its Final Order on the Phase II petition, the Commission grouped the Company's proposed investments into several categories of related elements, and approved as reasonable and prudent the following proposed investments: (i) advanced metering infrastructure; (ii) the customer information platform (iii) grid infrastructure, which comprises targeted corridor improvement and voltage mitigation; (iv) Grid Technologies, which includes: intelligent grid devices, fault location, isolation, and service restoration, a distributed energy management system ("DERMS"),[9] the enterprise asset management system, voltage optimization enablement, and substation technology deployment; (v) telecommunications; (vi) cyber security; (vii) physical security; and (viii) customer education. The Commission established cost caps for each component and also directed Dominion to comply with certain annual reporting requirements. DEV is currently implementing the approved components of the Phase II petition.

The GTSA directs that the Commission's annual report on Grid Modernization, Reliability, and Integration of Renewables address five specific sub-topics, which are discussed in the following sections. Where applicable, some historical information is also provided.

Reliability of Electric Transmission or Distribution Systems

At transmission-level voltages, PJM is the regional transmission organization that manages the electric grid and wholesale electricity market in Virginia and across 12 other states and the District of Columbia. As part of its role, PJM must maintain reliability of the transmission grid. This includes addressing transmission system constraints that impede electric power delivery, and properly adjusting the generation output of all generation within PJM's footprint to meet electricity demand. PJM uses a planning process called the Regional Transmission Expansion Plan ("RTEP")

[9] The Commission conditioned approval of DERMS upon notification that Dominion's proposed DERMS meets the FERC Order 2222 requirements. *See also Participation of Distributed Energy Resource Aggregations in Markets Operated by Regional Transmission Organizations and Independent System Operators*, 172 FERC 61,247 (2020).

to identify and evaluate changes to the electric grid that, if left unaddressed, could negatively impact the reliability of the grid.

In addition to their participation in the PJM RTEP process, Virginia electric utilities seeking to construct transmission facilities that are not ordinary extensions or improvements in the usual course of business are required to apply to the Commission for certificates of public convenience and necessity ("CPCNs") under Title 56 of the Code of Virginia. During this type of proceeding, the Commission evaluates several factors, including the need for the project, the proposed project route, the project's environmental impact based on a coordinated review conducted by the Department of Environmental Quality ("DEQ"), and the impact of the proposed facilities upon the reliability of electric service delivery within the Commonwealth. These transmission-related processes have maintained electric service reliability within the Commonwealth for many years.

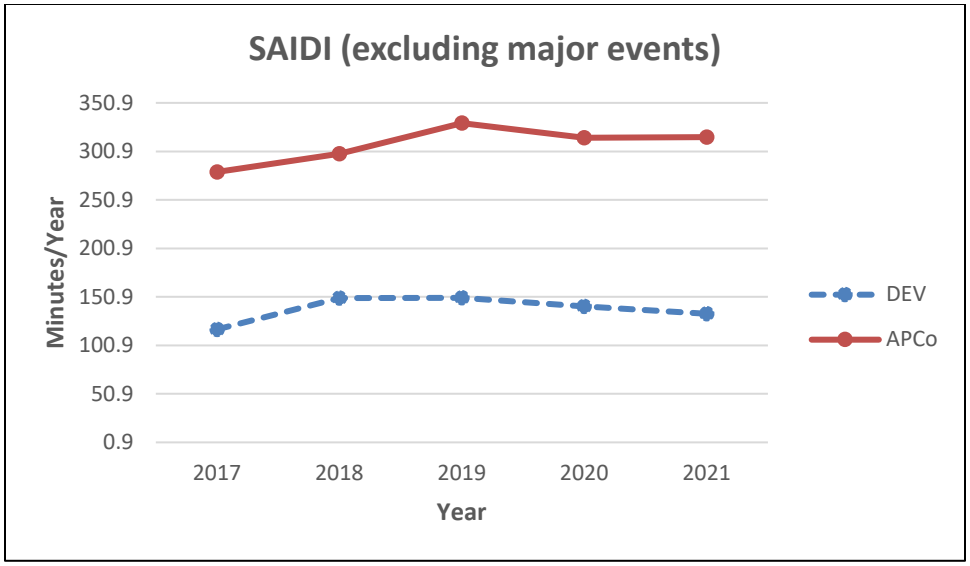
At the electric distribution level, the Commission monitors service reliability through a number of measures, including the Annual Reliability and Tree Trimming Report required from each of Virginia's three investor-owned electric utilities ("IOUs").[10] This report tracks various reliability indices including, but not limited to, System Average Interruption Frequency Index ("SAIFI")[11] and System Average Interruption Duration Index ("SAIDI").[12] The charts below show the reliability indices of the Commonwealth's two largest IOUs, DEV and APCo, over the past

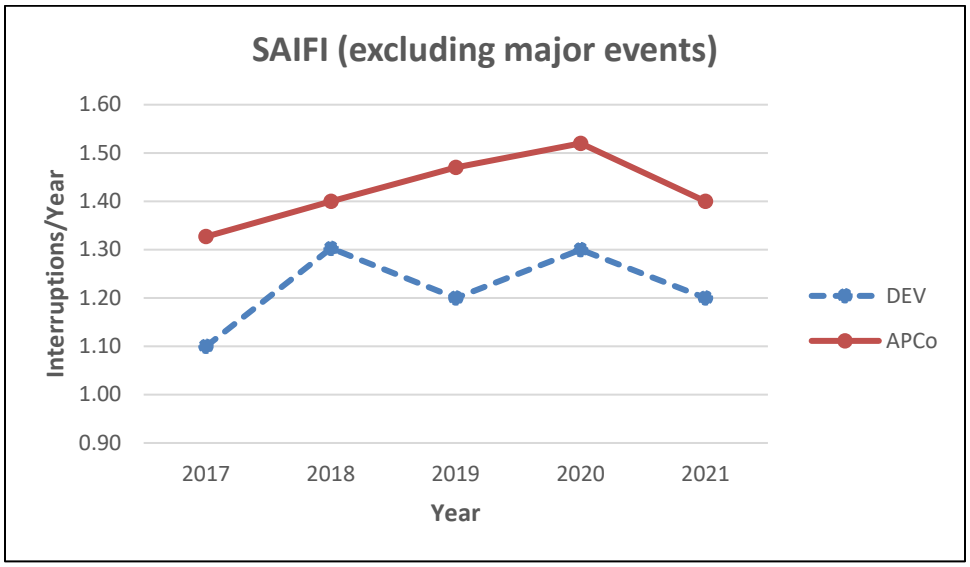
[10] Note that some provisions of the GTSA do not apply to one of Virginia's IOUs, Kentucky Utilities d/b/a Old Dominion Power Company.

[11] SAIFI, the "how often" index, is used by electric utilities as a measure of the frequency of electric outages and is defined as the average number of interruptions experienced per customer.

[12] SAIDI, the "how long" index, is commonly used by electric utilities as an indicator of the duration of electric outages, defined as the average outage duration for each customer served. It should be noted that within this report, the calculations of SAIFI and SAIDI indices omit the impacts of major weather-related events such as hurricanes and derechos.

five years, based on data submitted by the companies in their annual reliability reports sent to the Commission.





While system-based metrics like SAIDI and SAIFI are widely used by the electric utility industry to monitor trends on a utility-specific basis, it is difficult to compare the performance of one utility to another because these metrics do not account for differences in utility infrastructure (e.g., underground vs. overhead), customer density, tree exposure, topography of utility service territories, weather incidents/patterns, and varying definitions of "major storm/event." For

example, APCo's service territory contains a great deal of mountainous, rural, and customer-sparse territory in the western part of Virginia, whereas DEV's territory in the eastern part of the state is generally flatter and includes large, customer-dense urban and suburban areas. Consequently, in a comparable situation affecting both companies' distribution grids, fewer of APCo's customers may be affected, but service restoration may take longer when compared to the impact on customers in DEV's service territory.

Additionally, weather can vary considerably for one utility from year to year, or between utilities within the same year.

Integration of Utility- or Customer-Owned Renewable Electric Generation Resources with the Utility's Electric Distribution Grid

Background

Before utility-scale generation resources can be integrated into Virginia's electric transmission or distribution grid, developers must submit any such project to PJM for a series of technical and cost studies to be performed. These studies are designed, among other things, to assess the impact of the project's interconnection on the reliability of PJM's transmission grid. If such a project is being installed on the distribution system, PJM coordinates with the local utility to ensure that impacts to the distribution system are also studied. That process identifies any electric infrastructure upgrades needed to address potential reliability issues caused by integration of the proposed resource. When applicable, the process also allocates the costs associated with addressing those issues among individual developers whose proposed projects are projected to contribute to the same electric reliability issues. Additionally, the Commission issues CPCNs for many utility projects and for certain non-utility projects. In such proceedings, the Commission must determine whether the proposed project will negatively impact reliability of the electric grid.

A project that may negatively impact grid reliability can nevertheless receive a CPCN if the developer funds grid upgrades found necessary to maintain reliability.

