JEHMAL T. HUDSON
COMMISSIONER

SAMUEL T. TOWELL
COMMISSIONER

KELSEY A. BAGOT
COMMISSIONER

COMMONWEALTH OF VIRGINIA

STATE CORPORATION COMMISSION

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

December 1, 2024

The Honorable Glenn Youngkin
Governor, Commonwealth of Virginia

The Honorable R. Creigh Deeds
Chair, Senate Committee on Commerce and Labor

The Honorable Jeion A. Ward
Chair, House Committee on Labor and Commerce

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.

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

Respectfully submitted,

Jehmal T. Hudson
Chairman

Samuel T. Towell
Commissioner

Kelsey A. Bagot
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 Labor and Commerce,
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

December 1, 2024

Table of Contents

EXECUTIVE SUMMARY

This document contains the combined reports ("Report") of the Virginia State Corporation Commission ("Commission") submitted 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 2023, such annual investments were:

Company	Generation	Transmission	Distribution
Dominion Energy Virginia	$961.0 million	$1,234.0 million	$1,253.0 million
Appalachian Power Company	$264.5 million	$229.6 million	$243.6 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 paused until 2026 due to delays in obtaining easements and difficulty in obtaining the necessary outages to complete construction. The project cost, originally estimated to be approximately $30.4 million, is currently estimated at $36 million, which represents an increase of approximately 18.4% over the original estimated cost. Due to the delays, Dominion anticipates that all work will be completed by the end of 2027.

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, 2024, Virginia utilities placed into operation solar and wind facilities totaling 1,777.80 megawatts ("MW") of nameplate generation capacity in the Commonwealth. Dominion also has under development approximately 6,296.85 MW of Company-owned and contracted nameplate solar generation and 2,587 MW of nameplate offshore wind generation capacity located off the Commonwealth's Atlantic shoreline.[1] APCo currently has 339 MW of contracted nameplate solar generation capacity under development as of June 30, 2024. Third parties are also developing facilities that may provide approximately 5,007.68 MW of additional nameplate solar generation capacity in the Commonwealth. DEV has constructed five energy storage facilities for a total of 36 MW of energy storage in operation. Utilities, third-party generators, and electric cooperatives collectively have 1,670.20 MW of energy storage under development.

[1] These figures reflect data provided by Dominion as of June 30, 2024. In next year's report, the Commission will update these amounts to include additional projects and purchased power agreements ("PPAs") proposed in Dominion's 2024 RPS Filing, Case No. PUR-2024-00147, filed on October 15, 2024, and currently pending at the Commission.

INTRODUCTION

Statutory Background

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.

Chapter 1190 of the 2020 Virginia Acts of Assembly 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.

This document contains the Report of the Commission submitted 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.[2] 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.

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

- 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;[3]

- 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.[4]

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

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

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 APCo or DEV during the past year. DEV filed its most recent petition for approval of Phase III of its grid transformation plan on March 31, 2023, and the Commission issued its Final Order in that proceeding on September 18, 2023.[5] That petition represented DEV's fourth petition with the Commission related to grid modernization.[6] With that most recent 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

[5] *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").

[6] 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) 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 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,[7] and the impact of the proposed facilities upon the reliability of electric service delivery within the Commonwealth. Of course, the Commission also considers the public convenience and necessity and whether the proposed project is contrary to the public interest in these proceedings. These transmission-related processes have maintained electric service reliability within the Commonwealth for many years.

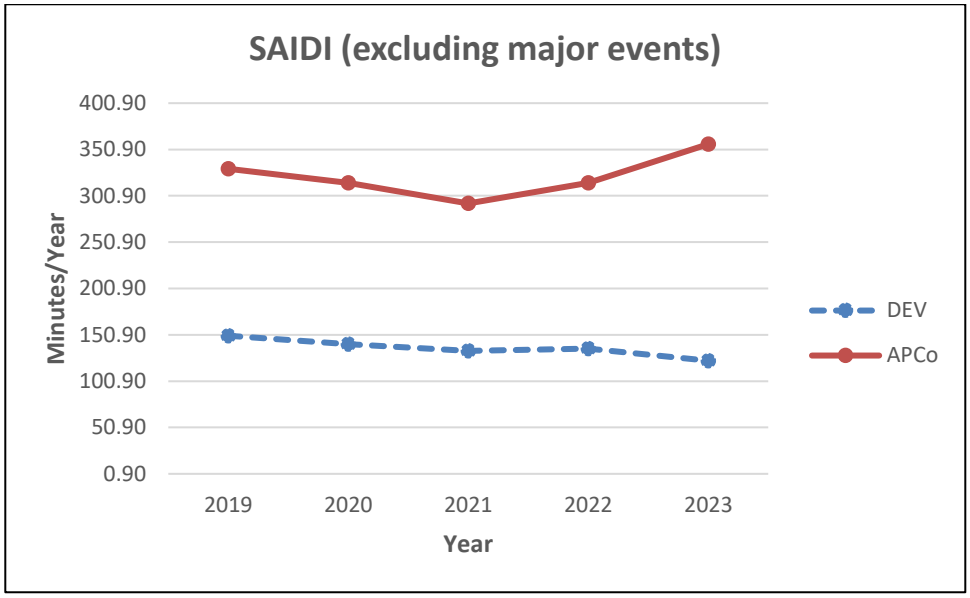
At the electric distribution level, the Commission monitors service reliability through a number of measures, including the Annual Reliability and Tree Trimming Report required from each of Virginia's three investor-owned electric utilities ("IOUs").[8] This report tracks various reliability indices including, but not limited to, System Average Interruption Duration Index ("SAIDI")[9] and System Average Interruption Frequency Index ("SAIFI")[10] 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.

