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STATE CORPORATION COMMISSION

December 1, 2023

The Honorable Glenn Youngkin
Governor, Commonwealth of Virginia

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

The Honorable Terry G. Kilgore
Vice Chair, House Committee on Commerce and Energy

The Honorable Scott A. Surovell
Chair, Commission on Electric Utility Regulation

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 me know if I can be of further assistance.

Respectfully submitted,

Jehmal T. Hudson
Chairman

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

Biennial Report on Third Party PPA Pilot Program
Pursuant to Chapter 382 of the 2013 Virginia Acts of Assembly

December 1, 2023

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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 grid 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 2022, such annual investments were:

Company	Generation	Transmission	Distribution
Dominion Energy Virginia	$407.0 million	$1,274.0 million	$1,060.0 million
Appalachian Power Company	$92.9 million	$160.4 million	$249.7 million

With respect to infrastructure investments to improve reliability, as part of 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) substation technology deployment 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.

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 is currently under construction, with DEV trenching along the line route and installing electrical duct banks. The project cost, originally estimated to be approximately $30.4 million, is currently estimated at $32 million, which represents an increase of approximately 5.3% over the original estimated cost. The projected in-service date of December 31, 2025 remains unchanged.

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, 2023, Virginia utilities placed into operation solar facilities totaling 1,062 megawatts ("MW") of nameplate generation capacity in the Commonwealth. Dominion also has under development approximately 2,878 MW of nameplate solar generation and 2,587 MW of nameplate offshore wind generation capacity off the Commonwealth's Atlantic shoreline.[1] APCo currently has 5 MW of nameplate solar generation capacity under development as of June 30, 2023. Third parties are also developing facilities that may provide approximately 4,611 MW of additional nameplate solar generation capacity in the Commonwealth. DEV has constructed the Hanover Battery Storage Pilot (2 MW) Project, for a total of 16 MW of energy storage in operation.[2]

Third Party Power Purchase Agreement Pilot Program (Chapter 382 of the 2013 Virginia Acts of Assembly):

The Third Party Power Purchase Agreement ("PPA") Pilot Program is underway for each investor-owned electric utility in Virginia. This program enables the owner or operator of a solar-powered or wind-powered electricity generation facility, located on premises owned or leased by an eligible

[1] These figures refer to data provided by Dominion as of June 30, 2023. In next year's report, the Commission will update these amounts to include additional projects and purchased power agreements ("PPAs") proposed in Dominion's 2023 RPS Filing, Case No. PUR-2023-00142, filed on October 3, 2023.

[2] *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 (Feb. 14, 2020).

customer-generator, to sell the electricity generated from such facility exclusively to the eligible customer-generator under a PPA. The pilot programs are limited to aggregated capacity not exceeding: (i) 500 MW for Virginia jurisdictional and 500 MW for Virginia non-jurisdictional customers; and (ii) six percent of each Pilot Utility's adjusted Virginia peak-load forecast for the previous year.

As of October 1, 2023, the cumulative capacity of facilities participating in the Third Party PPA Pilot Program has not yet reached the participation caps for any utility. Notices of intent for each PPA program currently estimate about 76.3 MW, 7.9 MW, and 7.2 MW of total solar generating capacity for DEV, APCo and Kentucky Utilities Company d/b/a Old Dominion Power Company ("ODP"), respectively. It is worth noting that ODP has received notices of intent for almost 63% of its available capacity, the largest percentage of the three utilities.

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.[3] 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;[4]
- 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.[5]
- Third Party PPA Pilot Program: 2013 Virginia Acts of Assembly Chapter 382 first directed the Commission to review the Pilot Program in 2015 and every two years thereafter.[6] In its review, the Commission shall determine whether the Pilot Program limitations should be expanded, reduced, or continued.

[3] This requirement is codified at Code of Virginia ("Code") § 56-596.3.

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

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

[6] Chapter 382 has been amended and reenacted in subsequent years.

Background of Legislation

In 2018, the General Assembly passed the GTSA, which, among other things, 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.

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 petition was filed by APCo during the past year. On March 31, 2023, DEV filed a petition for approval of Phase III of its grid transformation plan, and the Commission issued its Final Order in that proceeding on September 18, 2023.[7] That petition represented DEV's fourth petition with the Commission related to grid modernization.[8] With that latest filing, DEV sought approval of Phase III of DEV's ten-year grid transformation plan, which covers the years 2024 to 2026. As proposed, DEV's forecasted investment in Phase III of the GT Plan was as follows:

Portion of GT Plan	Total Capital Investment	Operations/Maintenance Costs
Phase III (2024-2026)	$1.10 billion	$70.6 million
Full 10-year GT Plan	$3.12 billion	$ 434.3 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-2023-00051, Doc. Con. Cen. No. 230930084, Final Order (Sept. 18, 2023) ("Phase III Final Order").

[8] The Commission has previously considered three GT Plan filings by DEV, consisting of Phase IA, Phase IB, and Phase II of DEV's grid transformation plan ("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 (Mar. 26, 2020) ("Phase IB Petition"); *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, 2022 S.C.C. Ann. Rept. 271, Final Order (Jan. 7, 2022) ("Phase II Petition").

For purposes of its Phase III Final Order, the Commission grouped DEV's proposed investments into several categories of related elements, and approved as reasonable and prudent all or portions of the following proposed investments: (i) advanced metering infrastructure; (ii) the customer information platform; (iii) targeted corridor improvement; (iv) voltage island mitigation; (v) a distributed energy management system ("DERMS"); (vi) voltage optimization enablement; (vii) substation technology deployment; (viii) telecommunications; (ix) cyber security; (x) physical security; and (xi) 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 its grid transformation plan.

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") 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. 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"), the project's impacts on Environmental Justice communities,[9] 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.