Private developers and utilities (the latter, subject to certain conditions) seeking to interconnect renewable energy generating resources of up to 150 MW capacity at the transmission or distribution level also may apply and receive approval for a Permit by Rule ("PBR") from DEQ before constructing such facilities.[13] The PBR process requires that technical studies be performed by PJM or the affected electric utility to demonstrate that the proposed project causes no negative impact on electric reliability in the Commonwealth. A Commission-issued CPCN may also be required for construction of any generation or distribution tie lines needed to interconnect the renewable generation facility to the electric grid.

Utility Proposals

As part of its Phase II GTSA Plan, Dominion proposed deployment of DERMS, a centralized software designed to manage Distributed Energy Resources ("DERs") and associated programs by collecting data from various sources to monitor DERs, analyzing that data, and then recommending or issuing commands to DERs to maintain safe operation of the grid. The Commission conditioned approval of DERMS upon notification that Dominion's proposed DERMS meets the FERC Order 2222 requirements.[14]

A further discussion of the integration of utility-owned renewable electric generation resources is presented later in this Report under "Construction of New Solar and Wind Projects."

[13] *See* Code § 10.1-1197.5 *et seq*. In 2021, Code § 10.1-1197.5 was amended to specifically include energy storage facilities. *See* ch. 419 of the 2021 Acts of Assembly, Special Session I. DEQ promulgated rules related to energy storage PBRs in 9VAC15-100, effective January 1, 2022. Pursuant to 9VAC15-100-10, a "small energy storage facility" or "facility" means an energy storage facility that uses electrochemical cells to convert chemical energy with a rated power capacity not exceeding 150 MW in alternating current ("AC").

[14] Phase II Final Order at 20.

Level of Investment in Generation, Transmission, or Distribution of Electricity

Electric utilities in Virginia continue to invest in generation, transmission, and distribution facilities used to serve their customers. The tables below show the cumulative and annual net plant in service investments made by Virginia's two largest IOUs, DEV and APCo, since 2014.

Dominion Energy Virginia
Cumulative and Annual Plant in Service Investment
(in Millions of Dollars)

	Generation		Transmission		Distribution		Other[15]	
Year	Balance	Annual Investment	Balance	Annual Investment	Balance	Annual Investment	Balance	Annual Investment
2014	16,604.0		5,884.0		9,526.0		697.0	
2015	17,120.0	516.0	6,963.0	1,079.0	10,048.0	522.0	709.0	12.0
2016	18,684.0	1,564.0	7,871.0	908.0	10,573.0	525.0	745.0	36.0
2017	19,201.0	517.0	8,332.0	461.0	11,151.0	578.0	794.0	49.0
2018	20,522.0	1,321.0	9,391.0	1,059.0	11,771.0	620.0	820.0	26.0
2019	21,240.0	718.0	10,229.0	838.0	12,095.0	324.0	825.0	5.0
2020	18,478.0	(2,762.0)[16]	11,000.0	771.0	12,839.0	744.0	845.0	20.0
2021	19,027.0	549.0	11,760.0	760.0	13,621.0	782.0	912.0	67.0

Appalachian Power Company
Cumulative and Annual Plant in Service Investment
(in Millions of Dollars)

	Generation		Transmission		Distribution		Other	
Year	Balance	Annual Investment	Balance	Annual Investment	Balance	Annual Investment	Balance	Annual Investment
2014	6,824.0		2,228.0		3,258.3		373.5	
2015	6,200.8	(623.2)[17]	2,408.1	180.1	3,402.5	144.2	345.5	(28.0)
2016	6,332.8	132.0	2,796.9	388.8	3,569.1	166.6	373.5	28.0
2017	6,446.9	114.1	3,019.9	223.0	3,763.8	194.7	427.9	54.4
2018	6,509.6	62.7	3,317.7	297.8	3,989.4	225.6	485.8	57.9
2019	6,563.7	54.1	3,584.1	266.4	4,201.7	212.3	571.3	85.5
2020	6,633.7	70.0	3,900.5	316.4	4,464.3	262.6	627.2	55.9
2021	6,683.9	50.2	4,322.4	421.9	4,683.3	219.0	696.6	69.4

[15] The category "Other" includes office furniture, transportation equipment, and other general plant provisions that are not specific to the generation, transmission, or distribution functions.

[16] The net decrease in DEV's generation plant in service in 2020 was due to plant impairments recorded in 2020.

[17] APCo's negative generation investment in 2015 is attributable to generation plant impairments recorded in 2015.

Need for Additional Generation of Electricity During Times of Peak Demand

Virginia's two largest IOUs meet their peak energy demands[18] through a combination of company-owned generation and purchases from PJM's energy and capacity markets. PJM requires load serving entities to procure capacity to meet their annual proportionate share of the PJM summer peak demand, either through the PJM capacity market or the Fixed Resource Requirement Alternative ("FRR").[19] As required of PJM members, both DEV and APCo have met their expected capacity needs through May 2024, either through company-owned generation or capacity purchases.[20] APCo has had relatively flat-to-declining growth in its summer peak demand since 2011. On September 1, 2022, DEV filed an update to its 2020 IRP indicating that, in its 2022 PJM load forecast, PJM incorporated changes to its load forecasting methodology that utilized the latest data center load forecast provided by DEV and Northern Virginia Electric Cooperative ("NOVEC"), which resulted in a significant increase in the PJM load forecast compared to 2021.[21] DEV anticipates DOM LSE[22] summer peak demand and energy forecast compound annual growth rates of 1.4% and 1.7%, respectively, between 2022 and 2047.[23]

[18] "Peak energy demand" means the amount of energy used by each IOU's customers during the hour of the coincident summer peak that occurs in PJM. This hour is used to determine the amount of capacity for which an IOU is responsible in order to maintain reliability in the broader PJM system.

[19] Both companies participate in the PJM capacity market using the FRR, which permits certain entities to supply their own capacity within PJM's capacity market design. APCo has always participated through the FRR since joining PJM in 2004, while Dominion's recent FRR election became effective on June 1, 2022. Prior to such election, Dominion procured its capacity obligation through PJM's annual capacity auction.

[20] *See* https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2023-2024/2023-2024-base-residual-auction-report.ashx.

[21] *Commonwealth of Virginia, ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's 2022 Update to its Integrated Resource Plan pursuant to Va. Code 56-597 et seq.*, Case No. PUR-2022-00147, Doc. Con. Cen. No. 228910018, 2022 IRP Update at 5, (September 1, 2022) ("2022 IRP Update").

[22] DOM LSE refers to the Dominion Load Serving Entity.

[23] 2022 IRP Update at 32 and 34.

Additionally, both companies are subject to the renewable energy portfolio standard program ("RPS") provisions of the Virginia Clean Economy Act ("VCEA"), which require both companies to produce a certain amount of annual electric energy from non-fossil or nuclear energy resources.[24]

Distribution System Hardening Projects and Enhanced Physical Security Measures

The Commission previously approved the following components of Dominion's Phase IB GT Plan that are designed to address distribution system hardening: (i) Mainfeeder Hardening Program (Phase IB cost: $44.6 million); (ii) Targeted Corridor Improvement Program (Phase IB cost: $12.8 million); and (iii) Voltage Island Mitigation Program (Phase IB cost: $6.4 million).[25]

According to DEV, the Mainfeeder Hardening Program is expected to improve reliability and resiliency for poorly performing feeder sections through a combination of: (1) rebuilding in connection with newly implemented stronger design and material standards, and (2) relocating feeder sections, converting them to underground systems, or constructing feeder ties.[26]

Dominion reports that the Targeted Corridor Improvement Program would: (i) remediate ash tree mortality caused by emerald ash borer beetles; and (ii) introduce an herbicide program for ground floor maintenance.[27] Finally, the Voltage Island Mitigation Program, Dominion asserts, would address portions of the distribution grid. It would typically serve remote communities, as these areas have no available system redundancy to address failure of the single substation

[24] Code § 56-585.5.

[25] *Petition of Virginia Electric and Power Company, For revision of Rate Adjustment Clause, Designated Rider GT, under § 56-585.1 A 6 of the Code of Virginia*, PUR-2022-00140, Direct Testimony of Company witness Eisenrauch at Schedule 1. All costs include financing costs.

[26] Phase IB Petition, Direct Testimony of Company witness Wright at 20.

[27] Phase IB Petition, Direct Testimony of Company witness Wright at 27-28.

transformer. For Phase IB, DEV would mitigate two voltage islands serving about 2,600 customers who otherwise would face extended outages in the event of such equipment failure.[28]

On May 24, 2021, DEV filed a motion seeking limited adjustments to one of the eleven previously approved Phase IB mainfeeder projects, and one of the two previously approved voltage island projects. Through this motion, DEV sought to substitute the earlier-approved projects with new, comparable projects. DEV cited easement acquisition, land acquisition, and permitting issues it had encountered since the Final Order was issued approving the previous projects. The Commission granted both requests on June 14, 2021.[29] As of April 2022, DEV has completed hardening work on all eleven Phase I mainfeeders. Work on the two voltage island projects is also complete. Additionally, DEV has completed physical security upgrades, approved in Phase IA, at three of the four identified critical substations. Dominion removed the fourth project from consideration after determining that the work would only focus on and impact electric transmission assets.

