



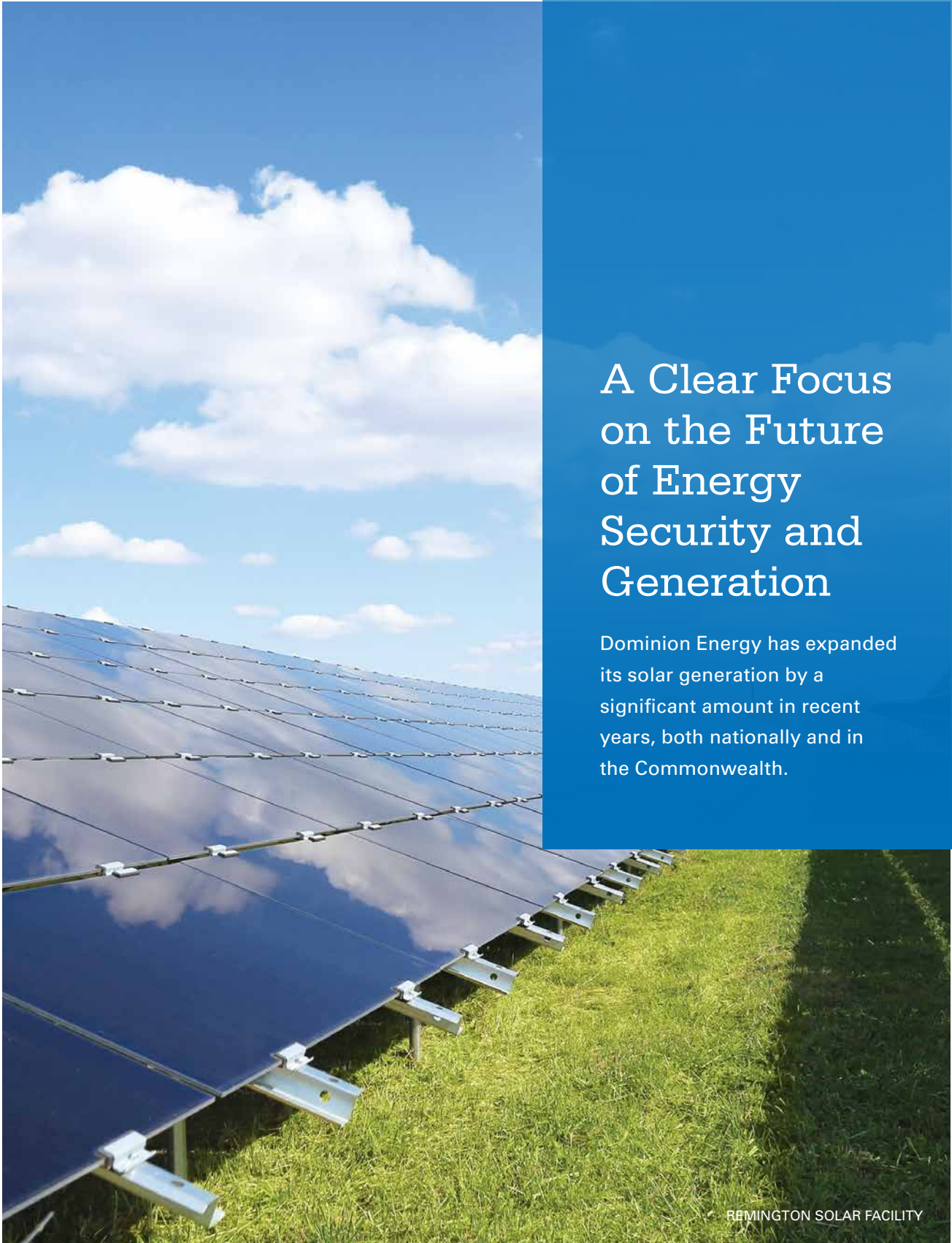
Dominion Energy's Solar Energy Report

to the Governor, Chairmen
of the House and Senate
Committees on Commerce
and Labor, and State
Corporation Commission

November 1, 2018



DominionEnergy.com



A Clear Focus on the Future of Energy Security and Generation

Dominion Energy has expanded its solar generation by a significant amount in recent years, both nationally and in the Commonwealth.