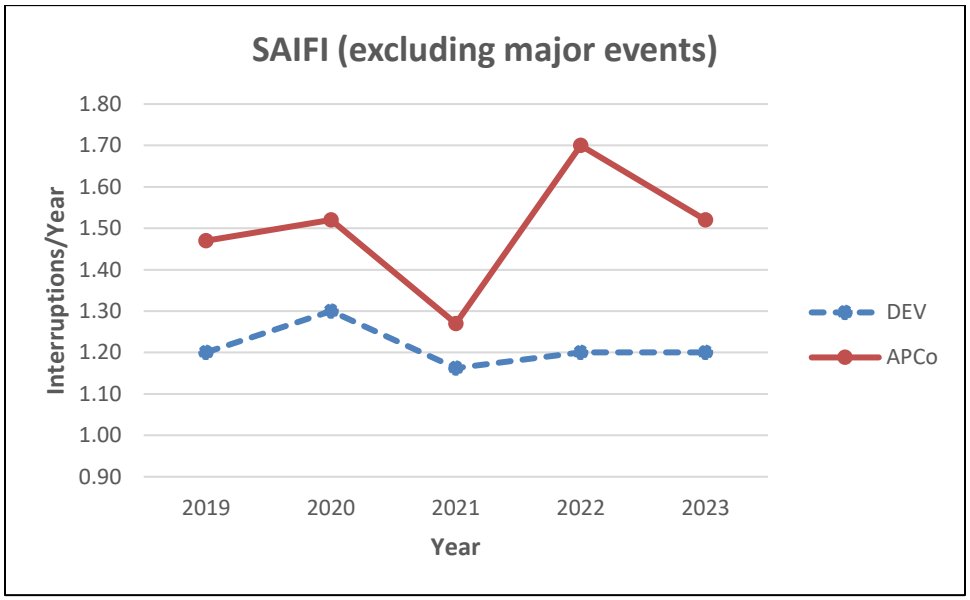
[7] Code §§ 2.2-234 and 2.2-235.

[8] 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.

[9] 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.

[10] 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.





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.[11]

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

[11] Distribution reliability is contemplated in multiple proceedings at the SCC. For example, vegetation management is investigated in Dominion's biennial proceeding, and in APCo's biennial proceeding, vegetation management and a worst performing circuit program are investigated. Dominion also files updates to its Strategic Underground Program and their GTSA filings contain numerous components aimed to improve distribution reliability.

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.[12] 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 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.[13]

[12] *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").

[13] Phase III Final Order at 11. "FERC" is the Federal Energy Regulatory Commission.

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."

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[14]	
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)[15]	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
2023	20,395.0	961.0	14,268.0	1,234.0	15,934.0	1,253.0	1,036.0	17.0

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

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

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)[16]	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
2023	7,041.3	264.5	4,711.8	229.6	5,176.6	243.6	943.7	60.4

Need for Additional Generation of Electricity During Times of Peak Demand

Through May 31, 2025, Virginia's two largest IOUs will be participating in PJM as Fixed Resource Requirement Alternative ("FRR") entities to meet their peak energy demands[17] through a combination of company-owned generation, purchases from PJM's energy market, and bilateral contracts for capacity.[18] 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 FRR. 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

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

[17] "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.

[18] Through the 2024/2025 PJM Delivery Year, ending May 31, 2025, both companies will 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 elected FRR status beginning on June 1, 2022. Prior to such election, Dominion procured its capacity obligation through PJM's annual capacity auction. On May 2, 2024, Dominion publicly provided notice of its termination of FRR status and election to return to procuring its capacity obligation through the PJM annual capacity auction.

purchases.[19] APCo has had relatively flat-to-declining growth in its summer peak demand since 2011.

On October 15, 2024, DEV filed its 2024 IRP and 2024 RPS filings.[20] DEV's 2024 IRP indicated that PJM incorporated several market changes 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 2024.[21] In its 2024 IRP, DEV anticipates DOM LSE[22] summer peak demand and energy forecast compound annual growth rates of 2.5% and 3.8%, respectively, between 2024 and 2039.[23] Demand is forecasted to increase 5.5% annually over the next decade and double by 2039 in the DOM Zone delivery zone within PJM.

The 2024 IRP recognizes the contribution of different resources to reliability, a new approach PJM adopted called "effective load carrying capability" ("ELCC"), which the FERC approved in January 2024. This method allows PJM to measure how much capacity may be provided by different generation resources at different times. In general, a resource that contributes a significant level of capacity during historically high-risk hours will have a higher capacity value than a resource that delivers the same capacity during historically low-risk hours. This decision reflects lessons learned from, among other things, Winter Storm Elliott, where all-time winter

---

[19] *See* https://www.pjm.com/-/media/markets-ops/rpm/rpm-auction-info/2024-2025/2024-2025-base-residual-auction-report.ashx.

[20] *Commonwealth of Virginia, ex rel. State Corporation Commission, In re: Virginia Electric and Power Company's 2024 Integrated Resource Plan filing pursuant to Va. Code* § *56-597 et seq*., Case No. PUR-2024-00184, Doc. Con. Cen. No. 241070067, IRP (Oct. 15, 2024) ("2024 IRP"). *Petition of Virginia Electric and Power Company, For approval of its 2024 RPS Development Plan under* § *56-585.5 D 4 of the Code of Virginia and related requests,* Case No. PUR-2024-00147, Doc. Con. Cen. No. 241070138, RPS Plan (Oct. 15, 2024) ("2024 RPS").

[21] 2024 IRP at 2.

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

[23] 2024 IRP at Appendix A2 at 2.

peaks occurred on Christmas Eve 2022 during the early morning hours when renewable resources were not available.

The ELCC methodology resulted in significant discounting of the capacity value of resources that cannot produce electricity upon demand and assigned relatively higher values to resources that have a higher likelihood to run on demand—otherwise known as dispatchable resources.

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]

On July 30, 2024, PJM issued its 2025/2026 Base Residual Auction Report, providing details regarding the PJM capacity market auction for the 2025/2026 Delivery Year, running from June 1, 2025 through May 31, 2026.[25] This Base Residual Auction Report reflected PJMs Critical Issue Fast Path - Resource Adequacy stakeholder process which included among other things the new ELCC methodology to measure resource adequacy. The clearing price of the PJM capacity auction for PJM was $269.92 per megawatt-day for Delivery Year 2025/2026, representing a more than 900% increase from the results of the PJM capacity auction for Delivery Year 2024/2025. The PJM capacity auction clearing price for Dominion was $444.26 due to system constraints and lower quantities of available generation within the PJM DOM Zone, in which Dominion operates. This may indicate a need for increased transmission buildout between the PJM DOM Zone and neighboring transmission zones, a need for increased capacity resources within the PJM DOM

[24] Code § 56-585.5.