As part of its Phase II Plan, DEV received approval, among other things, to continue its Targeted Corridor Improvement Program (total cost: $38.5 million; Phase II: $16.3 million); address four additional voltage islands (total cost: $40.5 million; Phase II: $11.4 million); FLISR (total cost: $10.0 million; Phase II: $10.6 million); and enhance physical security at twelve critical distribution substations (total cost: $143.9 million; Phase II: $37.3 million).[30] Appendix 5 of this Report provides a summary from DEV listing these projects pursuant to the requirements of Chapter 653 of the 2022 Virginia Acts of Assembly.

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[28] Phase IB Petition, Direct Testimony of Company witness Wright at 33-34.

[29] *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*, PUR-2019-00154, 2021 S.C.C. Ann. Rept. 169, Order Granting Motion (June 14, 2021).

[30] Phase II Petition, Rebuttal Schedule 1 of Company witness Woomer.

TRANSMISSION LINE UNDERGROUNDING PILOT

Undergrounding Pilot - Background

As part of the GTSA, the General Assembly established a pilot program requiring the construction of two qualifying electrical transmission lines of 230 kV or less, to be constructed in whole or in part underground, referred to as the Undergrounding Pilot. The GTSA directed the Commission to "report annually to the Commission on Electric Utility Restructuring, the Joint Commission on Technology and Science, and the Governor on the progress of the pilot program by no later than December 1 of each year that [the GTSA] is in effect" and to submit a comprehensive final report no later than December 1, 2024.

During its 2020 Session, the General Assembly amended the Undergrounding Pilot to, among other things, specify the requirements for the second qualifying electrical transmission line and to extend the deadline for submitting applications for qualifying projects from July 1, 2020, to October 1, 2020.[31] Specifically, Code § 56-585.1:5 directs the Commission to approve, as qualifying projects under the Undergrounding Pilot: (i) a transmission line meeting the description of Dominion's Haymarket 230 kV double circuit transmission line and 230-34.5 kV Haymarket Substation[32] (which uses the I-66 Hybrid Route);[33] and (ii) one additional qualifying project that shall be the relocation or conversion of an existing 230 kV overhead line to an underground line. The additional qualifying project is to be selected from among "applications submitted by public

[31] *See* Code § 56-585.1:5

[32] *Application of Virginia Electric and Power Company, For approval and certification of electric transmission facilities: Haymarket 230 kV Double Circuit Transmission Line and 230-34.5 kV Haymarket Substation*, Case No. PUE-2015-00107, 2018 S.C.C. Ann. Rept. 198, Order on Request to Participate in Pilot Program (July 26, 2018).

[33] The I-66 Hybrid Route is a 230 kV double circuit electrical transmission line approximately 5.3 miles long. The route has both overhead and underground transmission facilities and includes an underground portion of approximately 3.1 miles in length. It was constructed within or immediately adjacent to the right of way of interstate highway I-66 in Prince William County and the Town of Haymarket.

utilities for certificates of public convenience and necessity for the construction of electrical transmission lines of 230 kilovolts or less filed between July 1, 2018, and October 1, 2020."[34]

Undergrounding Pilot Selection Process

Pursuant to Code § 56-585.1:5, if a public utility requests that a transmission line project be considered as a qualifying project for the Undergrounding Pilot, the Commission will consider such a request during a CPCN proceeding, along with the Commission's typical assessment of project need, proposed route, and environmental impacts. If the Commission approves a CPCN for the proposed transmission line project, the Commission would also rule on inclusion of the project in the Undergrounding Pilot.

Progress of the Undergrounding Pilot

On July 2, 2018, Dominion filed a "Request to Participate in the Pilot Program Established by Enactment Clause 2 of the Grid Transformation and Security Act of 2018." Dominion requested approval of the Haymarket Project – specifically, the I-66 Hybrid Route – as a qualifying project under Section 2 of Enactment Clause 2 of the GTSA. On July 26, 2018, the Commission approved the Haymarket Project's I-66 Hybrid Route as the first pilot project, in Case No. PUE-2015-00107. Subsequently, on June 24, 2021, Dominion's Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Project (Tysons-Future Spring Hill Substation) received Commission approval as the second qualifying underground pilot project, in Case No. PUR-2020-00198.[35] Appendix 2 of this Report provides a letter from Commission Staff ("Staff") to DEV requesting a status update on these projects. Appendix 3 provides the status update, dated

[34] A project is qualified to be placed underground, in whole or in part, if it meets all the criteria found in Code § 56-585.1:5 D.

[35] *Application of Virginia Electric and Power Company, For approval and certification of Electric Transmission Facilities: Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Project (Tysons-Future Spring Hill Substation)*, Case No. PUR-2020-00198, 2021 S.C.C. Ann. Rept. 293, Final Order (Jun 24, 2021). ("Line #2010 Underground Relocation Project").

September 22, 2022, that Dominion provided on the permitting, real estate, engineering, construction activities, cost, and schedule of these two projects.

According to DEV's update, the Haymarket Project has been energized and is currently in service as of the end of March 2022. DEV reports that some remaining construction activities such as site area cleanup and right-of-way restoration remain.

According to Dominion, the current Haymarket Project expenditures are approximately $221 million. Dominion anticipates that the total cost of the Haymarket Project will remain below $230 million, as provided in Dominion's 2021 update, after considering the costs associated with the remaining restoration and demobilization activities. Accordingly, the projected total cost of $230 million continues to be approximately $50 million higher than the $180 million anticipated in 2020 (27.8% cost increase) and approximately $58.1 million higher than the $171.9 million cost estimate provided at the conclusion of the Commission proceeding approving the Haymarket Project (33.8% cost increase).

Relative to the second pilot project, the Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Project (Tysons-Future Spring Hill Substation), Dominion states that this project has moved into the final engineering and pre-construction phase. Dominion expects to begin construction in the first quarter of 2023. The in-service date of December 31, 2025 and the project cost estimate of $30.4 million remain unchanged from the original estimates put forth in Case No. PUR-2020-00198.

CONSTRUCTION OF NEW SOLAR AND WIND PROJECTS

Enactment Clause 14 of the GTSA states that it is the objective of the General Assembly that new utility-owned and utility-operated generating facilities, utilizing energy derived from sunlight and from wind with an aggregate capacity of 5,000 MW, including rooftop solar installations with a capacity of not less than 50 kilowatts ("kW"), and with an aggregate capacity

of 50 MW, be placed in service on or before July 1, 2028. The 2020 General Assembly subsequently amended Enactment Clause 14 to provide that it is also the objective of the General Assembly that 2,700 megawatts of aggregate energy storage capacity be placed into service on or before July 1, 2030.

The Commission must submit a report and make recommendations on or before December 1 of each year assessing: (i) the aggregate annual new construction and development of new utility-owned and utility-operated generating facilities utilizing energy derived from sunlight; (ii) the integration of utility-owned renewable electric generation resources with the utility's electric distribution grid; (iii) the aggregate additional utility-owned and utility-operated generating facilities utilizing energy derived from sunlight placed in operation since July 1, 2018; (iv) the need for additional generation of electricity utilizing energy derived from sunlight in order to meet the objective of the General Assembly on or before July 1, 2028; and (v) the aggregate annual new construction or purchase of energy storage facilities. The responses provided below include data as of June 30, 2021.[36]

(i) Aggregate Annual New Construction and Development of New Utility-Owned and Utility-Operated Generating Facilities Utilizing Energy Derived from Sunlight

New Construction by Virginia Utilities

DEV's Sadler Solar Facility (100 MW)[37] was put into operation in July 2021.[38] The Westmoreland Solar Facility (19.9 MW), a facility subject to a PPA with DEV, was also put into

[36] While Code § 56-596.1 requires only the reporting of facilities utilizing sunlight, the objective within the Code section also refers to wind. Therefore, for the purposes of this report, wind generation facilities have been included within the reporting data. A "public utility" or "utility," as used in Code § 56-596.1 and Code § 56-585.1:4 A, is not specifically defined in Chapter 23 of Title 56. For the purposes of this report, data pertaining to electric cooperatives and merchant facilities has been provided, as well as data from the Commonwealth's IOUs.

[37] All MW values provided in this section are AC.

[38] *Petition of Virginia Electric and Power Company, For approval and certification of the proposed US-4 Solar Project pursuant to §§ 56-580 D and 56-46.1 of the Code of Virginia, and for approval of a rate adjustment clause, designated Rider US-4, under § 56-585.1 A 6 of the Code of Virginia*, Case No. PUR-2019-00105, 2020 S.C.C. Ann.

operation in October 2021.[39] Three of DEV's "ring-fenced" projects (*i.e.*, projects whose costs and revenues are associated only with customers, such as governmental customers, not subject to the Commission's jurisdiction) also went into operation, namely Bedford Solar (70 MW), Rochambeau Solar (19.9 MW), and Fort Powhatan Solar (150 MW). Dominion has also constructed 14 MW of energy storage.