REMINGTON SOLAR FACILITY

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Introduction

The passage of the Grid Transformation and Security Act of 2018 (GTSA) represented an historic moment for energy policy in the Commonwealth of Virginia. The legislation will modernize and strengthen the distribution grid, making Virginia more energy secure in the years ahead, and allowing the grid to incorporate more renewable energy sources as our energy needs grow and evolve.

With a clear focus on the future of energy security and generation in the Commonwealth, the GTSA directed Dominion Energy, and any other Phase I or II utilities operating in the Commonwealth, to prepare a report by November 1st of this year addressing various issues related to solar power in the Commonwealth. Specifically, the legislation states:

That each Phase I Utility and each Phase II Utility, as such terms are defined in subdivision A 1 of § 56-585.1 of the Code of Virginia, shall investigate potential improvements to the net energy metering programs as provided under § 56-594 of the Code of Virginia, potential improvements to the pilot programs for community solar development as provided under § 56-585.1:3 of the Code of Virginia, expansion of options for customers with corporate clean energy procurement targets, and impediments to the siting of new renewable energy projects. Each such utility shall include interested stakeholders in the investigation of such issues and the development of proposed legislation and shall issue a report of its findings to the Governor, the State Corporation Commission,



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and the Chairmen of the House and Senate Committees on Commerce and Labor by November 1, 2018.

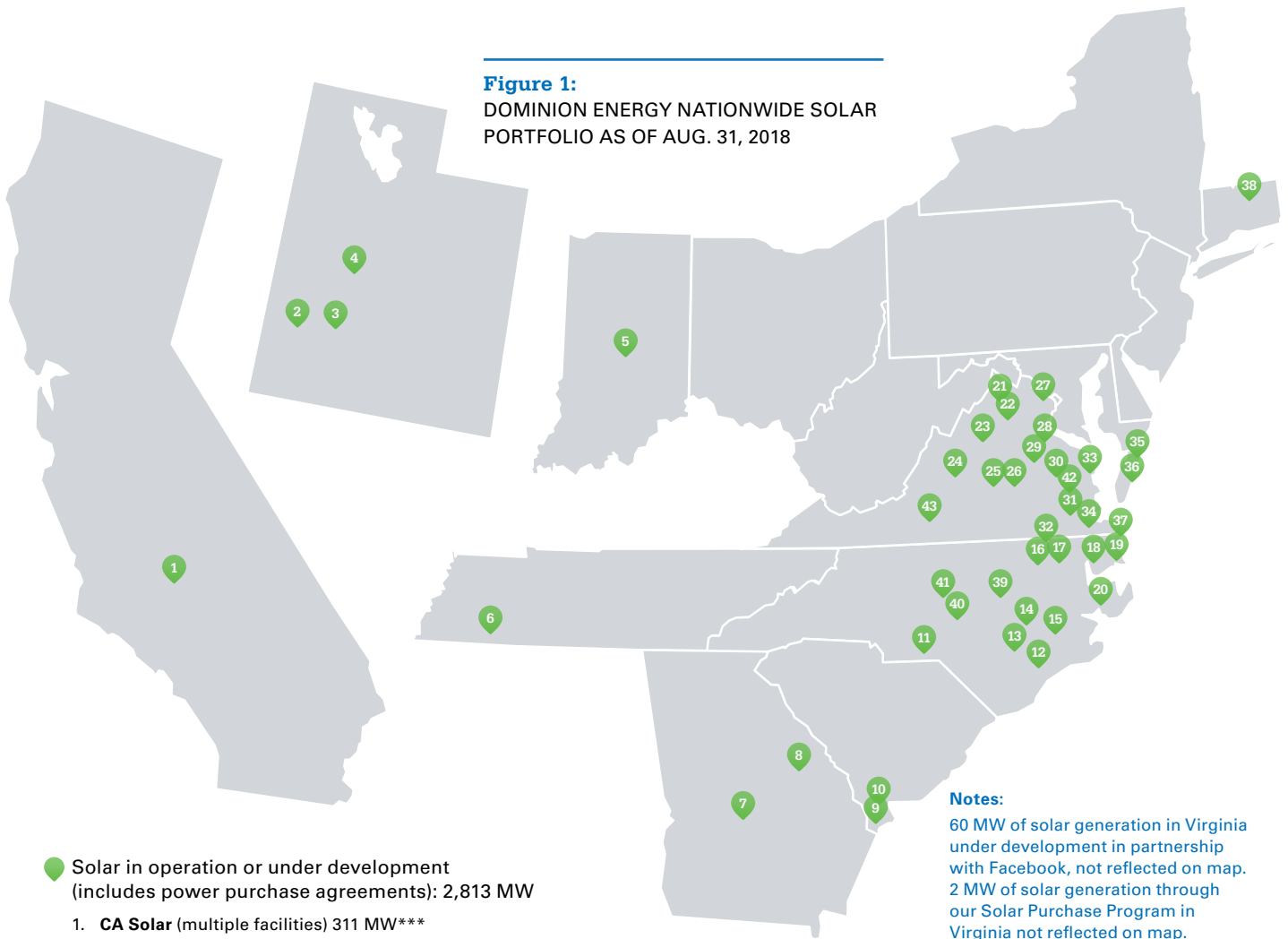
The following provides background regarding the company's commitment to the development and deployment of solar energy resources and related programs and initiatives, a summary of the company's robust stakeholder engagement process, and a discussion addressing the results of its process to develop the report.