[25] Dominion publicly provided notice of its FRR status termination and election to participate in PJM's capacity auction as of May 2, 2024. As such, Dominion was a participant in the PJM capacity auction for Delivery Year 2025/2026.

Zone (including capacity resources owned and operated by or contracted for by Dominion), or a combination of both options.

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) FLISR projects (Phase II cost: $10.0 million).[26]

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.[27]

Dominion reports that the Targeted Corridor Improvement Program will: (i) remediate ash tree mortality caused by emerald ash borer beetles; and (ii) introduce a herbicide program for ground floor maintenance.[28] Dominion's Substation Technology Deployment projects seek to modernize DEV's distribution grid in support of integrating a growing amount of DER while

[26] *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.

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

[28] Phase II Petition, Direct Testimony of Company witness Wright at 12-13.

maintaining reliability, resilience and power quality.[29] 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.[30] Finally, 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.

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[31] (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).[32]

[29] Phase II Petition, Direct Testimony of Company witness Wright at 39.

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

[31] 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, DEV plans to identify and remove all tree growth over the 100 worst performing feeders in Virginia.

[32] 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, referred to as the Undergrounding Pilot, requiring the construction of two qualifying electrical transmission lines of 230 kV or less, to be constructed in whole or in part underground. 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.[33] 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[34] (which uses the I-66 Hybrid Route);[35] 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.

[33] *See* Code § 56-585.1:5.

[34] *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).

[35] 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[36] 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").[37] 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 its application in the Line #2010 Underground Relocation Project; as mentioned previously, on June 24, 2021, the same 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 27, 2024, noting the completion of the Haymarket Project, and providing details on the permitting, real estate, engineering, construction activities, cost, and schedule of the Line #2010 Underground Relocation Project.

[36] 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.

[37] *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).

According to DEV's update, the Line #2010 Underground Relocation Project is currently paused until 2026 due to significant delays in obtaining a necessary easement from Tysons Development LLC and the difficulty in obtaining the necessary outages to complete construction. Dominion states that the installation of manholes is complete, and the duct bank and conduit installation is 97% complete. The remaining tasks include the installation, splicing, and testing of cables and the removal of the existing overhead 230 kV line.

According to Dominion, the current Line #2010 Underground Relocation Project expenditures are approximately $23.4 million. The total project cost, originally estimated to be approximately $30.4 million, is currently estimated at $36 million, which represents an increase of approximately 18.4% over the original estimated total cost. Due to the delays, Dominion anticipates all work will be completed by the end of 2027.

Overall Analysis of the Undergrounding Pilot

As previously noted, the Haymarket project was energized in March 2022 and the Line #2010 Underground Relocation Project is currently paused until 2026. Although the Undergrounding Pilot is therefore currently incomplete, the projects have provided valuable information regarding undergrounding of transmission line projects – specifically, engineering challenges attendant to undergrounding, and difficulties in obtaining permits, easements, and outage windows – all of which have had impacts on project costs and schedules.

For Dominion's Haymarket project, the Company's design relied on trenchless horizontal directional drilling ("HDD") construction to install the required raceway for the 230 kV conductors. However, during construction, Dominion had to redesign the HDD routes and make several engineering changes due to multiple "frac-out" occurrences along highway I-66. Frac-out refers to the inadvertent releases of drilling mud to the surface due to pockets of highly fractured rock. The redesign led to the abandonments of a 12-inch drilled hole and a 36-inch drilled hole.

The 36-inch hole was grouted (*i.e.*, filled with concrete) due to the size of the hole and its depth under highway I-66. Furthermore, the redesign also increased the HDD depth by approximately 15 feet on each of the drill crossings and required the contractors to clear mud and other cutting material from the drill path in order to keep pressures low so that the potential for additional frac-outs would be minimized. For this project, Dominion also experienced an approximately 10-week delay in HDD operations caused by the need for the United States Army Corps of Engineers to complete an analysis related to work around the Manassas Battlefield.

According to Dominion, additional work and redesign was also needed at several stations related to the Haymarket Project. At the Heathcote Transition Station and Haymarket Substation, duct banks were used for cable installation, as opposed to the originally planned method of direct burial. Dominion states that the duct bank method of installation would facilitate easier cable replacement in the event of a future cable failure. At the Gainesville and Loudoun Substations, unanticipated additional work was required to maintain networked service to a NOVEC delivery point. In addition to these engineering challenges, Dominion states that it also encountered several utility lines located in unanticipated places that interfered with the construction of the project and which needed to be resolved prior to drilling.

The foregoing issues resulted in delays and cost increases to the Haymarket Project. This project, which was originally expected to be completed in July 2021, was delayed for approximately eight months, and was completed in March 2022. At the time of Commission approval, the Haymarket Project was originally estimated to cost approximately $171.9 million; however, the final completed cost was approximately $230 million, representing a cost increase of 34.8%.

As also mentioned above, the Line #2010 Underground Relocation Project is currently paused until 2026 due to significant delays in obtaining the necessary easements and outages to

complete construction. To date, this has resulted in a project delay of approximately two years and a cost increase of 18.4% above the original estimate.

In terms of economic benefits, the Commission found that the Line #2010 Underground Relocation Project aligned with the economic development priorities of Fairfax County and the Commonwealth by relocating an existing overhead line underground to facilitate the construction of a large, planned mixed-use development. In the case of the Haymarket Project, the Commission noted that the project would contribute to economic development within the Commonwealth, particularly in the Haymarket area, by supporting a data center campus. However, the economic development benefits specifically associated with underground line placement were not clearly defined in that proceeding, making that benefit difficult to quantify.