Rappahannock Electric Cooperative has constructed a 2 MW energy storage facility. Moreover, merchant generators have put into operation an additional 651 MW of solar capacity since June 30, 2021.

New Development

According to DEV, it has multiple solar facilities currently under development totaling approximately 1,903 MW.[40] DEV also continues to develop approximately 2,587 MW of offshore wind through its commercial Coastal Virginia Offshore Wind ("CVOW") project. With respect to energy storage, according to DEV, it has 87 MW under development.

APCo has a 5 MW solar facility in Amherst, Virginia currently under development, as well as the proposed 150 MW Firefly Solar facility, which is currently pending before the Commission.[41]

Rept. 290, Order Granting Certificate (January 22, 2020), and 2020 S.C.C. Ann. Rept. 298, Order Approving Rate Adjustment Clause (April 13, 2020).

[39] The Commission approved DEV's petition for a prudency determination with respect to this PPA. *See Petition of Virginia Electric and Power Company, For a prudency determination with respect to the Westmoreland Solar Power Purchase Agreement pursuant to § 56-585.1:4 F of the Code of Virginia*, Case No. PUR-2019-00133, 2019 S.C.C. Ann. Rept. 495, Final Order (November 6, 2019).

[40] DEV indicated it has additional solar facilities, as well as energy storage, under development that are not yet public information.

[41] *Application of Firefly Energy LLC and Appalachian Power Company, for certificates of public convenience and necessity for solar generating and associated facilities in Pittsylvania, Virginia*, Case No. PUR-2022-00063, Doc. Con. Cen. No. 220552269, Order for Notice and Hearing (May 26, 2022).

NOVEC has under development a 300 MW solar PPA with D.E. Shaw Renewable Investments, which will be located in Virginia. Central Virginia Electric Cooperative has signed PPAs with Midway Solar (8.4 MW) and Cunningham Solar (5 MW), and these facilities remain under development. Shenandoah Valley Electric Cooperative ("SVEC") has a 0.009 MW solar plus storage facility called the Blue Ridge Parkway Facility which also remains under development.

In addition, merchant generators are developing approximately 4,052 MW of solar facilities, including one solar facility currently pending before the Commission,[42] and other facilities that DEQ has approved through its PBR process.

Summary

The total capacity of solar facilities constructed by IOUs, electric cooperatives, and third-party developers since July 1, 2018 was 2,209 MW as of June 30, 2022. Additionally, 8,120.7 MW of solar facilities were under development by IOUs, electric cooperatives, and third-party developers as of June 30, 2022. Wind capacity under development by IOUs was 2,587 MW as of June 30, 2022. A table reflecting the status of constructed and under development solar, wind, and energy storage projects as of June 30, 2022 is provided in Appendix 4.[43]

[42] *Application of Axton Solar, LLC, for certificates of public convenience and necessity for a nominal 201.1 megawatt solar generating facility located in Henry and Pittsylvania Counties*, Case No. PUR-2021-00085, Doc. Con. Cen. No. 221010151, Final Order (October 7, 2022). On September 16, 2022, Keydet Solar Center LLC, another merchant generator, also filed an application for a CPCN. *Application of Keydet Solar Center, LLC, for certificates of public convenience and necessity for a solar generating facility totaling up to 145 MWac and associated interconnection facilities to be located in Charles City County, Virginia*, Case No. PUR-2022-00154, Doc. Con. Cen. No. 220920055, Application (September 16, 2022).

[43] The Commission's Annual Report on the Construction of New Solar and Wind Projects provides data responsive to each requirement through June 30 of the filing year. The Commission notes, however, that since June 30, 2022, DEV has filed its 2022 RPS proceeding pursuant to the VCEA. DEV's RPS proceeding is docketed as Case No. PUR-2022-00124. DEV's proposed RPS plan includes proposals for further construction and development of solar and wind projects in the future. More detail on this pending proceeding can be found on the Commission's website by searching the relevant case number at: scc.virginia.gov/DocketSearch.

(ii) Integration of Utility-Owned Renewable Electric Generation Resources with the Utility's Electric Distribution Grid

DEV

DEV states that it has integrated 225 MW of utility-owned renewable electric generation resources at the distribution level, across 22 sites. Whether a proposed interconnection is utility-owned or third party-owned, interconnection projects are studied in accordance with the Commission's Regulations Governing Interconnection of Small Electrical Generators, 20VAC5-314, to identify grid modifications needed to accommodate the proposed interconnection while maintaining the safety, reliability, and operability of the grid. DEV indicates that contact information is exchanged between the utility and the interconnection customer such that upon a project's approval for parallel operation with the grid, each party is able to contact the other for grid related information during the operation of the generating facility.

According to DEV, interconnection requests are studied under normal operating conditions, with language included in the interconnection agreements stating that abnormal operating conditions may result in temporary disconnection of the facility from the grid, until normal operating conditions are restored. The distribution grid is subject to more abnormal operating conditions, such as maintenance and construction activities, that may impact the operation of generating facilities compared to those generating facilities that are interconnected directly to the transmission grid.

Electric Cooperatives

Virginia's electric cooperatives regulated by the Commission continue to assess the viability of cooperative-owned renewable generation resources. The cooperatives have participated in multiple working groups on these and other related topics. No further updates regarding integration has been provided by the electric cooperatives this year.

(iii) Aggregate Additional Utility-Owned and Utility-Operated Generating Facilities Utilizing Energy Derived from Sunlight Placed in Operation Since July 1, 2018

All Virginia utility-owned and utility-operated solar generation facilities placed in operation since July 1, 2018 (and as of June 30, 2022) are shown below:

DEV

- UVA Hollyfield Solar Facility, 17 MW, operational September 2018;
- UVA Puller Solar Facility, 15 MW, operational October 2018;
- Montross Solar Facility, 20 MW, operational December 2018;
- Gloucester Solar Facility, 20 MW, operational April 2019;
- Colonial Trail West Facility, 142.2 MW, operational December 2019;
- Rives Road (PURPA),[44] 19.7 MW, operational May 2020;
- Pamplin Solar Facility (PURPA), 15.7 MW, operational July 2020;
- Hickory Solar Facility, 32 MW, operational September 2020;
- Grasshopper Solar Facility, 80 MW, operational October 2020;
- Spring Grove I Facility, 98 MW, operational November 2020;
- CVOW Facility, 12 MW, operational January 2021;
- Water Strider Solar Facility, 80 MW, operational May 2021;
- Belcher Solar Facility, 88.2 MW, operational June 2021;
- Mt. Jackson I Solar Facility, 15.7 MW, operational June 2021;
- Buckingham II Solar Facility, 20 MW, operational July 2021;
- Hollyfield II Solar Facility (PURPA), 13 MW, operational July 2021;
- Sadler Solar Facility, 100 MW, operational July 2021;
- Westmoreland Solar Facility, 19.9 MW, operational October 2021;
- Bedford Solar Facility, 70 MW, operational November 2021;
- Rochambeau Solar Facility, 19.9 MW, operational December 2021; and,
- Fort Powhatan Solar Facility, 150 MW, operational January 2022.

APCo

- Leatherwood Solar Facility (PURPA), 20 MW, operational August 2021;
- Wytheville Solar Facility (PURPA), 20 MW, operational June 2022; and,
- Depot Solar Facility, 5 MW, operational June 2022.

[44] Facilities which qualify under Section 210 of the Public Regulatory Policies Act of 1978 ("PURPA").

(iv) Need for Additional Generation of Electricity Utilizing Energy Derived from Sunlight to Meet the Objective of the General Assembly on or Before July 1, 2028

The table below shows the aggregate solar and wind facilities that have been constructed by Virginia's IOUs and cooperatives since July 1, 2018, as well as the number of additional facilities needed to meet the General Assembly's objective.[45]

Aggregate Solar and Wind Generating Facilities Constructed by IOUs since July 1, 2018

Total Solar & Wind General Assembly Objective	MW
	5,000
Total IOU Owned/Operated Solar Constructed since July 1, 2018:	820.5
Total IOU Solar PPAs Constructed since July 1, 2018:	261.1
Total IOU Owned/Operated Wind Constructed since July 1, 2018:	12
Total IOU Wind PPAs Constructed since July 1, 2018:	0
Total Cooperative Owned/Operated Solar Constructed since July 1, 2018:	0.080
Total Cooperative Solar PPAs Constructed since July 1, 2018:	0
Total Cooperative Owned/Operated Wind Constructed since July 1, 2018:	0
Total Cooperative Wind PPAs Constructed since July 1, 2018:	0
Total Remaining to Meet Objective:	**3,906**

(v) Aggregate Annual New Construction or Purchase of Energy Storage Facilities

DEV has constructed the Scott I Battery Storage Pilot, as well as, the Correctional Battery Storage Pilot, totaling 14 MW.[46] Community Electric Cooperative and SVEC have both

[45] As noted in Enactment Clause 14 of the GTSA, it is the General Assembly's objective that the construction and development of new utility-owned and utility-operated generating facilities utilizing energy derived from sunlight and from wind with an aggregate capacity of 5,000 MW, including rooftop solar installations with a capacity of not less than 50 kW, and with an aggregate capacity of 50 MW be placed in service on or before July 1, 2028.