Dominion Energy has expanded its solar generation by a significant amount in recent years, both nationally and in the Commonwealth.

The company now owns the fourth-largest solar fleet among utility holding companies in the United States and since 2013 has invested \$3.6 billion to help bring 1,600 megawatts (MW) of large-scale solar into operation in nine states. That is enough energy to power about 400,000 homes at peak output. This work has made the company a national leader in the incorporation of solar energy into an existing electrical grid.

Dominion Energy is proud of this progress. At the same time the company knows there is much more to be done, but also that this work must always be done with customers first and foremost in mind. Dominion Energy's goal will always be to provide reliable and affordable energy customers can count on. That will continue to be the mission as the company continues to add more solar generation into its overall energy portfolio.

Figure 1:
DOMINION ENERGY NATIONWIDE SOLAR
PORTFOLIO AS OF AUG. 31, 2018



● Solar in operation or under development (includes power purchase agreements): 2,813 MW

Notes:

60 MW of solar generation in Virginia under development in partnership with Facebook, not reflected on map. 2 MW of solar generation through our Solar Purchase Program in Virginia not reflected on map.

1. **CA Solar** (multiple facilities) 311 MW***
2. **4 Brothers Solar**, Beaver and Iron counties, 320 MW***
3. **Three Cedars**, Iron County, 210 MW***
4. **Pavant Solar**, Millard County, 50 MW***
5. **Indy Solar**, Marion County, 28.6 MW***
6. **TN Solar** (multiple facilities) 32 MW***
7. **Richland**, Twiggs County, 20 MW***
8. **Azalea Solar**, Washington County, 7.7 MW***
9. **Ridgeland Solar**, Jasper County, 10 MW
10. **Solvay Solar**, Jasper County, 71.4 MW
11. **IS37**, Anson County, 79 MW
12. **Clipperton**, Sampson County, 5 MW
13. **Pikeville**, Wayne County, 5 MW
14. **Freemont**, Lenoir County, 5 MW
15. **Moorings 2**, Lenoir County, 5 MW
16. **Gutenberg**, Northampton County, 79.9 MW
17. **Pecan**, Northampton County, 74.9 MW
18. **Morgans Corner**, Pasquotank County, 20 MW
19. **Summit Farms**, Currituck County, 60 MW
20. **NC Solar** (multiple facilities) 575 MW**
21. **Clarke**, Clarke County, 10 MW
22. **Remington**, Fauquier County, 20 MW
23. **Whitehouse Solar**, Louisa County, 20 MW
24. **Amazon Solar Farm Virginia - Buckingham**, Buckingham County, 20 MW
25. **Scott**, Powhatan County, 17 MW
26. **Amazon Solar Farm Virginia – Scott**, Powhatan County, 20 MW

27. **VA Solar Partnership Program** (multiple facilities) 7.7 MW
28. **Essex**, Essex County, 20 MW*
29. **UVA Hollyfield**, King William County, 17 MW
30. **Amazon Solar Farm Virginia – New Kent**, New Kent County, 20 MW
31. **Amazon Solar Farm Virginia - Sappony**, Sussex County, 20 MW
32. **Amazon Solar Farm Virginia – Southampton**, Southampton County, 100 MW
33. **UVA Puller**, Middlesex County, 15 MW
34. **Woodland**, Isle of Wight County, 19 MW
35. **Amazon Solar Farm Virginia - Accomack**, Accomack County, 80 MW
36. **Cherrydale**, Northampton County, 20 MW
37. **Oceana**, City of Virginia Beach, 18 MW
38. **Somers Solar Center**, Tolland County, 5 MW***
39. **Wakefield**, Wake County, 5 MW
40. **Mustang**, Moore County, 5 MW
41. **Siler**, Chatham County, 4.5 MW
42. **Spring Grove I and Colonial Trail West**, Surry County, 240 MW
43. **Water Strider**, Halifax County, 80 MW*