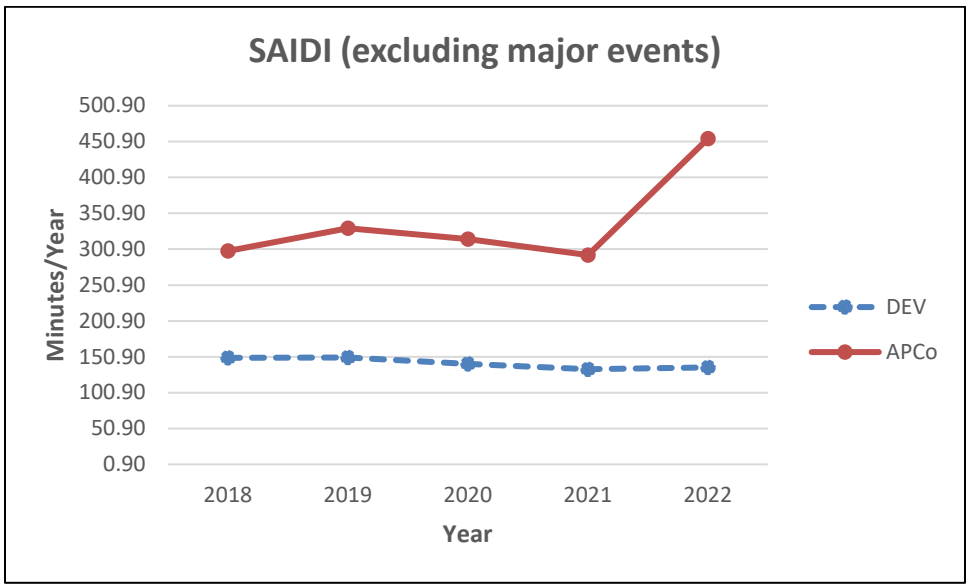
At the electric distribution level, the Commission monitors service reliability through a number of measures, including the Annual Reliability and Tree Trimming Report required from each of Virginia's three investor-owned electric utilities ("IOUs").[10] This report tracks various reliability indices 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 five years, based on data submitted by the companies in their annual reliability reports sent to the Commission.

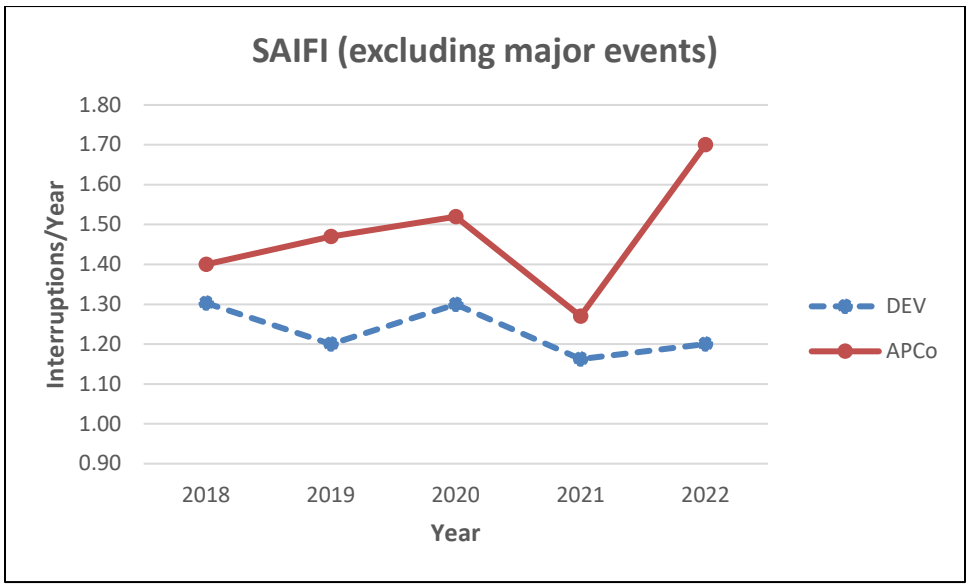
[9] Code §§ 2.2-234 and 2.2-235.

[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.





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 III of its GT Plan, Dominion proposed continued 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's approval of DERMS remains conditioned upon notification that Dominion's proposed DERMS meets 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 9VAC15-100-10 *et seq*., 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 III Final Order at 11. "FERC" is the Federal Energy Regulatory Commission.

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
2022	19,434.0	407.0	13,034.0	1,274.0	14,681.0	1,060.0	1,019.0	107.0

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
2022	6,776.8	92.9	4,482.2	160.4	4,933.0	249.7	883.3	186.7

[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, purchases from PJM's energy market, and bilateral contracts for capacity. 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 2025, either through company-owned generation or bilateral capacity purchases.[20] APCo has had relatively flat-to-declining growth in its summer peak demand since 2011. On May 1, 2023, DEV filed its 2023 IRP, which is currently pending before the Commission. DEV's 2023 IRP indicated that, in PJM's 2023 load forecast, PJM incorporated several changes to its load forecasting methodology and 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 2022.[21] In its 2023 IRP, DEV anticipates DOM LSE[22] summer peak demand and energy forecast compound annual growth rates of 2.3% and 3.3%, respectively, between 2023 and 2048.[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/2024-2025/2024-2025-base-residual-auction-report.ashx.

[21] *Commonwealth of Virginia, ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's 2023 Integrated Resource Plan filing pursuant to Va. Code § 56-597 et seq.*, Case No. PUR-2023-00066, Doc. Con. Cen. No. 230510019, IRP at 6, 55-58, (May 1, 2023) ("2023 IRP"). *See also*, Rebuttal Testimony of Company witness Rajan at 3-5 and Rebuttal Testimony of Company witness Bradshaw at 3, 15-16.

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

[23] 2023 IRP at 43.