[46] *Application of Virginia Electric and Power Company, to participate in the pilot program for electric power storage batteries pursuant to § 56-585.1:6 of the Code of Virginia, and for certification of a proposed battery energy storage*

constructed a solar plus storage facility at their headquarters, totally approximately 0.2 MW. Rappahannock Electric Cooperative has constructed a 2 MW storage facility.

SOLAR DEMONSTRATION PROGRAMS

Chapter 771 of the 2011 Virginia Acts of Assembly ("Chapter 771") directs the Commission to consider for approval petitions filed by a utility to construct and operate distributed solar generation facilities and to offer special tariffs to facilitate customer-owned distributed solar generation. Pursuant to Chapter 771, the Commission approved two such applications from DEV:

- An application to construct and operate distributed solar generation facilities (the Solar Partnership Program); and
- An application for approval of tariffs designed to facilitate customer-owned distributed solar generation as an alternative to net metering (the Solar Purchase Program).[47]

The Solar Purchase Program has concluded, and no further data is being provided relative to this program.[48] DEV provided its final annual update related to the Solar Partnership Program on August 1, 2022.[49] For this program, Dominion selected qualifying commercial, industrial, high school, and university customers with suitable facilities, located in select areas. Solar projects were installed at these sites between 2014 and 2017. These projects are used for demonstration and grid impact study purposes. Under the Solar Partnership Program, DEV has nine operational

system pursuant to § 56-580 D of the Code of Virginia, Case No. PUR-2019-00124, 2020 S.C.C. Ann. Rept. 304, Final Order (February 14, 2020).

[47] *Application of Virginia Electric and Power Company, For approval of a special tariff to facilitate customer-owned distributed solar generation pursuant to Chapter 771 of the 2011 Virginia Acts of Assembly*, Case No. PUE-2012-00064, 2013 S.C.C. Ann. Rept. 269, Order (March 22, 2013).

[48] All annual reports related to this program can be found on the Commission's website at: scc.virginia.gov/DocketSearch, by searching the case number (PUE-2012-00064).

[49] *Application of Virginia Electric and Power Company, For approval of a Community Solar Power Program and for certification of proposed distributed solar generation facilities pursuant to Chapter 771 of the 2011 Virginia Acts of Assembly and §§ 56-46.1 and 56-580 D of the Code of Virginia*, Case No. PUE-2011-00117, 2012 S.C.C. Ann. Rept. 328, Order (November 28, 2012).

projects with a total capacity of 6.4 MW. The cumulative revenue requirement from inception through December 31, 2021, is approximately $27.7 million of the $80 million cap originally authorized for this program.

CLOSING

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

APPENDIX 1

GLOSSARY OF TERMS

AC	Alternating Current
APCo	Appalachian Power Company
Chapter 382	Chapter 382 of the 2013 Virginia Acts of Assembly
Chapter 771	Chapter 771 of the 2011 Virginia Acts of Assembly
CPCN	Certificate of Public Convenience and Necessity
Code	Code of Virginia
Commission	Virginia State Corporation Commission
CVOW	Coastal Virginia Offshore Wind
DEQ	Virginia Department of Environmental Quality
DER	Distributed Energy Resource
DERMS	Distributed energy management system
DEV	Virginia Electric and Power Company d/b/a Dominion Energy Virginia
Dominion	Virginia Electric and Power Company d/b/a Dominion Energy Virginia
FRR	PJM's Fixed Resource Requirement Alternative
GT Plan	Grid Transformation Plan
GTSA	Grid Transformation and Security Act, Chapter 296 of the 2018 Acts of Assembly
General Assembly	Virginia General Assembly
IOU	Investor-owned electric public utility
IRP	Integrated Resource Plan
kV	Kilovolt
kW	Kilowatt
MW	Megawatt
NOVEC	Northern Virginia Electric Cooperative
PBR	Permit by Rule
PJM	PJM Interconnection, L.L.C.
PPA	Power Purchase Agreement
REC	Rappahannock Electric Cooperative
RPS	Renewable Energy Portfolio Standard
RTEP	Regional Transmission Expansion Plan
Report	Combined reports of the Virginia State Corporation Commission
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
Staff	State Corporation Commission Staff
SVEC	Shenandoah Valley Electric Cooperative
VCEA	Virginia Clean Economy Act, Chapters 1193 and 1194 of the 2020 Acts of Assembly

APPENDIX 2

Letter to Dominion Requesting an Update on the Underground Pilots

SCC Commonwealth of Virginia
STATE CORPORATION COMMISSION

DAVID ESSAH, Ph.D.
DIRECTOR

DIVISION OF
PUBLIC UTILITY REGULATION
P.O. Box 1197
Richmond, Virginia 23218-1197
(P) 804-371-9611 (F) 804-371-9350

August 17, 2022

Mark S. Allen, P.E.
Director – Project Development and Execution
Power Delivery Group
Dominion Energy Virginia
10900 Nuckols Road, 4th Floor
Glen Allen, VA 23060

Dear Mr. Allen,

As you are aware, Senate Bill 966 ("SB966") was enacted during the 2018 Session of the Virginia General Assembly. Among other provisions, SB966 established a pilot program to construct two qualifying electrical transmission line projects of 230 kilovolts ("kV") or less in whole or in part underground. Dominion's Haymarket I-66 Hybrid Route Project was approved as the first pilot project pursuant to the State Corporation Commission's ("SCC") July 26, 2018, Order On Request to Participate In Pilot Program in Case No. PUE-2015-00107. Subsequently, Dominion's Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Project (Tysons-Future Spring Hill Substation) was also approved by the Commission on June 24, 2021, as the second qualifying project in Case No. PUR-2020-00198.

SB966 also directed the SCC to submit an annual report to the Commission on Electric Utility Restructuring ("CEUR"), the Joint Commission on Technology and Science, and the Governor on the progress of the pilot program by no later than December 1 of each year. In addition, pursuant to Senate Bill 280 ("SB280"), enacted during the 2022 Session of the Virginia General Assembly, the Commission is directed to include in the CEUR report Dominion's industry standard reliability metrics and descriptions of infrastructure investments made over the reporting period related to improving reliability.

To assist in the development of the annual report, the Staff requests that the Company provide:

- A progress report on the construction activities of the Haymarket I-66 Hybrid Route, Tysons-Future Spring Hill Substation, and any other relevant information related to the aforementioned pilot program;
- Dominion's industry standard reliability metrics as specified in SB280; and
- A description of any infrastructure investments made by Dominion over this reporting period to improve electric service reliability.

Please provide the above information to me by September 23, 2022.

Thank you for your assistance, and please contact me if you have any questions.

Regards,

Michael A. Cizenski, P.E.
Deputy Director

APPENDIX 3

Dominion's Underground Pilot Status Update Report

Dominion Energy Virginia Dominion Energy North Carolina
Electric Transmission
PO Box 26666, Richmond, VA 23261
DominionEnergy.com

September 22, 2022

Michael A. Cizenski, P.E.
Deputy Director, Division of Public Utility Regulation
State Corporation Commission of Virginia
1300 E. Main Street, Tyler Building
Richmond, VA 23219

Status Report Regarding Activities Related to
§56-585.1:5 Pilot Program for Underground Transmission Lines

Dear Mr. Cizenski,

The following presents a status report, pursuant to Enactment Clause 2 of SB966, which required, among other things, that the Virginia State Corporation Commission (Commission) report annually to the Commission on Electric Utility Restructuring, the Joint Commission on Technology and Science, and the Governor on the progress of the transmission underground pilot program by no later than December 1 of each year that §56-585.1:5 is in effect.

> *§ 56-585.1:5.F. The Commission shall report annually to the Commission on Electric Utility Restructuring, the Joint Commission on Technology and Science, and the Governor on the progress of the pilot program by no later than December 1 of each year that this section is in effect. The Commission shall submit a final report to the Commission on Electric Utility Restructuring, the Joint Commission on Technology and Science, and the Governor no later than December 1, 2024, analyzing the entire program and making recommendations about the continued placement of transmission lines underground in the Commonwealth. The Commission's final report shall include, but not be limited to, analysis and findings of the costs of underground construction and historical and future consumer rate effects of such costs, effect of underground transmission lines on grid reliability, operability (including operating voltage), probability of meeting cost and construction timeline estimates of such underground transmission lines, and aesthetic or other benefits attendant to the placement of transmission lines underground.*

As such, Dominion Energy Virginia (the Company) is responding to your August 17, 2022, request to assist the Commission in developing the annual report.