* Reflects power purchase agreements executed with Dominion Energy Virginia

** Reflects multiple power purchase agreements executed with Dominion Energy North Carolina

*** Capacity (MW) reflects Dominion Energy ownership in whole or in part

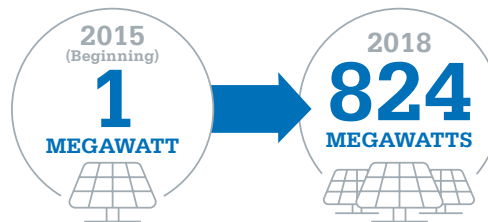
Dominion Energy's Growing Solar Power Footprint in Virginia

Just as it has nationally, Dominion Energy's solar footprint in the Commonwealth has grown rapidly in just the last four years.

At the beginning of 2015, Dominion Energy did not have any large-scale solar facilities in Virginia. The company's entire solar portfolio in Virginia consisted of four solar distributed generation facilities totaling just over 1 MW in capacity. In 2015, the company announced an ambitious investment of \$700 million to construct enough solar capacity in the state to produce 400 MW by the year 2020. The company quickly hit and exceeded that target.

Today, Dominion Energy has more than 30 facilities totaling 824 MW of solar generation operational or under development in the Commonwealth, and 2 MW through our Solar Purchase Program, enough to power more than 206,000 homes at peak solar output, and more than doubling the 2020 target. This has led to the creation of 2,300 temporary construction jobs building these facilities. In addition, the company has partnered with companies like Facebook, Amazon, and Microsoft, and institutions like Norfolk Naval Station and the Commonwealth of Virginia, to provide reliable solar energy to some of the Commonwealth's biggest employers.

Dominion Energy has implemented a unique Solar Partnership Program that allows for company-owned solar to be built on leased, commercial customer property in order to study the benefits and impacts of distributed generation on targeted distribution circuits. A total of 7.7 MW of solar capacity has been developed under this program with numerous partner companies, colleges, and



schools across Virginia, including:

- The University of Virginia
- Randolph-Macon College
- Prologis
- Old Dominion University
- Capital One
- Canon
- Western Branch High School
- Merck
- Philip Morris
- Virginia Union University

Dominion Energy has also created a Solar for Students program that provides students the chance to observe and learn firsthand about harnessing solar energy from a solar array. Participating public schools and educational organizations receive a 1.2 kilowatt solar system that converts sunlight into electric power, educational materials, and training for educators. Students are able to track the generation of electric power by viewing their data online and can challenge other participating schools around the world to a solar power match to see who generates the most.

Dominion Energy is excited about the success of the program from the initial pilot in 2015 of four schools to an additional six in the 2017-18 school year. In March 2018 the company announced it would be introducing the program to eight more schools in Southwest Virginia.

Similarly, the company has seen an expansion of its suite of programs allowing customers to adopt and

promote solar and other forms of renewable energy.

By the end of 2014, Dominion Energy was operating eight customer programs that, in various ways, provided avenues for customers to embrace solar energy. By that time, 26,570 customers were participating in these programs which, among other things, resulted in 10.2 MW of renewable energy being installed. For calendar year 2014, annual energy production from these programs totaled approximately 245,678,000 kilowatt-hours (kWh). The company continued to expand and embrace these types of programs so that by the end of 2017 Dominion Energy had either implemented or proposed 12 customer programs or select tariffs, including a proposed community solar pilot program which recently was approved by the State Corporation Commission (SCC) (as is discussed on page 14), with a total of 30,597 customers participating in active programs and 35 MW installed as a result of active programs. For calendar year 2017, annual energy production for these programs totaled approximately 340,978,000 kWh. Note: participation, energy, and capacity numbers in this paragraph exclude facilities participating in the company's Avoided Cost Tariff (Schedule 19). The company has 88 solar generation facility avoided cost contracts, but none in Virginia.