Additionally, both companies are subject to the renewable energy portfolio standard program ("RPS") provisions of the Virginia Clean Economy Act ("VCEA"), which establishes annual goals for the sale of renewable energy to retail customers in each utility's service territory.[24]

Distribution System Hardening Projects and Enhanced Physical Security Measures

The Commission previously approved the following components of Dominion's Phase IB and Phase II GT Plans that are designed to address distribution system hardening: (i) Mainfeeder Hardening Program (Phase IB cost: $47.9 million); (ii) Targeted Corridor Improvement Program (Phase IB cost: $12.8 million, Phase II cost: $16.3 million); (iii) Substation Technology Deployment projects (Phase II cost: $32.1 million); (iv) Voltage Island Mitigation Program (Phase IB cost: $6.7 million, Phase II cost: $11.4 million); and (v) Fault Location, Isolation and Service Restoration ("FLISR") projects (Phase II cost: $10.0 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 feeders 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] Dominion's Substation Technology Deployment projects seek to

[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, ("Rider GT"), 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 II Petition, Direct Testimony of Company witness Wright at 12-13.

modernize DEV's distribution grid in support of integrating a growing amount of DER while maintaining reliability, resilience and power quality.[28] Dominion's FLISR projects consist of multiple intelligent grid devices used in a telecommunications network to automatically isolate outages and reroute power to restore the most customers possible in a matter of seconds or minutes. Finally, the Voltage Island Mitigation Program, Dominion asserts, would address portions of the distribution grid, typically serving remote communities, where there is no available system redundancy to address failure of the single substation transformer serving the area. 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.[29]

As part of its Phase III Plan, DEV received approval, among other things, to expand its Mainfeeder Hardening Program, consisting of the 44 mainfeeders that DEV has hardened or is planning to harden in 2022 and 2023 (total cost: $230.6 million; Phase III cost: $182.7 million); continue its Targeted Corridor Improvement Program[30] (total cost: $61.0 million; Phase III cost: $31.9 million); address six additional voltage islands (total cost: $43.4 million; Phase III cost: $25.3 million); and enhance physical security at 18 critical distribution substations (total cost: $117.7 million; Phase III cost: $71.0 million).[31] 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 II Petition, Direct Testimony of Company witness Wright at 39.

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

[30] In addition to the existing ash tree removal and herbicide treatment programs, DEV's Targeted Corridor Improvements include the new hazard tree and tree overhang removal pilot programs. The hazard tree pilot program aims to identify dead or decaying trees from outside the right-of-way, which could impact electrical lines should they fall. For the tree overhang pilot, the DEV plans to identify and remove all tree growth over the 100 worst performing feeders in Virginia.

[31] Rider GT, Direct Testimony of Company witness Eisenrauch at Schedule 1 and Phase III Final Order at 5-6.

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.[32] 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[33] (which uses the I-66 Hybrid Route);[34] and (ii) one additional qualifying project that shall be the relocation or conversion of an existing 230 kV overhead line to an underground line. According to DEV, the first pilot project, Haymarket, has been energized and is currently in service as of the end of March 2022. As such, the annual reporting on the Haymarket project is complete.

[32] *See* Code § 56-585.1:5.

[33] *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 (Jul. 26, 2018).

[34] 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.

The additional qualifying project[35] selected was Dominion's Partial Line #2010 230 kV Single Circuit Transmission Line Underground Pilot Project (Tysons Future Spring Hill Substation) ("Line #2010 Underground Relocation Project").[36] This project was approved by the Commission on June 24, 2021 and is currently under construction.

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 will also rule on inclusion of the project in the Undergrounding Pilot.

Progress of the Undergrounding Pilot

On September 29, 2020, Dominion filed an application "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)," in Case No. PUR-2020-00198. As mentioned previously, on June 24, 2021, the Line #2010 Underground Relocation Project received Commission approval as the second qualifying underground pilot project. Appendix 2 of this Report provides a letter from Commission Staff ("Staff") to DEV requesting a status update on the Underground Pilot projects. Appendix 3 provides the status update, dated September 29, 2023, noting the completion of the Haymarket Project, and providing details on the

[35] 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.

[36] *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).

permitting, real estate, engineering, construction activities, cost, and schedule of the Line #2010 Underground Relocation Project.

According to DEV's update, the Line #2010 Underground Relocation Project is currently under construction with DEV trenching along the line route and installing electrical duct banks.

According to Dominion, the current Line #2010 Underground Relocation Project expenditures are approximately $15.5 million. The total project cost, originally estimated to be approximately $30.4 million, is currently estimated at $32 million, which represents an increase of approximately 5.3% over the original estimated total cost. The projected in-service date of December 31, 2025 remains unchanged from the original estimates.

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 MW 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, 2023.[37]

(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 CE-1 Grassfield Solar Facility (20 MW) and CE-1 Sycamore Creek Solar Facility (42 MW)[38] were placed into operation in October 2022 and March 2023 respectively. The CE-1 Watlington (20 MW), CE-1 Pleasant Hill (20 MW), and CE-2 Stratford Solar Facilities (15 MW), facilities subject to PPAs with DEV, were put into operation in March 2023, June 2023 and November 2022, respectively. Two of DEV's "ring-fenced" projects (*i.e.*, projects whose costs and revenues are not subject to the Commission's jurisdiction) also went into operation, namely Maplewood Solar (120 MW) and Pumpkinseed Solar (59.6 MW, also referred to as Meherrin Solar).

With respect to APCo, APCo's 15 MW Depot Solar PPA located in Campbell County is now in full operation.

In addition, 71 MW of solar facilities operated by merchant generators have been constructed since June 30, 2022, for a total of 1,330 MW of solar facilities that have been constructed since the passage of the VCEA.

[37] 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.

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

New Development

According to DEV, it has multiple owned solar facilities, PPAs, and a ring-fenced facility currently under development totaling approximately 3,704 MW.[39] 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 approximately 1,137 MW under development. DEV also has 82 MW of energy storage PPAs under development.

APCo's 5 MW solar facility located in Amherst, Virginia was still under development as of June 30, 2023. APCo's Horsepen (20 MW) PPA is also currently under development.[40] The Firefly (150 MW), Dogwood (18.9 MW), and Sun Ridge (50 MW) PPA facilities, which previously received approval from the Commission, have subsequently been terminated due to price increases.[41]

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 a PPA with a 5 MW solar facility located in Palmyra. These facilities remain under development.

In addition, merchant generators are developing approximately 4,611 MW of solar facilities, and 72 MW of wind facilities.