In terms of reliability benefits, the Haymarket Project was necessary to provide service to a data center campus and ensure reliable electric service to customers in Prince William County. Similarly, the Line #2010 Underground Relocation Project was intended to maintain reliable electric service for customers in Fairfax County. In general, underground transmission lines have been shown to operate reliably when installed properly. However, should a fault or other damage occur to the underground line, repairs can take significantly longer to perform and are more costly when compared to an overhead solution. As such, several years of operation may be needed to determine the overall reliability improvements ultimately achieved by this project.

Although the Undergrounding Pilot will not be completed until the end of 2027 when the Line #2010 Underground Relocation Project is energized, these projects have already highlighted some of the complexities surrounding undergrounding transmission line projects. While similar in some respects, both Pilot projects encountered unique challenges that negatively impacted their construction timelines and costs. Consequently, based on these Pilot projects, it appears difficult to reliably design and construct underground transmission projects with any high degree of

certainty around costs and schedules; both appear likely to be exceeded, especially when *trenchless* construction methods like HDD are used. However, the lessons learned from the two Pilot projects could be applied to future underground transmission line projects to improve their likelihood of achieving their originally projected costs and timelines.

Finally, given the still-ongoing nature of the Underground Pilot, the full economic, reliability, and operational benefits potentially derived from the projects is yet to be known, although the visual benefits of undergrounding compared to overhead construction may be more readily ascertained.

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, 2024.[38]

(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 Norge Solar Facility (20 MW, November 2023), CE-2 Solidago Solar Facility (20 MW, August 2023), CE-2 Piney Creek Solar Facility (80 MW, August 2023), CE-2 Black Bear Solar Facility (1.62 MW, September 2023), CE-2 Winterberry Solar Facility (20 MW, November 2023) and CE-2 Otter Creek Solar Facility (60 MW, June 2024) were placed into operation. The CE-1 Chesapeake Solar Facility (118 MW) subject to a PPA with DEV, was placed into operation in November 2023. None of DEV's "ring-fenced" projects (*i.e.*, projects whose costs and revenues are not subject to the Commission's jurisdiction) went into operation.

As of October 2023, APCo's 5 MW Amherst Solar Facility located in Amherst County is now in full operation.

With respect to the electric cooperatives, there are approximately 53 MW of cooperative jurisdictional solar facilities in operation, with 48 MW in the form of PPAs with Old Dominion Electric Cooperative.

In addition, 646.50 MW of solar facilities operated by merchant generators have been constructed since June 30, 2022, for a total of 1,976.60 MW of solar facilities that have been constructed since the passage of the VCEA.

[38] 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 56-585.1:4 A, is not specifically defined in Chapter 23 of Title 56 of the Code. 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.

New Wind and Solar Development

According to DEV, it has multiple owned solar facilities, PPAs, and a ring-fenced facility currently under development, totaling approximately 6,296.85 MW.[39] DEV also continues to develop approximately 2,587 MW of offshore wind through its commercial Coastal Virginia Offshore Wind ("CVOW") project. In Dominion's most recent RPS plan, filed on October 15, 2024, DEV stated that it would terminate the following 15 PPAs: Ho-Fel Solar Facility (40 MW), Knollwood Distributed Solar Facility (3 MW), Nuby Run Distributed Solar Facility (2 MW), Orange A Distributed Solar Facility (3 MW), Rockingham Scenic Farms Distributed Solar Facility (3 MW), Sandale Distributed Solar Facility (3 MW), Shenvalee Distributed Solar Facility (3 MW), Three Sisters Energy Storage Facility (20 MW), USS Boykins 1 Distributed Solar Facility (1 MW), USS Boykins 3 Distributed Solar Facility (3 MW), Augusta Solar Facility (102 MW), Harrisonburg Solar Facility (15 MW), Cedar Energy Storage Facility (20 MW), Pivot 2 Distributed Solar Facility (1 MW), and Pivot 7 Distributed Solar Facility (3). This represents a total of 182 MW of solar facility contract termination and 40 MW of energy storage facility contract termination. Eight of the projects were terminated because of issues with permitting, and the other seven projects were terminated due to increased costs.

APCo has approximately 339 MW of solar PPAs currently under development. APCo's Horsepen (20 MW) and 7 Bridges (80 MW) PPAs, which previously received approval from the Commission, have subsequently been terminated.

In addition, merchant generators are developing approximately 5,007.68 MW of solar facilities, and 72 MW of wind facilities.

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

Summary

The total capacity of solar facilities constructed by IOUs, electric cooperatives, and third-party developers since July 1, 2018, was 3,618.30 MW as of June 30, 2024. Additionally, 11,651.94 MW of solar facilities were under development by IOUs, electric cooperatives, and third-party developers as of June 30, 2024. Wind capacity under development by IOUs was 2,587 MW as of June 30, 2024. A table reflecting the status of constructed and under development solar, wind, and energy storage projects as of June 30, 2024, is provided in Appendix 4.[40]

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

DEV

DEV states that it has integrated 286 MW of utility-owned renewable electric generation resources at the distribution level across 26 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 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

[40] 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, 2024, DEV has filed its 2024 RPS proceeding pursuant to the VCEA. DEV's RPS proceeding is docketed as Case No. PUR-2024-00147. 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 may result in temporary disconnection of the facility from the electric grid, until normal operating conditions are restored. The electric 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 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 electric generation 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, 2024) 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),[41] 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;

[41] 18 CFR 292 permits FERC to fulfill its statutory obligations to facilities that qualify under Section 210 of the Public Regulatory Policies Act of 1978 ("PURPA").

- 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;
- 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;
- CE-1 Pleasant Hill Solar Facility, 20 MW, operational June 2023;
- CE-1 Norge, 20 MW, operational November 2023;
- CE-1 Chesapeake Solar Facility, 118 MW, operational December 2023;
- CE-2 Solidago Solar Facility, 20 MW, operational August 2023;
- CE-2 Piney Creek Solar Facility, 80 MW, operational August 2023;
- CE-2 Black Bear Solar Facility, 1.62 MW, operational September 2023;
- CE-2 Winterberry Solar Facility, 20 MW, operational November 2023; and,
- CE-2 Otter Creek Solar Facility, 60 MW, operational June 2024.