As of August of this year 3,689 customers were currently participating in the company's net metering program which facilitates the connection of renewable energy-generating systems to the power grid. The program has 31 MWs of capacity.

**Notes:**

60 MW of solar generation under development in partnership with Facebook and 2 MW (161 installations) of privately owned rooftop solar under the Solar Purchase Program are not reflected on the map.

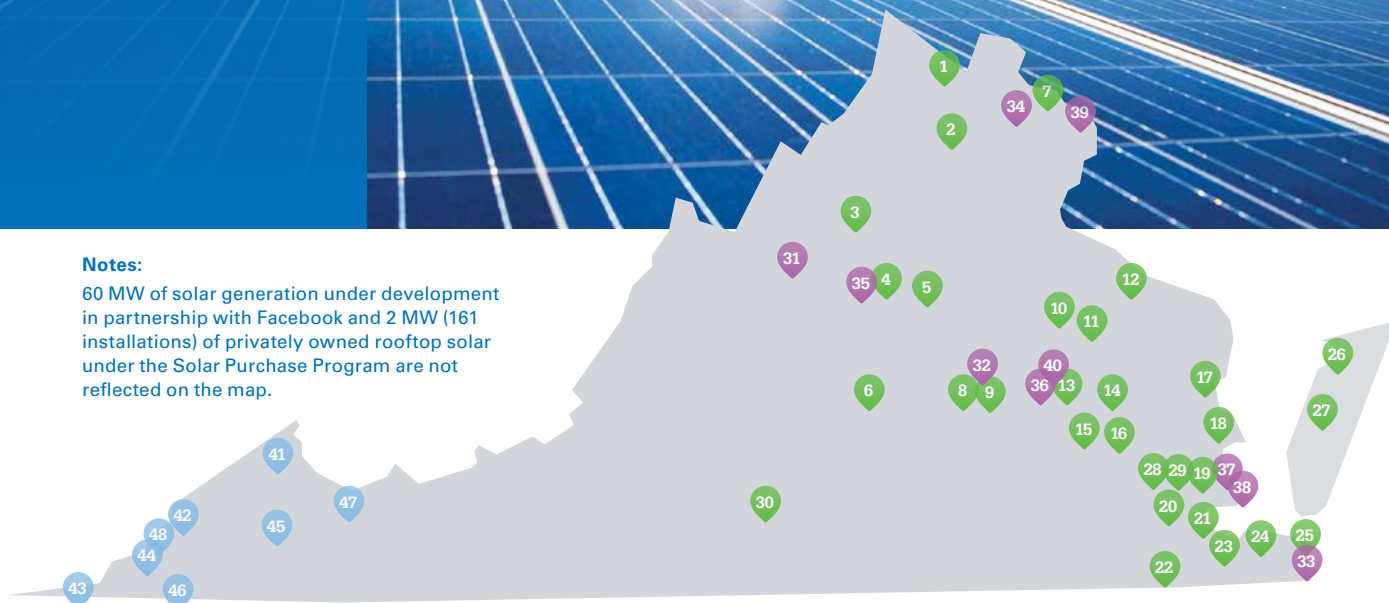


Figure 2:
DOMINION ENERGY SOLAR ASSETS
IN VIRGINIA AS OF AUG. 31 2018

● Solar in operation or under development (includes power purchase agreements): 824 MW plus 2 MW through the Solar Purchase Program

1. **Clarke**, Clarke County, 10 MW
2. **Remington**, Fauquier County, 20 MW
3. **Merck**, Rockingham County, 1.5 MW
4. **UVA**, City of Charlottesville, 0.4 MW
5. **Whitehouse Solar**, Louisa County, 20 MW
6. **Amazon Solar Farm Virginia - Buckingham**, Buckingham County, 20 MW
7. **Prologis**, Loudoun County, 0.74 MW
8. **Scott**, Powhatan County, 17 MW
9. **Amazon Solar Farm Virginia – Scott**, Powhatan County, 20 MW
10. **RMC**, Town of Ashland, 0.05 MW
11. **UVA Hollyfield**, King William County, 17 MW
12. **Essex**, Essex County, 20 MW
13. **VUU**, City of Richmond, 0.05 MW
14. **Amazon Solar Farm Virginia – New Kent**, New Kent County, 20 MW
15. **Capital One**, Chesterfield County, 0.5 MW
16. **Philip Morris**, Chesterfield County, 2 MW
17. **UVA Puller**, Middlesex County, 15 MW
18. **Canon**, Gloucester County, 0.5 MW
19. **Canon**, City of Newport News, 1 MW
20. **Amazon Solar Farm Virginia- Sappony**, Sussex County, 20 MW
21. **Woodland**, Isle of Wight County, 19 MW
22. **Amazon Solar Farm Virginia – Southampton**, Southampton County, 100 MW
23. **Western Branch HS**, City of Chesapeake, 0.8 MW
24. **ODU**, City of Norfolk, 0.13 MW
25. **Oceana**, City of Virginia Beach, 18 MW
26. **Amazon Solar Farm Virginia – Accomack**, Accomack County, 80 MW
27. **Cherrydale**, Northampton County, 20 MW