Sincerely,

Mark Allen
General Manager
Electric Transmission Capital Projects

Background

On March 1, 2018, the Virginia General Assembly passed legislation, specifically, Enactment Clause 2 of the Grid Transformation and Security Act of 2018 (GTSA), Chapter 296 of the 2018 Virginia Acts of Assembly (codified as Va. Code § 56-585.1:5), creating a pilot program to further the understanding of certain underground electric transmission lines in regard to electric reliability, construction methods and related cost and timeline estimating, and the probability of meeting such projections (the "Pilot Program"). The Governor signed the Pilot Program into law on March 9, 2018. The Pilot Program was effective July 1, 2018.

Consistent with this legislation, and subsequent to the Commission's June 12, 2018 Order on Remand in the Haymarket case (PUE-2015-00107), on July 2, 2018, the Company requested participation in the Pilot Program. Specifically, the Company requested approval of the proposed Haymarket 230 kV double circuit transmission line and 230-34.5 kV Haymarket Substation using the I-66 Hybrid Route as a qualifying project under Section 2 of Enactment Clause 2 of the GTSA.

On July 26, 2018, the Commission issued its Order on Request to Participate in the Pilot Program and approved Dominion Energy Virginia's request for the Haymarket Project using the I-66 Hybrid Route to participate in the Pilot Program. In so doing, the Commission also issued a Certificate of Public Necessity and Convenience ("CPCN") for the Haymarket Project.

The Pilot Program was amended during the 2020 General Assembly Session, passing on February 24, 2020 and signed into law on March 4, 2020. The reporting requirements were substantially left unchanged.

On June 24, 2021, the Commission issued its Final Order on the Line 2010 230 kV Underground Relocation project (PUR-2020-00198). The Company, as part of its application for approval, requested that the Project be approved by the Commission as a project that qualifies as a line to be placed underground, in part, because the Project met all of the statutory requirements set forth in Va. Code § 56-585.1:5 for the Underground Pilot Program (as amended in 2020). As part of the Commission's Final Order, the Project was approved as part of the Pilot Program.

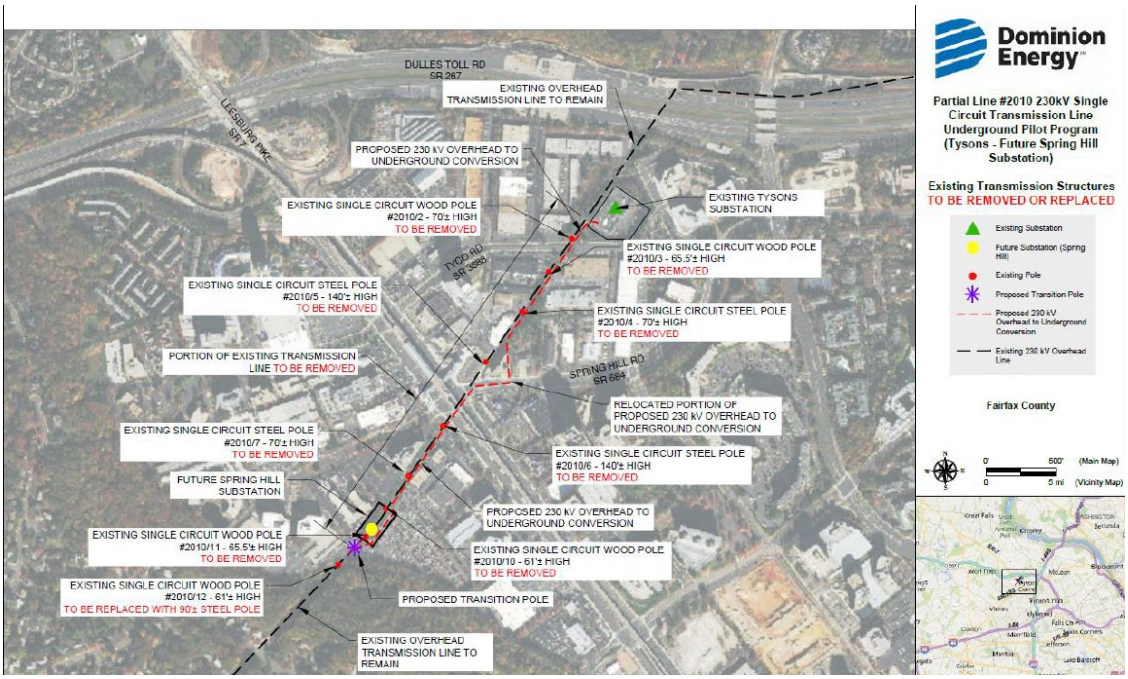
As such, the number of qualifying projects for inclusion in the Pilot Program (as enumerated in Code § 56-585.1:5.A) have been reached. Reporting on the Haymarket Project and now the Line 2010 Underground Project will be included in the Company's annual submission as requested by the Commission.

Line 2010 230 kV Underground Relocation Project

The Project includes:

1) to remove an approximate 0.56 mile segment of its existing overhead 230 kilovolt ("kV") Reston-Tysons Line #2010 from the Tysons Substation to just south of the site for the future Spring Hill Substation and to relocate and replace the line underground;
2) to complete work at the Tysons Substation to allow this segment of Line #2010 to be relocated underground; and

3) to construct a transition pole just south of the future Spring Hill Substation to transition Line #2010 from an underground line to an overhead line.

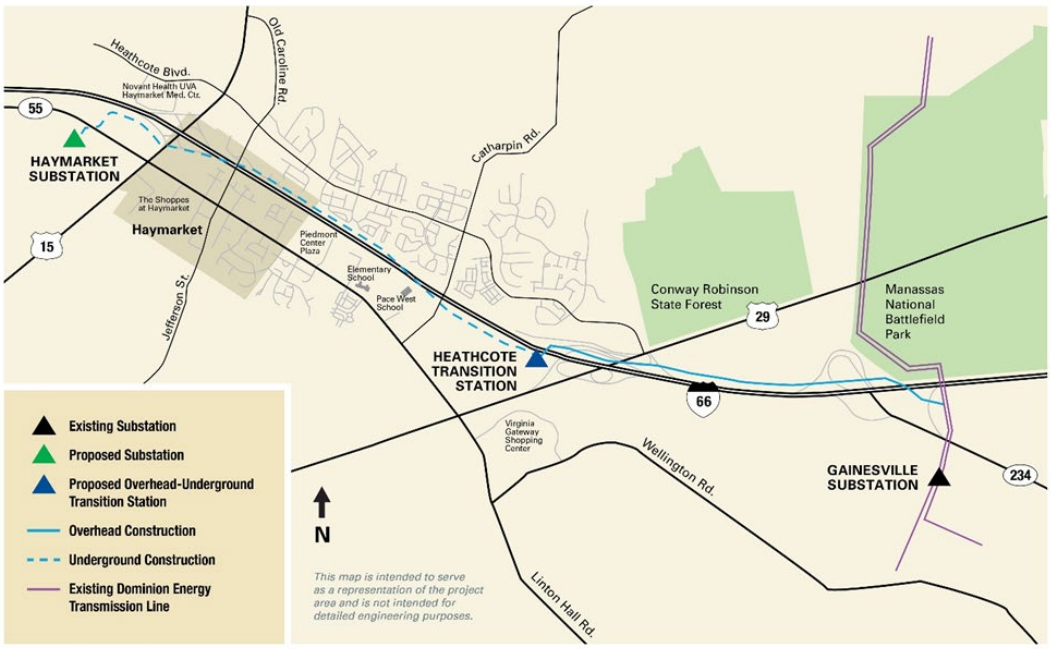


Status Update

Since the Commission's June 24, 2020 approval of the Company's Project and participation in the Pilot Program, the Company has moved into the final engineering and pre-construction phase of the project. As such, these activities are ongoing. The in-service date remains unchanged as December 31, 2025, with construction beginning in Q1 of 2023. The company is executing its contractor bid process and anticipates this being complete by the end of 2022. As such, the cost estimate of $30.4 million as put forward in the case remains accurate at the time of this report.

Haymarket Project: I-66 Hybrid Route

The I-66 Hybrid Route is a 230 kilovolt (kV) double circuit electrical transmission line approximately 5.3 miles long; has both overhead and underground transmission facilities, includes an underground portion which is approximately 3 miles in length; and will be constructed within or immediately adjacent to the right of way of interstate highway I-66 in Prince William County and the Town of Haymarket.



Status Update

As of the end of March 2022, the Haymarket project has been energized and put into service. Remaining construction activities include site area clean up and right of way restoration among other typical end-of-construction activities.

Permitting Activities

No update since last report. All permits have been obtained and will remain active to enable project completion in 2022.

Real Estate Activities

No update since last report. All easements have been obtained. Final costs related to Real Estate activities are $6,243,106.17.

Construction Progress Update

Construction activities include routine project close-out items and demobilization. Site area restoration, soil stabilization/plantings will continue at the seasonally appropriate times to ensure successful erosion and sediment controls take hold.

Cost

The current project expenditures are approximately $221 million. We anticipate nominal costs to be applied to the project during restoration and demobilization activities as we close out the

project and do not anticipate costs to go above our 2021 revised cost estimate of approximately $230 million.

Timeline

Commensurate with the remaining construction-related activities, there are no anticipated major milestones to report.