Summary

The total capacity of solar facilities constructed by IOUs, electric cooperatives, and third-party developers since July 1, 2018 was 2,594 MW as of June 30, 2023. Additionally,

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

[40] Staff notes that the Commission granted reapproval of the Horsepen PPA in APCo's most recent RPS Plan. *See Petition of Appalachian Power Company, for approval of its 2023 RPS Plan under § 56-585.5 of the Code of Virginia and related requests,* Case No. PUR-2023-00001, Doc. Con. Cen. No. 230910123, Final Order at 12 (Sep. 7, 2023).

[41] *Petition of Appalachian Power Company, for approval of its 2023 RPS Plan under § 56-585.5 of the Code of Virginia and related requests,* Case No. PUR-2023-00001, Doc. Con. Cen. No. 230320211, Petition at 18 (Mar. 15, 2023). Additionally, Bedington solar facility (50 MW) located in West Virginia was also terminated.

11,020 MW of solar facilities were under development by IOUs, electric cooperatives, and third-party developers as of June 30, 2023. Wind capacity under development by IOUs was 2,587 MW as of June 30, 2023. A table reflecting the status of constructed and under development solar, wind, and energy storage projects as of June 30, 2023 is provided in Appendix 4.[42]

(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, which has not changed since last year's report. 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 and Storage, 20VAC5-314-10 *et seq*., 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

[42] 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, 2023, DEV has filed its 2023 RPS proceeding pursuant to the VCEA. DEV's RPS proceeding is docketed as Case No. PUR-2023-00142. DEV's 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.

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 electric cooperatives have participated in multiple working groups on these and other related topics. No further updates regarding integration have 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 and wind facilities placed in operation since July 1, 2018 (and as of June 30, 2023) 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),[43] 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 Pilot Wind 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;

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

- Rochambeau Solar Facility, 19.9 MW, operational December 2021;
- Fort Powhatan Solar Facility, 150 MW, operational January 2022;
- Pumpkinseed/Meherrin Solar Facility, 59.6 MW, operational September 2022;
- CE-1 Grassfield Solar Facility, 20 MW, operational October 2022;
- CE-2 Stratford Solar Facility, 15 MW, operational November 2022;
- Maplewood Solar Facility, 120 MW, operational December 2022;
- CE-1 Watlington Solar Facility, 20 MW, operational March 2023;
- CE-1 Sycamore Creek Solar Facility, 42 MW, operational March 2023; and,
- CE-1 Pleasant Hill Solar Facility, 20 MW, operational June 2023

APCo

- Leatherwood Solar Facility (PURPA), 20 MW, operational August 2021;
- Wytheville Solar Facility (PURPA), 20 MW, operational June 2022; and,
- Depot Solar Facility, 15 MW, operational June 2022.

(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 electric cooperatives since July 1, 2018, as well as the number of additional facilities needed to meet the General Assembly's objective.[44]

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

Total Solar & Wind General Assembly Objective (2023)	MW
	5,000
Total IOU Owned/Operated Solar Constructed since July 1, 2018:	1062
Total IOU Solar PPAs Constructed since July 1, 2018:	326.1
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

[44] 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.

Total Cooperative Solar PPAs Constructed since July 1, 2018:	371
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:	**3,228**

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

DEV has constructed the Hanover Battery Storage Pilot (2 MW) for a total of 16 MW of energy storage in operation.[45] Merchant generators also have an additional 180 MW of energy storage facilities under development.

THIRD PARTY PPA PILOT PROGRAM

Pursuant to Chapter 382 of the 2013 Acts of Assembly ("Chapter 382"), the Commission has been conducting a pilot program ("Third Party PPA Pilot Program") in DEV's service territory. Under this pilot, persons owning or operating a solar-powered or wind-powered electric generation facility, with a capacity between 50 kW and 1 MW, may sell the electricity generated from that facility to an eligible customer-generator through a PPA. The facility at issue must be located on premises owned or leased by the eligible customer-generator.[46] The Third Party PPA Pilot Program was initially limited to 50 MW within DEV's service territory. Both jurisdictional and non-jurisdictional customers (those whose rates are not regulated by the Commission) may participate.[47]

[45] *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 (Feb. 14, 2020).

[46] The PPA may secure third party financing of the costs of the renewable generation facility.

[47] The minimum project size requirement of 50 kW does not apply to certain non-profit entities.

On April 5, 2017, the General Assembly approved Chapter 803 of the 2017 Acts of Assembly, amending and reenacting Chapter 382 to permit non-profit private institutions of higher education in APCo's service territory to participate in the Third Party PPA Pilot Program as well, and to increase the limitation on the aggregated capacity of all generation facilities that are subject to such third party PPAs in APCo's service territory up to an overall limit of 7 MW until July 1, 2022.

On April 11, 2020, the General Assembly approved the VCEA, which, among other things, amends and reenacts § 1 of the first enactment clause of Chapters 358 and 382 of the Acts of Assembly of 2013 and Chapter 803 of the Acts of Assembly of 2017. Effective July 1, 2020, these changes modified the existing pilot programs of DEV and APCo and expanded the relevant area to include the service territory of ODP. Under the VCEA, the maximum size of eligible facilities increased to 3 MW each.[48] Further, the VCEA expanded the participation limits to not exceed either: (i) 500 MW for DEV's Virginia jurisdictional and non-jurisdictional customers, or, (ii) 40 MW for customers of APCo or ODP. The VCEA also expanded the exemption from the minimum size requirement to include low-income entities.

On July 1, 2022, the participation limits were automatically adjusted to: (i) 500 MW for Virginia jurisdictional and 500 MW for Virginia non-jurisdictional customers; and (ii) six percent of each Pilot Utility's adjusted Virginia peak-load forecast for the previous year, based on the requirements of Chapter 803 of the 2017 Acts of Assembly.

[48] In addition, the aggregated capacity of such facilities constitutes a portion of the existing limit of six percent of each pilot utility's adjusted Virginia peak-load forecast for the previous year that is available to eligible customer-generators pursuant to the net metering provisions of Code § 56-594 E.