APCo

- Leatherwood Solar Facility (PURPA), 20 MW, operational August 2021;
- Wytheville Solar Facility (PURPA), 20 MW, operational June 2022;
- Depot Solar Facility, 15 MW, operational June 2022; and,
- Amherst Solar Facility, 5 MW, operational October 2023.

(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.[42]

[42] 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.

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

Total Solar & Wind General Assembly Objective (2024)	MW
	5,000
Total IOU Owned/Operated Solar Constructed since July 1, 2018:	1269
Total IOU Solar PPAs Constructed since July 1, 2018:	444
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:	53
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:	**3,222**

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

DEV has constructed the CE-2 Dry Bridge Battery Storage Facility (20 MW), for a total of 36 MW of energy storage in operation and approximately 1,146.64 MW under development.[43] DEV also has 42 MW of energy storage PPAs under development. APCo has no energy storage facilities operational and currently has one energy storage facility under development: the 7.5 MW Glade-Whitetop Energy Storage Facility. DEV, APCo, the cooperatives, and merchant generators have approximately 1,670.20 MW of combined energy storage facilities under development.

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.

[43] *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).

APPENDIX 1

GLOSSARY OF TERMS

AC	Alternating Current
APCo	Appalachian Power Company
Chapter 382	Chapter 382 of the 2013 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 9, 2024

Mark S. Allen, P.E.
General Manager ET Capital Projects
Power Delivery Group
Dominion Energy Virginia
5000 Dominion Blvd
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;
- 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 27, 2024.

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
Electric Transmission Services

5000 Dominion Boulevard, Glen Allen, VA 23060
DominionEnergy.com

September 27, 2024

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 (Dominion Energy or the Company) is responding to your August 9, 2024, 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.

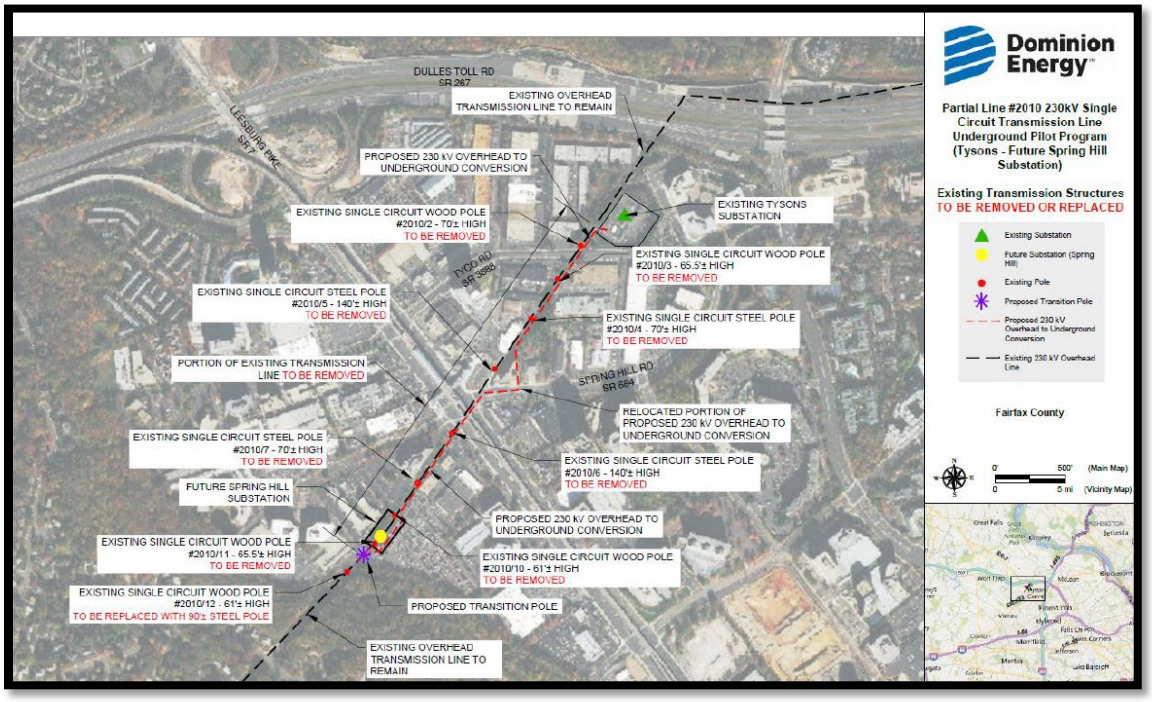
On June 24, 2021, the Commission issued its Final Order on the Line 2010 230 kV Underground Relocation project (PUR-2020-00198). The Company, as part of its application for approval, requested that the Project be approved by the Commission as a project that qualifies as a line to be placed underground, 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 September 2023, the Company was in the early construction stages of the project. In April 2023, the Company began trenching along the line route and installing duct bank to house conduits and electric cables. Since the last update, the Company has completed a large portion of the underground duct bank installation and portion of the overhead construction. Work is currently paused until 2026 due to significant delays in obtaining a necessary easement from Tysons Development LLC and the difficulty in obtaining outages in a congested northern Virginia area.

Permitting Activities

All permits were obtained by mid-year 2023, and since that point, there has been no significant activity to report, other than obtaining renewals as needed.

Real Estate Activities

As of the last update, we were still working to obtain the necessary easement from Tysons Development LLC to move forward with work on their property. We acknowledged that delays in acquisition of that easement could impact completion date and costs due to contractor delay charges.

In August 2023, Tysons Development LLC proposed a shift of the underground transmission line alignment on their property that differed from the Commission-approved route. The alignment shift and associated costs were evaluated and shared with the property owner. The property owner felt they should not bear the costs and asked the Company to consult with the SCC Staff. After Dominion Energy's informal consultation with the SCC Staff on who should bear the costs for the proposed shift, Tysons Development LLC ultimately decided to proceed with Commission-approved route early in February 2024 to avoid paying for the incremental costs of the alignment shift.