Conclusion

Given that the Project is energized and in service, with minor close-out construction activities remaining, this will be the last detailed annual report associated with the Haymarket Project, unless specifically asked for by the Commission.

APPENDIX 4

Table of Solar and Wind Construction and Development Status

Investor Owned Utilities

Status of Solar, Wind, Energy Storage Facilities
Constructed or Under Development

As of June 30, 2022*	IOU Owned/ Operated - Jurisdictional	MW	IOU Jurisdictional PPAs	MW	IOU Owned/ Operated - Ring Fenced	MW	Totals
Solar Constructed since July 1, 2018:							
Dominion Energy Virginia:	Colonial Trail West (US3) (12/26/19)	142	Hickory (Aug-Sep 2020)	32	Hollyfield (9/6/18)	17	
	Spring Grove I (US3) (11/24/20)	98	Water Strider (5/15/21)	80	Puller (10/31/18)	15	
	Sadler Solar (US4) (07/06/2021)	100	Westmoreland (10/1/2021)	19.9	Montross (12/12/18)	20	
					Gloucester (4/22/19)	20	
					Grasshopper Solar (10/30/20)	80	
					Belcher Solar (6/30/21)	88.2	
					Bedford Solar (11/23/21)	70	
					Rochambeau Solar (12/23/21	19.9	
					Fort Powhatan (1/19/22)	150	
Appalachian Power Company:			Depot Solar (June 2022, in	5			
	SubTotal:	**340**	**SubTotal:**	**136.9**	**SubTotal:**	**480.1**	**957**

Investor Owned Utilities

Status of Solar, Wind, Energy Storage Facilities
Constructed or Under Development

Solar Under Development since July 1, 2018:							
Dominion Energy Virginia:	CE-1 - Grassfield Solar	20	CE1 - Rivanna PPA	12.5	Maplewood Solar (Amazon A	120	
	CE-1 - Norge Solar	20	CE-1 Watlington PPA	20	Pumpkinseed Solar	59.6	
	CE-1 - Sycamore Creek Solar	42	CE-1 Pleasant Hill PPA	20	Booker's Mill	127	
	CE-2 Camellia	20	CE-1 Chesapeake PPA	118			
	CE-2 Dulles	100	CE-1 Wythe PPA	75			
	CE-2 Fountain Creek	80	CE-1 Cavalier PPA	170			
	CE-2 Otter Creek	60	CE-2 360 Solar 1 PPA	26			
	CE-2 Piney Creek	80	CE-2 360 Solar 2 PPA	26			
	CE-2 Quillwort	18	CE-2 Stratford PPA	15			
	CE-2 Sebera	18	CE-2 Surry PPA	20			
	CE-2 Solidago	20	CE-2 Ho-Fel PPA	50			
	CE-2 Sweet Sue	75	CE-2 Cox PPA	16			
	CE-2 Walnut	150	CE-2 Sinai PPA	10			
	CE-2 Winterberry	20	CE-2 DER PPAs	33			
	CE-2 Winterpock	20					
	CE-2 Black Bear	1.62					
	CE-2 Springfield	2					
	Merry Point	100					
	Moon Corner	60					
	Finneywood	98					
	Laurel Branch	80					
	Rocky Run	300					
	County Line	86					
	Pineside	75					
	Highlands	51.3					
Appalachian Power Company:	Amherst (est. late 2022)	5	Depot Solar (in service Jul	10			
	Firefly (est. late 2024)	150	Horsepen	20			
			Sun Ridge	50			
	SubTotal:	1751.9	SubTotal:	691.5	SubTotal:	306.6	2750
Solar Constructed & Under Development Totals:		**2092**		**828.4**		**786.7**	**3707**

Investor Owned Utilities

Status of Solar, Wind, Energy Storage Facilities
Constructed or Under Development

Wind Constructed since July 1, 2018:								
Dominion Energy Virginia:	Coastal Virginia Offshore Wind Project	12	N/A		N/A			
	SubTotal:	12	SubTotal:	0	SubTotal:	0		12
Wind Under Development since July 1, 2018:								
Dominion Energy Virginia:	CVOW Commercial	2587	N/A		N/A			
	SubTotal:	2587	SubTotal:	0	SubTotal:	0		2587
Wind Constructed & Under Development Totals:		**2599**		**0**		**0**		**2599**

Energy Storage Constructed since July 1, 2018:								
Dominion Energy Virginia:	Scott 1 Battery Storage Pilot - AC Sys	10	N/A		N/A			
	Scott 1 Battery Storage Pilot - DC Sys	2						
	Correctional Battery Storage Pilot	2						
	SubTotal:	14	SubTotal:	0	SubTotal:	0		14
Energy Storage Under Development since July 1, 2018:								
Dominion Energy Virginia:	Hanover Battery Storage Pilot	2	N/A		N/A			
	CE-2 Dulles Storage	50						
	CE-2 Dry Bridge Storage	20						
	CE-3 Shands Storage	15.7						
	SubTotal:	87.7	SubTotal:	0	SubTotal:	0		87.7
Energy Storage Constructed & Under Development Totals:		**101.7**		**0**		**0**		**101.7**
Solar, Wind, & Energy Storage Operational & Under development since July 1, 2018:								**6408**

*This data is provided informally to Staff as of June 30, 2022. This data does not include any projects announced after June 30, 2022.
**The MW indicated are alternating current (AC).

Electric Cooperatives

Status of Solar, Wind, Energy Storage Facilities
Constructed or Under Development

As of June 30, 2022*	Cooperative Owned/ Operated - Jurisdictional	MW	Cooperative Jurisdictional PPAs	MW	Cooperative Owned/ Operated - Ring Fenced	MW	Totals
Solar Constructed since July 1, 2018:							
CEC:	Solar + Storage facility at headquarters	0.052					
SVEC:	2 Solar +Storage facilities at headquarters	0.028	N/A		N/A		
	SubTotal:	0.080	SubTotal:	0	SubTotal:	0	0.08
Solar Under Development since July 1, 2018:							
CVEC:			Midway Solar	8.4			
			Cunningham Solar	5			
ODEC:			ODEC Distribited Solar I	38			
			ODEC Halifax County	10			
SVEC:	Blue Ridge Parkway Facility	0.009					
REC:			REC PPA	0.01			
NOVEC:			PPA, amt. of VA facilities 300	300			
	SubTotal:	0.009	SubTotal:	361	SubTotal:	0	361.42
Solar Constructed & Under Development Totals:		**0.089**		**361**		**0**	**361.50**

Electric Cooperatives

Status of Solar, Wind, Energy Storage Facilities Constructed or Under Development

Wind Constructed since July 1, 2018:							
	N/A		N/A		N/A		
	SubTotal:	0	SubTotal:	0	SubTotal:	0	0
Wind Under Development since July 1, 2018:							
	N/A		N/A		N/A		
	SubTotal:	0	SubTotal:	0	SubTotal:	0	0
Wind Constructed & Under Development Totals:		0		0		0	0

Energy Storage Constructed since July 1, 2018:							
CEC:	Solar + Storage facility at headquarters	0.192	N/A		N/A		
SVEC:	2 Solar +Storage facilities at headquarters	0.011					
REC:	REC facility	2					
	SubTotal:	2.203	SubTotal:	0	SubTotal:	0	2.2034
Energy Storage Under Development since July 1, 2018:							
SVEC:	Blue Ridge Parkway Facility	0.062					
ODEC:			Two 5 MW systems in Prince George and Bath Counties	10	N/A		
	SubTotal:	0.062	SubTotal:	10	SubTotal:	0	10.062
Energy Storage Constructed & Under Developmen		2.265		10		0	12.265
Solar, Wind, & Energy Storage Operational & Under development since July 1, 2018:							**373.77**

*This data is provided informally to Staff as of June 30, 2022. This data does not include any projects announced after June 30, 2022.