Guidelines governing the Third Party PPA Pilot Program were established by the Commission on November 14, 2013,[49] and were updated on June 29, 2017, to implement pilot program participation in APCo's service territory.[50] The Guidelines were further updated on May 29, 2020, to implement pilot program participation in ODP's service territory and to reflect additional program limitations.[51]

As of October 1, 2023, the Commission has received notices of intent from twenty-eight providers in DEV's service territory to enter into third party PPAs for the purchase of solar generating capacity. The proposed projects encompass installations at 249 facilities, including schools, churches, and banking institutions, among other locations. The total expected capacity of the generation facilities related to these notices is approximately 76,336.932 kW AC. To Staff's knowledge, 123 of these solar facilities are operational and provide 27,066.65 kW AC of power. Among the current notices of intent received, approximately 28.5% are from jurisdictional customers within DEV's service territory, while 71.5% are from non-jurisdictional customers within DEV's service territory.

The Commission has received 19 notices of intent from four providers to install pilot-related facilities and enter into third party PPAs for the purchase of solar generating capacity in APCo's service territory. The total expected capacity of the generation facilities related to these notices is approximately 7,968.4 kW AC. Approximately 31% of the current notices of intent are

[49] *Commonwealth of Virginia, ex rel., State Corporation Commission, Concerning the establishment of a renewable energy pilot program for third party power purchase agreements*, Case No. PUE-2013-00045, 2013 S.C.C. Ann. Rept. 405, Order Establishing Guidelines (Nov. 14, 2013). These guidelines and posted information on participating projects are located at: https://www.scc.virginia.gov/pages/Renewable-Energy-Pilot-Program.

[50] *Commonwealth of Virginia, ex rel., State Corporation Commission, Concerning the establishment of a renewable energy pilot program for third party power purchase agreements*, Case No. PUE-2013-00045, 2017 S.C.C. Ann. Rept. 283, Order Updating Guidelines (June 29, 2017).

[51] *Commonwealth of Virginia, ex rel., State Corporation Commission, Concerning the establishment of a renewable energy pilot program for third party power purchase agreements*, Case No. PUE-2013-00045, 2020 S.C.C. Ann. Rept. 210, Order Updating Guidelines (May 29, 2020).

from jurisdictional customers within APCo's program. To Staff's knowledge, three of these solar facilities are operational and in total provide 700.4 kW AC of power.

Similarly, the Commission has received 14 notices of intent from four providers to install pilot-related facilities and enter into third party PPAs for the purchase of solar generating capacity in ODP's service territory. The total expected capacity of the generation facilities related to these notices is approximately 7,263.2 kW AC. Approximately 7.1% of the current notices of intent were filed by jurisdictional customers within ODP's program. To Staff's knowledge, five of these solar facilities are operational and in total provide 3,820 kW AC of power.

As referenced above, the Third Party PPA Pilot Program limitation on the aggregated capacity of such facilities, including both jurisdictional and non-jurisdictional customers, constitutes a portion of the existing limit of six percent of each Pilot Utility's adjusted Virginia peak-load forecast for the previous year that is available to eligible customer-generators pursuant to Code § 56-594 E. The corresponding pilot program limitations for 2023 are: 736.8 MW for DEV; 170.7 MW for APCo; and 10.7 MW for ODP. These limits will be revised annually to be effective on January 1.

To date, the cumulative capacity of facilities participating in the Third Party PPA Pilot Program has not reached or exceeded the program's capacity participation caps for any utility. However, it is worth noting that ODP has received notices of intent for almost 63% of its available capacity. The Commission will continue to monitor the Third Party PPA Pilot Program and maintain its website listing of participants.

CLOSING

The Commission continues to monitor each of the specified areas required 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 Pilot Projects

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 21, 2023

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 House Bill 414 ("HB414"), 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 Tysons-Future Spring Hill Substation and any other relevant information related to the aforementioned pilot program including, but not limited to, any remaining updates to the Haymarket I-66 Hybrid Route Project report;
- Dominion's industry standard reliability metrics as specified in HB414; 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 29, 2023.

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 29, 2023

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 21, 2023, 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.

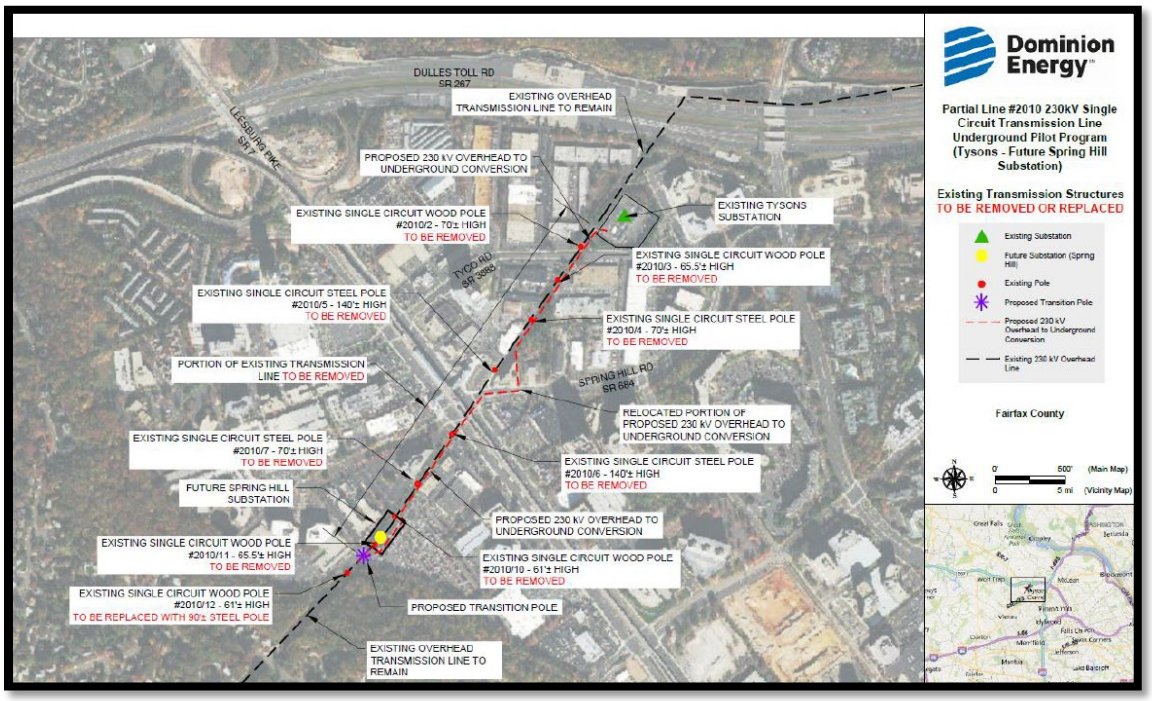
On June 24, 2021, the Commission issued its Final Order on the Line 2010 230 kV Underground Relocation project (PUR-2020-00198). The Company, as part of its application for approval, requested that the Project be approved by the Commission as a project that qualifies as a line to be placed underground, 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 Line 2010 Underground Project will be included in the Company's annual submission as requested by the Commission. The Company provided notice in its September 2022 Report that it would no longer provide updates on the Haymarket Project as it was completed in March 2022.