Additionally, after the February 2024 decision, Tysons Development LLC communicated they would not grant the requested transmission easement for this work until existing distribution easements encumbering their property for the proposed development were quitclaimed. We explained that this request, unrelated to the Commission-approved project, would have to be initiated through Dominion Energy's Electric Distribution group and provided them with instructions how to coordinate that request. Coming to an understanding on this process and working through these requests took time and coordination on language to protect Dominion Electric Distribution assets in the existing transmission and distribution easement. The easement for the Commission-approved work was granted in May 2024.

Construction Progress Update

Construction started in April 2023. Since the last update, crews completed nearly all of the open trenching and installation of duct banks and conduits.

Prior to construction commencing in 2023, Dominion Energy submitted outage requests with its System Operations Center (SOC) to deenergize the existing overhead circuits, a requirement for completing the remaining portion of the work for the project, including cable installation and overhead line removals. Due to the delay in executing the easement agreement with Tysons Development, we were unable to perform work in the outage windows scheduled with the SOC. It should also be mentioned that the original outage window was already delayed due to outage coordination in Tysons Substation.

Due to significant electric demand in the area, coordination with PJM Interconnection, and other scheduled work requiring outages in the region, we are not able to obtain another outage to complete the remaining work until the late 2026-early 2027 timeframe.[1] As such, crews have de-mobilized and project work is on hold until 2026.

Specific activity progress as of September 2024 is detailed below.

- Open Trench and Duct Bank Installation – 97% complete
    - Duct bank installation is complete except for a portion at Tysons Substation, which must be completed under an outage.
    - A delayed permit from VDOT reduced the timeframe for installing the duct bank across Route 7 before the November steel plate moratorium. Work was completed successfully under a shorter than anticipated timeline.
    - Significant coordination with Fairfax County and multi-month closure of Vesper trail was required to successfully complete work along the path.
    - Materials: Multiple cable reels were damaged in port, so we had to have them remanufactured and shipped. Additionally, we are working to relocate the conductor reels to long term storage location on the future site of Springhill Substation.
    - 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.
- Conduit Installation – 97% complete
- Manhole Installation – 100% complete
- Cable Installation, splicing, and testing – 0% complete
- Overhead line removal – 0% complete

Financial

- Actual spend as of Aug. 21, 2024 – $23.4M
    - Contract has been awarded and contractor mobilized earlier in 2023.
    - All cable has been received and recognized in the actual spend to date.
    - Civil scope has been primarily completed.
- The current total forecasted cost is $36M. The original cost estimate was $30.4M (in 2020 dollars).
    - The increased forecast is primarily for AFUDC dollars for the project delay. There are also mobilization, demobilization, and additional costs like relocating and storing cable until the project is resumed in 2026.

[1] Based on this information, the Company intends to file a motion with the Commission to extend the current in-service date for the project from December 31, 2025, to a date consistent with the new outage window and construction schedule.

Vesper Trail Coordination

Since December 2021, the Company has coordinated with Fairfax County, neighbors, and Vesper Trail stakeholders to coordinate construction activities along the trail. The Company closed the trail from November 1, 2023, through February 16, 2024. The community and project stakeholders were updated on this through multiple postcard and web updates, signage, media outreach, and engagement with local stakeholder groups including Fairfax County government and staff, the Tysons Community Alliance, and Celebrate Fairfax. When work resumes in 2026, we will continue coordination with trail stakeholders. There will still be significant trail impacts at isolated locations to set up, pull cable and install terminations directly adjacent to the Vesper Trail. Project information can be found at www.DominionEnergy.com/springhilltysons.

Timeline

With the delay in work, and if we are able to secure the appropriate outages, we anticipate all work will be complete by the end of 2027.

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, 2024*	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	
	Solidago (CE-2) (08/01/2023)	20	CE-2 Stratford PPA (11/1/2022)	15	Belcher Solar (6/30/21)	88.2	
	Piney Creek (CE-2) (08/15/2023)	80	CE-1 Chesapeake PPA (12/20/2023)	118	Bedford Solar (11/23/21)	70	
	Black Bear (CE-2) (9/12/2023)	1.62			Rochambeau Solar (12/23/21)	19.9	
	Winterberry (CE-2) (11/28/2023)	20			Fort Powhatan (1/19/22)	150	
	Norge (CE-1) (11/30/2023)	20			Maplewood Solar (RF) (12/19/2022)	120	
	Otter Creek (CE-2) (06/18/2024)	60			Pumpkinseed Solar (RF) (9/30/2022)	59.6	
Appalachian Power Company:	Amherst (10/04/2023)	5	Depot Solar (June 2022, in part)	15			
	SubTotal:	**609**	**SubTotal:**	**319.9**	**SubTotal:**	**659.7**	**1588.62**

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-2 Camellia	20	CE-1 Rivanna PPA	12.5	Booker's Mill (CE-4)	127	
	CE-2 Dulles	100	CE-1 Wythe PPA	75			
	CE-2 Fountain Creek	80	CE-1 Cavalier PPA	170			
	CE-2 Quillwort	18	CE-2 360 Solar 1 PPA	26			
	CE-2 Sebera	18	CE-2 360 Solar 2 PPA	26			
	CE-2 Sweet Sue	75	CE-2 Surry PPA	20			
	CE-2 Walnut	150	CE-2 Cox PPA	16			
	CE-2 Winterpock	20	CE-2 Sinai PPA	10			
	CE-2 Springfield	2	CE-2 DER PPAs	33			
	Merry Point	100	CE-3 Switchgrass PPA	69			
	CE-3 Bridleton	20	CE-3 Groves Solar PPA	16.2			
	CE-3 Cerulean	62	CE-3 Jarratt	48.4			
	CE-3 Courthouse	167	CE-3 Distributed Solar PPA	16			
	CE-3 Kings Creek	20	Jessie Dupont Memorial PPA	4.25			
	CE-3 Moon Corner	60	Richmond Hwy PPA	5			
	CE-3 North Ridge	20	Winfield Sun PPA	19.92			
	CE-3 Southern Virginia	125	Optimist Solar PPA	36.188			
	CE-3 Racefield	3	Flowers Solar PPA	19.9			
	CE-3 Ivy 3	3	Windsor PPA	85			
	Randolph	800	Highlands CF Ft 23 PPA	10			
	Clover Creek	77.19	Sycamore Cross PPA	240			
	Finneywood	79	Nathalie C PPA	3			
	Laurel Branch	80	Waynesboro B PPA	3			
	County Line DEV	86	Mt. Sidney Solar PPA	3			
	Highlands	51.3	Greenlaw Solar PPA	3			
	Rocky Run 1	300					
	Confidential Solar and Wind	2258					
	CE-4 Blue Ridge	95					
	CE-4 Beldale	57					
	CE-4 Michaux	50					
	Alberta	3					
	Quarter Horse	125					
	Pineside	75					