**The MW indicated are alternating current (AC).

Others

Status of Solar and Wind Facilities
Constructed or Under Development

As of June 30, 2022*	Other Owned/ Operated	MW	Totals
Solar Constructed since July 1, 2018:			
Dominion Generation Inc. subsidiary	Myrtle Solar (June 2020)	15	
Dominion Generation Inc. subsidiary	Greensville (Dec 2020)	80	
Caden Energix Rives Road LLC:	Rives Road Solar (May 2020)	19.7	
Caden Energix Pamplin LLC:	Pamplin Solar (July 2020)	16	
Energix Mt. Jackson, LLC:	Mt. Jackson Solar I (June 2021)	15.7	
Energix Buckingham, LLC:	Buckingham II Solar (2021)	20.0	
Energix Hollyfield, LLC:	Hollyfield II Solar (July 2021)	13.0	
Energix Leatherwood LLC:	Energix Leatherwood (Aug 2021)	20	
Caden Energix Wytheville LLC	Caden Energix Wytheville (Jun 2022)	20	
Pleinmont Solar LLC:	Pleinmont Solar (Oct. 20 - Aug. 21)	500	
Skipjack Solar Center LLC:	Skipjack Solar (May 2022)	180	
Altavista Solar LLC:	Altavista Solar (6/4/2021)	80	
Desper Solar:	Desper Solar (Dec. 2021)	88.2	
Bluestone Farm Solar , LLC:	Bluestone Solar (May 2021)	49.9	
Whitehorn Solar , LLC:	Whitehorn Solar (Oct. 2021)	50.0	
Alchemy Renewable Energy	Twittys Creek Solar (Dec. 2020)	13.8	
Strata Solar Development LLC:	Danville Farm (Nov 2020)	12	
Gardy's Mill Solar LLC:	Gardy's Mill Solar (Dec. 2020)	14	
Mechanicsville Solar LLC:	Mechanicsville Solar (Sept. 2020)	25	
Briel Solar Farm LLC:	Briel Solar Farm (Aug. 2021)	20	
	SubTotal:	1252	1252

Others

Status of Solar and Wind Facilities
Constructed or Under Development

Solar Under Development since July 1, 2018:			
Dominion Generation Inc. subsidiary	Madison Solar	63	
Tredegar Solar, LLC:	Tredegar Solar Canopy	0	
Axton Solar LLC:	Axton Solar (est. Dec. 2023)	201	
	Aditya Solar	11	**
	Apple Grove Solar	15	**
	Bartonsville Energy Facility II, LLC	50	
	Bartonsville Energy Facility, LLC	80	**
	Bella Terra Solar	100	
	Birchwood Renewables, LLC	55	
	Blue Orchard Solar	10	
	Buckhorn Mountain Solar Project	17	
	Cabin Point Solar Center LLC	75	
	Caden Energix Gladys LLC	60	
	Caden Energix Jarratt LLC	83	
	Caden Energix New Kent, LLC	20	
	Caden Energix Piney River LLC	50	
	Caden Energix Spout Spring LLC	60	
	Carvers Creek Solar	150	**
	Chester Solar Technology Park, LLC	150	
	Children of Chesterfield Solar	20	
	Colonial Solar	7	
	Cow Creek Solar, LLC	1	**
	Endless Caverns North	16	
	Endless Caverns South	16	
	Fairy Stone Solar	12	
	Fisher Chewning Solar	150	
	Fluvanna Middle School Solar Facility	1	
	Foxglove Solar, LLC	75	**
	Foxhound Solar, LLC	83	**
	Green Acres Solar, LLC	5	**
	Greenwood Solar I, LLC	100	**
Continued …	HCE Amelia Solar I, LLC	5	**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	HCE Amelia Solar II, LLC	5	**
	HCE Bustleburg Solar	3	**
	HCE Millboro Springs Solar LLC	5	**
	HCE Moran Solar, LLC	3	**
	HCE Powhatan Solar, LLC	5	**
	HCE Reams Solar	5	**
	HCE Red House Solar, LLC	5	**
	HCE Roark Mill Solar LLC	3	**
	HEC Acorn Solar Facility	1	**
	Hemings Solar	5	**
	Jarratt Energy Facility	49	**
	Jouett Elementary School	1	**
	Kangaroo Solar, LLC	15	
	KDC Solar Kings Creek, LLC	20	**
	King William Solar, LLC	2	**
	Koala Solar, LLC	15	
	Loblolly Solar, LLC	150	
	Logmill Solar	20	
	Louisa County Middle School Solar Facility	1	**
	Maples Solar	15	
	Martinsville Solar, LLC	8	**
	Michaux Solar Center, LLC	50	
	Midway Solar, LLC	8	
	Mineral Gap Data Center	3	**
	Monroe Solar	2	**
	Moody Creek Solar, LLC	150	**
	Moraticco Road Solar 1	20	
	Moss Nuckols Elementary School	1	**
	Mount Nebo Solar Partners, LLC	20	
	Mt. Jackson Solar II, LLC	19	
	Mt. Jackson Solar III, LLC	16	
	NASA Wallops Flight Facility - Main Base	4	**
	NASA Wallops Flight Facility Phase 3B	5	**
	Pigeon Run Solar, LLC	60	**
	Pulaski I Solar	150	
	Randolf Solar	3	**
Continued …	Rappahannock Solar, LLC	2	**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	Red Brick Solar	130	
	Redbud Run Solar	30	
	River Trail Solar	20	
	Riverstone Solar	150	
	Seven Bridges Solar, LLC	116	
	Shockoe Solar, LLC	60	**
	Solar VA 2019 LLC	18	**
	Spring Grove Solar II, LLC	150	**
	Staunton Solar	47	
	STS J. Hodges, LLC (Middlesex ES and MS)	1	**
	STS Joan Bosch, LLC (Cople ES)	1	**
	SunPower Garden Fresh Produce	6	
	Surry Solar Center, LLC	20	
	The Louisa County High School Solar Facility	2	**
	Thomas Jefferson Elementary School Solar Fac	1	
	TPE Irish Road Solar, LLC	5	**
	Trevilians Elementary School	1	**
	Turkey Solar, LLC	14	
	Two Oaks Solar	118	
	VA Cox Cartersville (Ampthill Rd) Solar Proje	16	
	VSF Solar 1, LLC	20	
	VSF Solar 2, LLC	11	
	Waller Solar I, LLC	131	
	Waverly I Solar	50	
	Waverly II Solar	68	
	Westmoreland County Solar Project	20	**
	Whitehorn Solar LLC	50	**
	Whitmell Solar, LLC	5	**
	Windsor PV1, LLC	85	
	Wood Brothers Road Solar	3	**
Merck & Co Inc	Elkton (est. Apr. 2023)	3	
Antares Group Inc	Elm Spring Solar (est. Dec. 2023)	3	
Antares Group Inc	Shenvalee Solar (est. Dec. 2025)	3	
174 Power Global Corp.	Zenith Solar (est. Dec. 2024)	60	
Deer Wood Energy LLC:	Deer Wood Energy (est. Apr. 2025)	50	
	SubTotal:	4052	4052
Solar Constructed & Under Development Totals:		**5304**	**5304**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

Wind Constructed since July 1, 2018:			
	N/A		
	SubTotal:	0	0
Wind Under Development since July 1, 2018:			
	N/A		
	SubTotal:	0	0
Wind Constructed & Under Development Totals:		0	0

Storage Constructed since July 1, 2018:			
	N/A		
	SubTotal:	0	0
Storage Under Development since July 1, 2018:			
Pigeon Run Solar, LLC	Pigeon Run Solar Energy Storage (est. Q3 202	20	
Shockoe Solar, LLC	Shockoe Solar Energy Storage (est. Q2 2023)	20	
	SubTotal:	40	40
Storage Constructed & Under Development Totals:		40	40
Solar, Wind & Energy Storage Operational & Under development since July 1, 201			**5344**

* Operational PURPA facilities are shaded light-blue and are included as IOU PPAs in the summary table

Facilities shaded in darker blue are owned by Dominion legal entities other than Virginia Energy and Power Company

Facilities shaded in light green are operational facilities owned by third parties (non-IOUs),
the data is from the EIA's Inventory of Operating Generators, form EIA-860m - https://www.eia.gov/electricity/data/eia860m/

Facilities shaded in light-yellow are from cases submitted for approval to the SCC; these faclities are shown as operational by the EIA

*Data from the DEQ's website -- PBR solar projects with "[Notice of Intent]-Active," "Application - In Review," and "Permit - Active"
status found at: https://www.deq.virginia.gov/permits-regulations/permits/renewable-energy/renewable-energy-project-status
**This data includes facilities where a PBR has been issued by DEQ

Facilities shaded in darker green are planned solar generators owned by third parties (non-IOUs),
the data is from the EIA's Inventory of Planned Generators, form EIA-860m - https://www.eia.gov/electricity/data/eia860m/

APPENDIX 5

Dominion Distribution Reliability Request Executive Summary

Dominion Energy Virginia
Distribution Reliability and Tree Trimming Questions
Executive Summary

Summary of Changes from 2021 submission:

In 2021, there were no major changes to the Company's service reliability with respect to goals, customer service, resource management, and organizational structure.

The Company is executing the following Grid Transformation Plan Phase IB and Phase II activities as approved by the Commission.

- Mainfeeder Hardening projects targeting improvements for poorly performing mainfeeder segments;
- Targeted Corridor Upgrades that remediate ash tree mortality and apply herbicides for ground floor maintenance;
- Voltage Island Mitigation projects; and
- Fault Location, Isolation and Service Restoration (FLISR) projects.

Summary of Reliability:

Service reliability in 2021 improved over the Company's 2020 performance, due in part to weather activity. The number of major event days in 2021 was 6% less than in 2020. Overall, SAIDI excluding Major Events declined 5% over the 2020 metric, and SAIDI including Major Events (but excluding Unique Events) declined by 13%. See table below for summary of major reliability metrics for 2021.

	Excl ME	Incl ME
SAIDI	132.1	308.9
SAIFI	1.2	1.5
Number of Outages	45,594	51,169

Number of Major Events	13
Number of Major Event Days	16
Number of Catastrophic Storms	1