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

As of the last update provided in 2022, the Company was in the final engineering and pre-construction phase of the project. In April 2023, the Company began construction and is currently in the process of trenching along the line route and installing duct bank housing the conduits and electric cables.

Permitting Activities

The Company has obtained all applicable permits to perform the project work. They are detailed below with notes on permitting challenges.

VDOT Permits:

- Survey Permit across Rt. 7 – Received 11/30/2022

- Construction Entrance permits – Received 01/23/2023
- Open Cut Trenching across Rt. 7 and Tyco Road – Applied for 09/29/2022; Received 07/28/2023
    - Delays in obtaining the permit for trenching work were related to challenges in communication with the permitting agency along with multiple revision requests and version reviews by the agency.

VA DEQ Permits:

- DEQ SWM Waiver – Received 12/21/22

Fairfax County Permits:

- Noise Waiver - Applied 2/1/23; Received 4/14/2023

Real Estate Activities

All easements have been acquired except for an approximately 240-foot by 30-foot permanent easement section on the Tysons Development, LLC property. Due to the proposed location of the future planned development conflicting with the Company's existing right of way, an agreement has not yet been reached. The Company is engaged in discussions with the property owner to come to an agreement that works for all parties involved. Further delays in acquisition of this easement could impact the completion date and costs because of contractor delay charges.

Construction Progress Update

Construction started in April 2023, slightly after the originally projected Q1 2023 start communicated in the 2022 Status Update. Two manholes, which were required for this project, have been installed. Work is currently focused on trenching the line route to install duct bank for conduit and cables. Crews are limited to working during overnight hours in public roads. This has created a challenge, which is accounted for in the project schedule but hasn't impacted overall completion date.

Construction progress is on track. Specific activity progress as of September 2023 is detailed below with notes on challenges faced by the construction team.

- **Open trench and duct bank installation – 43% complete**
    - The construction team encountered unexpected as-built conditions of other utilities. The poor condition of neighboring utilities, such as a large storm drain inundating the trench with water compounded by a very unusual and abrupt change in depth of a gas transmission line has affected in-field activities and has required spot-issue resolutions.
    - Completion could be impacted significantly if we cannot finish Route 7 trenching before the steel plate restriction is in place in November.

- **Conduit installation – 43% complete**
- **Manhole installation – 100% complete**
- **Cable installation, splicing, and testing – 0% complete**
- **Overhead line removal – 0% complete**

Financial

The actual spend as of Sept. 22, 2023 is $15.5 million. The contract has been awarded and the contractor mobilized earlier this year. Most of the cable has been received and is recognized in the actual spend-to-date figure.

The current total forecasted cost is $32 million. The original cost estimate was $30.4 million (in 2020 dollars).

Vesper Trail Coordination

The Company has coordinated with Fairfax County staff and project neighbors to communicate project activities impacting use of a pedestrian trail along the project route. Initial coordination with Fairfax County began in December 2021. The Company held a virtual call with neighbors in April 2023 prior to closing the trail for approximately one week to install the first manhole. As the Company prepares to close the trail to pedestrians between November 2023 and February 2024, continued coordination with the County and outreach to neighbors through local signage, postcards, and project webpage updates will occur. Project information can be found at www.DominionEnergy.com/springhilltysons.

Timeline

The in-service date remains unchanged on or before December 31, 2025

Photos

***Left Image**: Top manhole section being set in place.*
***Right Image**: An excavated trench section with shoring walls in place to ensure worker safety.*

APPENDIX 4

Table of Solar, Wind, and Energy Storage Construction and Development Status

Investor Owned Utilities

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

As of June 30, 2023*	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	
	Grassfield Solar (CE-1) (10/20/2022)	20	CE-1 Watlington PPA (3/1/2023)	20	Gloucester (4/22/19)	20	
	Sycamore Creek Solar (CE-1) (3/30/2023)	42	CE-1 Pleasant Hill PPA (6/1/2023)	20	Grasshopper Solar (10/30/20)	80	
			CE-2 Stratford PPA (11/1/2022)	15	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	
					Maplewood Solar (RF) (12/19/2022)	120	
					Pumpkinseed Solar (RF) (9/30/2022)	59.6	
Appalachian Power Company:			Depot Solar (June 2022, in part)	15			
	SubTotal:	**402**	**SubTotal:**	**201.9**	**SubTotal:**	**659.7**	**1264**