Investor Owned Utilities

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

Appalachian Power Company:			Green Acres PPA	5			
			Mountain Brook PPA	20			
			Pleasant Prairie	100			
			River Trail PPA	20			
			Shifting Sands PPA	19			
			Sunny Rock PPA	20			
			Elliot PPA	5			
			County Line APCo PPA	150			
	SubTotal:	5199.49	SubTotal:	1309.36	SubTotal:	127	6635.848
Solar Constructed & Under Development Totals:		**5809**		**1629.26**		**786.7**	**8224**

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 (June 20	2					
	Hanover Battery Storage Pilot (November 2	2					
	Dry Bridge Storage (CE-2, November 2023	20					
	SubTotal:	36	SubTotal:	0	SubTotal:	0	36
Energy Storage Under Development since July 1, 2018:							
Dominion Energy Virginia:	CE-2 Dulles Storage	50	CE-3 Hampton	29	N/A		
	CE-3 Shands Storage	15.7	CE-2 Cox	8			
	Darbytown Pilots	8.94	CE-2 Sinai	5			
	Confidential Energy Storage	990					
	Merry Point	50					
Appalachian Power Company:	Glade-Whitetop	7.5					
	SubTotal:	1122.14	SubTotal:	42	SubTotal:	0	1164.14
Energy Storage Constructed & Under Development Totals:		**1158.14**		**42**		**0**	**1200.14**
Solar, Wind, & Energy Storage Operational & Under development since July 1, 2018:							**12024**

*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, 2024*	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					
CVEC:			Cunningham Solar	5			
SVEC:	2 Solar +Storage facilities at headquarters	0.028			N/A		
NOVEC:							
ODEC:			ODEC Distribited Solar Initiative	23			
			ODEC Halifax County	10			
			ODEC Louisa County	15			
	SubTotal:	0.080	SubTotal:	53	SubTotal:	0	53.08
Solar Under Development since July 1, 2018:							
CVEC:			CVEC Midway Solar	8.4			
ODEC:							
SVEC:	Blue Ridge Parkway Facility	0.011					
REC:							
NOVEC:							
	SubTotal:	0.011	SubTotal:	8	SubTotal:	0	8.41
Solar Constructed & Under Development Totals:		**0.091**		**61**		**0**	**61.49**

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:	3 Solar +Storage facilities at headquarters (MWh)	0.062					
REC:	REC facility	2					
	SubTotal:	2.254	SubTotal:	0	SubTotal:	0	2.254
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		
CVEC:			CVEC Midway Storage (MWh)	6			
	SubTotal:	0.062	SubTotal:	16	SubTotal:	0	16.062
Energy Storage Constructed & Under Developmen		2.316		16		0	18.316
Solar, Wind, & Energy Storage Operational & Under development since July 1, 2018:							**79.807**

*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, 2024*	Other Owned/ Operated	MW	Totals
Solar Constructed since July 1, 2018:			
Dominion Generation Inc. subsidiary	TWE Myrtle Solar Project, LLC (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:	TPE Pamplin 2 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	
Axton Solar LLC:	Axton Solar (Dec. 2023)	201	
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	
Rappahannock Solar, LLC:	Rappahannock Solar, LLC (Nov. 2021)	1.5	
Powells Creek Farm Solar LLC:	Powells Creek Farm Solar LLC (Aug. 2023)	70	
Leyline Renewable Capital:	HCE Amelia Solar I, LLC (Dec. 2023)	5	
Leyline Renewable Capital:	HCE Amelia Solar II, LLC (Dec. 2023)	5	
Leyline Renewable Capital:	HCE Powhatan Solar, LLC (Dec. 2023)	5	
Hemings Solar Partners LLC:	Hemings Solar (Sep. 2023)	5	
Randolf Solar Partners LLC:	Randolf Solar (Jun. 2024)	3	
Dimension Energy LLC:	White Stone Ocran Solar (Feb. 2024)	5	
Dimension Energy LLC:	Prince Edward CSG Solar (Feb. 2024)	4	
Foxhound Solar, LLC:	Foxhound Solar, LLC (Apr. 2024)	83	
Distributed Solar Development:	The Village at Orchard Ridge (TVOR) (Mar. 2023)		

Others

Status of Solar and Wind Facilities
Constructed or Under Development

Madison Energy Investments LLC:	Mineral Gap Data Center (Feb. 2023)	3		
Dimension Energy LLC:	Augusta CSG LLC (Apr. 2024)	3		
Dimension Energy LLC:	Waynesboro Bridge Solar (Apr. 2024)	5		
Dimension Energy LLC:	Suffolk CSG Solar	4		
Dimension Energy LLC:	Fairfield Lee Solar	5		
Energix Aditya Solar:	Energix Aditya Solar (Aug. 2023)	11		
Apple Grove Solar:	Apple Grove Solar	15		
Crystal Hill Solar, LLC	Crystal Hill Solar (Dec. 2023)	65		
Endless Caverns North:	Endless Caverns North (Mar. 2024)	16		
Endless Caverns South:	Endless Caverns South (Mar. 2024)	16		
Waverly Solar:	Waverly I Solar (AKA Chesapeake Solar Project)	50		
Waverly Solar:	Waverly II Solar (AKA Chesapeake Solar Project)	68		
	SubTotal:	1976.60		1977
Solar Under Development since July 1, 2018:				
Dominion Generation Inc. subsidiary	Madison Solar	63		
Tredegar Solar, LLC:	Tredegar Solar Canopy	0		
	1650 Cumberland Solar Facility	3	**	
	1650 Cumberland Site 2	2	**	
	1671 Cumberland Solar Facility	3	**	
	2188 Poorhouse Road Solar	3		
	Alton Post Office Solar, LLC	75	**	
	Amherst Mays Solar Farm	5	**	
	Ash Camp Solar, LLC	2	**	
	Bartonsville Energy Facility II, LLC	50	**	
	Bartonsville Energy Facility, LLC	80	**	
	Birchwood Renewables, LLC	55		
	BM&D Ltd.	40		
	Blue Orchard Solar	10		
	Blue Rock Solar	100		
	Boston Hill Solar Project	115		
	Bowie Road Solar, LLC	5	**	
	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		
Continued …	Caden Energix Piney River LLC	50		

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	Caden Energix Spout Spring LLC	60	
	Carey and Peyton 5	5	
	Carver Solar I	91	
	Carysbrook Solar	3	**
	Centerville South Solar	5	**
	Centerville Turnpike Solar Facility	3	**
	Chaberton Solar Leatherman	5	
	Chester Solar Technology Park, LLC	150	
	Children of Chesterfield Solar	20	
	Colonial Solar	7	
	Courthouse Hwy Solar 1	3	**
	Cow Creek Solar, LLC	1	**
	Cumberland Solar Project	100	
	CVE Johnson North	3	**
	CVE Johnson South	5	**
	CVE Murphy Solar Project	3	**
	DG Revolution Solar	5	**
	Dogwood Lane Solar	4	**
	Dogwood Solar	20	**
	Dry Fork Solar 1	3	**
	Elam Road Solar	3	**
	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	**
	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	**
Continued …	HCE Roark Mill Solar LLC	3	**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	HEC Acorn Solar Facility	1	**
	High Bridge Solar	12	
	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	**
	Kinglet Solar	5	**
	Knollwood Halifax Solar	5	**
	Koala Solar, LLC	15	
	Land of Promise Solar, LLC	5	**
	Loblolly Solar, LLC	150	
	Louisa County Middle School Solar Facility	1	**
	Maples Solar	15	
	Martinsville Solar, LLC	8	**
	Martin Trail Farm Solar	5	**
	Midway Solar, LLC	8	
	Mine & Hemmer Solar	94	**
	Monroe Solar	2	**
	Moody Creek Solar, LLC	150	**
	Moraticco Road Solar 1	20	
	Moseley Hermon Solar	5	
	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	**
	Nansemond Solar	5	**
	NASA Wallops Flight Facility - Main Base	4	**
	NASA Wallops Flight Facility Phase 3B	5	**
	North Ridge Culpeper Solar	26	
	Partridge Creek Solar	10	
	Peppertown Road Solar	5	**
	Pigeon Run Solar, LLC	60	**
Continued …	Pittsylvania CSG Solar	4	**
	Pocaty River Solar, LLC	2	**
	Powell Creek Solar	5	**
	Prairie Solar	20	**
	Prince Edward Solar 1	5	**
	Prince Edward Solar Farm	25	
	Red Brick Solar	130	**
	River Trail Solar	20	**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	Riverstone Solar	150	**
	Route 360 Solar	5	**
	Sedge Hill Solar	80	
	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 Buchanan 2	5	**
	Solar Star Petersburg 1	5	**
	South Boston G Solar	5	**
	South Boston I Solar	5	**
	Spring Grove Solar II, LLC	150	**
	Springfield Farm Solar	80	
	Staunton Solar	47	
	Staunton Utility Solar Project	11	
	Staunton Community Solar Project	5	**
	STS J. Hodges, LLC (Middlesex ES and MS)	1	**
	STS Joan Bosch, LLC (Cople ES)	1	**
	Sunfish Solar	80	**
	SunPower Garden Fresh Produce	6	
	Sun Ridge Solar	50	
	Sunny Rock Solar Project	20	
	Surry Solar Center, LLC	20	
	Sweet Spring Solar	1	**
	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	**
Continued …	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	
	Wayne Ave Solar Facility	3	**
	Wayne Ave Solar 2	3	**
	Westmoreland CSG 1	5	**
	Whalebone Solar	3	**
	White stone Ocran Solar	5	**
	Whitehorn Solar LLC	50	**
	Whitmell Solar, LLC	5	**

Others

Status of Solar and Wind Facilities
Constructed or Under Development

	Wildcats Solar	10	**
	Willow Solar Project	12	
	Windsor Solar	85	**
	Woodridge Solar	138	
	Wood Brothers Road Solar	3	**
Merck & Co Inc	Elkton (est. Apr. 2023)	3	
Antares Group Inc	Elm Spring Solar I (est. Dec. 2027)	3	
174 Power Global Corp.	Zenith Solar (est. Dec. 2024)	60	
Deer Wood Energy LLC:	Deer Wood Energy (est. Apr. 2025)	50	
Small Mouth Bass Solar Partners LLC:	Small Mouth Bass Solar (est. Aug. 2024)	3	
Carvers Creek, LLC:	Carvers Creek Solar (est. Sep. 2024)	55	
Carvers Creek [II], LLC:	Carvers Creek [II] Solar (est. Nov. 2025)	99	
Hecate Energy Pulaski LLC:	Hecate Energy Pulaski 1 (est. Nov. 2024)	150	
Lily Pond Solar, LLC:	Lily Pond Solar, LLC (est. Dec. 2025)	80	
	SubTotal:	5007.68	5008
Solar Constructed & Under Development Totals:		**6984**	**6984**

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

Others

Status of Solar and Wind Facilities
Constructed or Under Development

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	
Cox Energy Storage Project	Cox Energy Storage Project	8	
RER Hopewell Battery Energy Storage	RER Hopewell Battery Energy Storage	40	
Prospect Power	Prospect Power	150	
Wythe BESS	Wythe BESS	52	
James Energy Center	James Energy Center	20	
Quarry Energy Center	Quarry Energy Center	20	
Evergreen Energy Center	Evergreen Energy Center	20	
	SubTotal:	490	490
Storage Constructed & Under Development Totals:		500.5	500.5
Solar, Wind & Energy Storage Operational & Under development since July 1, 2018:			**7557**

* 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/