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 - Norge Solar	20	CE-1 Rivanna PPA	12.5	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 Surry PPA	20			
	CE-2 Sebera	18	CE-2 Ho-Fel PPA	50			
	CE-2 Solidago	20	CE-2 Cox PPA	16			
	CE-2 Sweet Sue	75	CE-2 Sinai PPA	10			
	CE-2 Walnut	150	CE-2 DER PPAs	33			
	CE-2 Winterberry	20	CE-3 Switchgrass PPA	69			
	CE-2 Winterpock	20	CE-3 Groves Solar PPA	16.2			
	CE-2 Black Bear	1.62	CE-3 Harrisonburg Solar PPA	15			
	CE-2 Springfield	2	CE-3 Augusta	105			
	Merry Point	100	CE-3 Jarratt	48.4			
	CE-3 Bridleton	20	CE-3 Distributed Solar PPA	16			
	CE-3 Cerulean	62					
	CE-3 Courthouse	167					
	CE-3 Kings Creek	20					
	CE-3 Moon Corner	60					
	CE-3 North Ridge	20					
	CE-3 Southern Virginia	125					
	CE-3 Racefield	3					
	CE-3 Ivy 3	3					
	Randolph	800					
	Clover Creek	90					
	Finneywood	79					
	Laurel Branch	80					
	County Line	86					
	Highlands	51.3					
	Rocky Run 1	300					
	Additional* Solar	2308.9					
Appalachian Power Company:	Amherst (est. late 2022)	5					
			Horsepen	20			
		SubTotal: 5064.8		SubTotal: 846.1		SubTotal: 127	6037.92
Solar Constructed & Under Development Totals:		**5467**		**1048**		**786.7**	**7302**

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 System	10	N/A			N/A		
	Scott 1 Battery Storage Pilot - DC System	2						
	Correctional Battery Storage Pilot	2						
	Hanover Battery Storage Pilot	2						
	SubTotal:	16	SubTotal:	0		SubTotal:	0	16
Energy Storage Under Development since July 1, 2018:								
Dominion Energy Virginia:	CE-2 Dulles Storage	50	CE-3 Cedar	20		N/A		
	CE-2 Dry Bridge Storage	20	CE-3 Hampton	29				
	CE-3 Shands Storage	15.7	CE-2 Cox	8				
	Additional* Energy Storage	1051	CE-2 Sinai	5				
			CE-2 Three Sisters	20				
	SubTotal:	1136.7	SubTotal:	82		SubTotal:	0	1218.7
Energy Storage Constructed & Under Development Totals:		**1152.7**		**82**			**0**	**1234.7**
Solar, Wind, & Energy Storage Operational & Under development since July 1, 2018:								**11136**

"Additional*" refers to projects where the name, locations, and sizes of individual facilities are designated confidential by the developer. As a result, only aggregate numbers are being provided publicly.

*This data is provided informally to Staff as of June 30, 2023. This data does not include any projects announced after June 30, 2023.

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

Electric Cooperatives

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

As of June 30, 2023*	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			
			CVEC Palmyra, VA	5			
ODEC:			ODEC Distribited Solar I	28			
			ODEC Halifax County	10			
			ODEC Louisa County	15			
SVEC:	Blue Ridge Parkway Facility	0.011					
REC:			REC PPA	0.01			
NOVEC:			D.E.S.R.I. 300 MW PPA, amt. of VA facilities 300	300			
	SubTotal:	0.011	SubTotal:	371	SubTotal:	0	371.42
Solar Constructed & Under Development Totals:		**0.091**		**371**		**0**	**371.50**

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:							**383.77**

*This data is provided informally to Staff as of June 30, 2023. This data does not include any projects announced after June 30, 2023.

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

Others

Status of Solar and Wind Facilities
Constructed or Under Development

As of June 30, 2023*	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) (DEV PURPA)	19.7	
Caden Energix Pamplin LLC:	Pamplin Solar (July 2020) (DEV PURPA)	16	
Energix Mt. Jackson, LLC:	Mt. Jackson Solar I (June 2021) (DEV PURPA)	15.7	
Energix Buckingham, LLC:	Buckingham II Solar (2021) (DEV PURPA)	20.0	
Energix Hollyfield, LLC:	Hollyfield II Solar (July 2021) (DEV PURPA)	13.0	
Energix Leatherwood LLC:	Energix Leatherwood (Aug 2021) (APCo PURPA)	20	
Caden Energix Wytheville LLC	Caden Energix Wytheville (Jun 2022) (APCo PURPA)	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	
Caden Energix Nokesville, LLC:	Caden Energix Nokesville (Nov. 2022)	20	
Sunnybrook Farm Solar, LLC:	Sunnybrook Solar Farm (Dec. 2022)	51	
Ameresco Federal Solutions:	Ameresco Federal Solutions Solar (Mar. 2020)	4.3	
Ikea Property Inc.:	Norfolk City Ikea (Mar. 2019)	1.3	
Rappahanock Solar, LLC:	Rappahannock Solar, LLC (Nov. 2021)	1.5	**
	SubTotal:	1330	1330

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	
	1650 Cumberland Solar Facility	3	**
	1671 Cumberland Solar Facility	3	**
	2188 Poorhouse Road Solar	3	
	Alton Post Office Solar, LLC	75	**
	Amherst Mays Solar Farm	5	**
	Apple Grove Solar	15	**
	Ash Camp Solar, LLC	2	**
	Augusta CSG LLC	3	
	Bartonsville Energy Facility II, LLC	50	**
	Bartonsville Energy Facility, LLC	80	**
	Birchwood Renewables, LLC	55	
	BM&D Ltd.	40	
	Blue Orchard Solar	10	
	Buckhorn Mountain Solar Project	17	
	Bumblebee Solar, LLC	15	
	Cabin Point Solar Center	75	
	Caden Energix Axton, LLC	66	
	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	
	Carey and Peyton 5	5	
	Carvers Creek Solar	150	**
	Carysbrook Solar	3	**
	Centerville South Solar	5	**
	Centerville Turnpike Solar Facility	3	**
	Chester Solar Technology Park, LLC	150	
	Children of Chesterfield Solar	20	
	Colonial Solar	7	
	Cow Creek Solar, LLC	1	**
	Dogwood Lane Solar	4	**
	Dogwood Solar	20	**
	Dry Fork Solar 1	3	**
	Endless Caverns North	16	**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	Endless Caverns South	16	**
	Energix Aditya Solar	11	**
	Fairfield Lee Solar	5	**
	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	**
	Halifax CSG Solar	3	**
	Harris Road Solar 1 Facility	5	**
	Harris Road Solar 2 Facility	3	**
Continued …	HCE Amelia Solar I, LLC	5	**
	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	**
	Impact Power Solutions/Larry Davis Solar	2	**
	Impact Power Solutions/NCN Properties 3	2	**
	Impact Power Solutions/Self 4 - Inez Smith	5	**
	Impact Power Solutions/Town of Gretna I	1	**
	Jouett Elementary School	1	**
	Kangaroo Solar, LLC	15	
	KDC Solar Kings Creek, LLC	20	**
	King William Solar, LLC	2	**
	Knollwood Halifax Solar	5	**
	Koala Solar, LLC	15	
	Loblolly Solar, LLC	150	
	Louisa County Middle School Solar Facility	1	**
	Maples Solar	15	
	Martinsville Solar, LLC	8	**
	Martin Trail Farm Solar	5	**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	Midway Solar, LLC	8	
	Mine & Hemmer Solar	94	**
	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	
	Muskie Solar	5	**
Continued …	NASA Wallops Flight Facility - Main Base	4	**
	NASA Wallops Flight Facility Phase 3B	5	**
	North Ridge Culpeper Solar	26	
	Partridge Creek Solar	10	
	Pigeon Run Solar, LLC	60	**
	Pittsylvania CSG Solar	4	**
	Powell Creek Solar	5	**
	Powells Creek Farm Solar LLC	70	
	Prince Edward CSG Solar	4	**
	Prince Edward Solar 1	5	**
	Prince Edward Solar Farm	25	
	Randolf Solar	3	**
	Rappahannock Solar, LLC	2	**
	Red Brick Solar	130	**
	Redbud Run Solar	30	**
	River Trail Solar	20	**
	Riverstone Solar	150	**
	Route 360 Solar	5	**
	Self I Solar LLC	5	**
	Seven Bridges Solar, LLC	116	
	Shad Solar	5	**
	Shifting Sands Solar	19	**
	Shockoe Solar, LLC	60	**
	Solar VA 2019 LLC	18	**
	Solar Star Petersburg 1	5	**
	Spring Grove Solar II, LLC	150	**
	Springfield Farm Solar	80	
	Staunton Solar	47	

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	STS J. Hodges, LLC (Middlesex ES and MS)	1	**
	STS Joan Bosch, LLC (Cople ES)	1	**
	Suffolk CSG Solar	4	**
	SunPower Garden Fresh Produce	6	
	Sun Ridge Solar	50	
	Sunny Rock Solar Project	20	
	Surry Solar Center, LLC	20	
	The Louisa County High School Solar Facility	2	**
	Thomas Jefferson Elementary School Solar Facility	1	**
	Town of Gretna II	4	**
	TPE Irish Road Solar, LLC	5	**
	Trevilians Elementary School	1	**
	Turkey Solar, LLC	14	
	Two Oaks Solar	118	
	VA Cox Cartersville (Ampthill Rd) Solar Project	16	**
	VSF Solar 1, LLC	20	
	VSF Solar 2, LLC	11	
	Waller Solar I, LLC	131	**
	Waterloo Solar	20	
	Waverly I Solar	50	**
	Waverly II Solar	68	**
	Wayne Ave Solar Facility	3	**
	Waynesboro Bridge Solar	5	**
	Westmoreland County Solar Project	20	**
	Westmoreland CSG 1	5	**
	Whalebone Solar	3	**
	White stone Ocran Solar	5	**
	Whitehorn Solar LLC	50	**
	Whitmell Solar, LLC	5	**
	Willow Solar Project	12	
	Windsor PV1, LLC	85	
	Woodridge Solar	138	
	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:	4611	4611

Others

Status of Solar and Wind Facilities
Constructed or Under Development

Solar Constructed & Under Development Totals:		**5941**	**5941**

Wind Constructed since July 1, 2018:			
	N/A		
	SubTotal:	0	0
Wind Under Development since July 1, 2018:			
Poplar Camp Wind Farm LLC	Poplar Camp Wind Farm (Q4 2025)	72	
	SubTotal:	72	72
Wind Constructed & Under Development Totals:		72	72

Storage Constructed since July 1, 2018:			
Doc Brown LLC	Danville BESS 1	10.5	
	SubTotal:	10.5	10.5
Storage Under Development since July 1, 2018:			
Pigeon Run Solar, LLC	Pigeon Run Solar Energy Storage (est. Q3 2023)	20	
Shockoe Solar, LLC	Shockoe Solar Energy Storage (est. Q2 2023)	20	
Deer Wood Storage, LLC	Deer Wood Storage (Q2 2025)	30	
Powells Creek Farm Solar, LLC	Powells Creek Storage	17.5	
Sunnybrook Farm Solar, LLC	Sunnybrook Solar Farm	12.5	
Scout Energy Storage Facility	Scout Energy Storage Facility	80	
	SubTotal:	180	180
Storage Constructed & Under Development Totals:		190.5	190.5
Solar, Wind & Energy Storage Operational & Under development since July 1, 2018:			**6203**

* 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 2022 submission:

In 2022, 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;
- Substation Technology Deplyment projects;
- Voltage Island Mitigation projects; and
- Fault Location, Isolation and Service Restoration (FLISR) projects.

Summary of Reliability:

Service reliability in 2022 decreased slightly over the Company's 2021 performance, due in part to weather activity. The number of major event days in 2022 was 16% more than in 2021. Overall, SAIDI excluding Major Events increased 3% over the 2021 metric, and SAIDI including Major Events (but excluding Unique Events) increased by 24%. See table below for summary of major reliability metrics for 2022.

	Excl ME	Incl ME
SAIDI	134.7	407.6
SAIFI	1.19	1.6
Number of Outages	50,267	58,243

Number of Major Events	17
Number of Major Event Days	19
Number of Catastrophic Storms	1