28. **Spring Grove I**, Surry County, 98 MW
29. **Colonial Trail West**, Surry County, 142 MW
30. **Water Strider**, Halifax County, 80 MW

● Solar For Students (Existing Installations) – Approx. 1.2 kW each

31. **Shenandoah Valley Governor's School**, Fishersville
32. **Goochland High School**, Goochland
33. **Landstown High School**, Virginia Beach
34. **T. Clay Wood Elementary School**, Nokesville
35. **Charlottesville-Albemarle Technical Education Center**, Charlottesville
36. **Children's Museum of Richmond**, Richmond
37. **Deer Park Elementary School**, Newport News
38. **Hampton High School**, Hampton
39. **Kenmore Middle School**, Arlington
40. **MathScience Innovation Center**, Richmond

● Solar For Students (Coming Soon to the Coalfield Region) – Approx. 1.2 kW each

41. **Grundy High School**, Buchanan County
42. **Ridgeview High School**, Dickenson County
43. **Lee County Career & Technical Center**, Lee County
44. **John I. Burton High School**, Norton
45. **Honaker Elementary School**, Russell County
46. **Twin Springs High School**, Scott County
47. **Tazewell High School**, Tazewell County
48. **Union Elementary School**, Wise County


Innovative Partnerships with Customers

Dominion Energy also has worked to facilitate a number of specific and unique requests from customers statewide regarding their solar power needs, goals, and requirements. From producing 32 MW of solar power to offset

21% of the University of Virginia’s electric demand, to helping the Commonwealth of Virginia land a major new Facebook data center through the guarantee of renewable energy to offset the energy requirements of this new

facility, Dominion Energy has helped major employers from the federal government to the Commonwealth of Virginia to the private sector achieve their solar and renewable energy goals right here in Virginia.

Table 1: COLLABORATION WITH LARGE CUSTOMERS TO GROW SOLAR IN VIRGINIA

Collaboration with Large Customers to Grow Solar in Virginia		
Facility/Program	Partners	Description
Solar Partnership Program*	Canon Capital One Merck Old Dominion University Philip Morris Prologis Randolph-Macon College University of Virginia Virginia Union University Western Branch High School	A total of 7.7 megawatts of solar distributed generation on property leased from partners across 11 individual facilities
Remington Solar Facility	Commonwealth of Virginia Microsoft	20 Megawatt Facility in Fauquier County
Oceana Solar Facility	Commonwealth of Virginia U.S. Navy	18 Megawatt Facility in Virginia Beach
UVA Hollyfield	University of Virginia and its Darden School	17 Megawatt Facility in King William County
UVA Puller	University of Virginia	15 Megawatt Facility in Middlesex County
Multi-Facility Large-Scale Solar	Amazon Web Services	Six facilities totaling 260 megawatts. Locations include the counties of Accomack, Buckingham, New Kent, Powhatan, Sussex, and Southampton
Colonial Trail West	Facebook	Two facilities in development totaling 240 megawatts in Surry County. Additional facilities planned.
Spring Grove 1		

*Dominion Energy is not currently accepting applications for the Solar Partnership Program.

Expanding Solar Energy; Gaining National Attention

All of this progress and quick growth has not gone unnoticed:

- The Smart Electric Power Alliance (SEPA) ranked Dominion Energy 8th among utilities for the amount of solar added to its system in 2017, <https://sepapower.org/2018-top-10-winners/>
- Virginia ranked 10th in the nation in the Solar Energy Industry Association's (SEIA's) state solar installation ranking for 2017 (for solar capacity added in 2017), <https://www.seia.org/research-resources/solar-market-insight-report-2017-year-review>

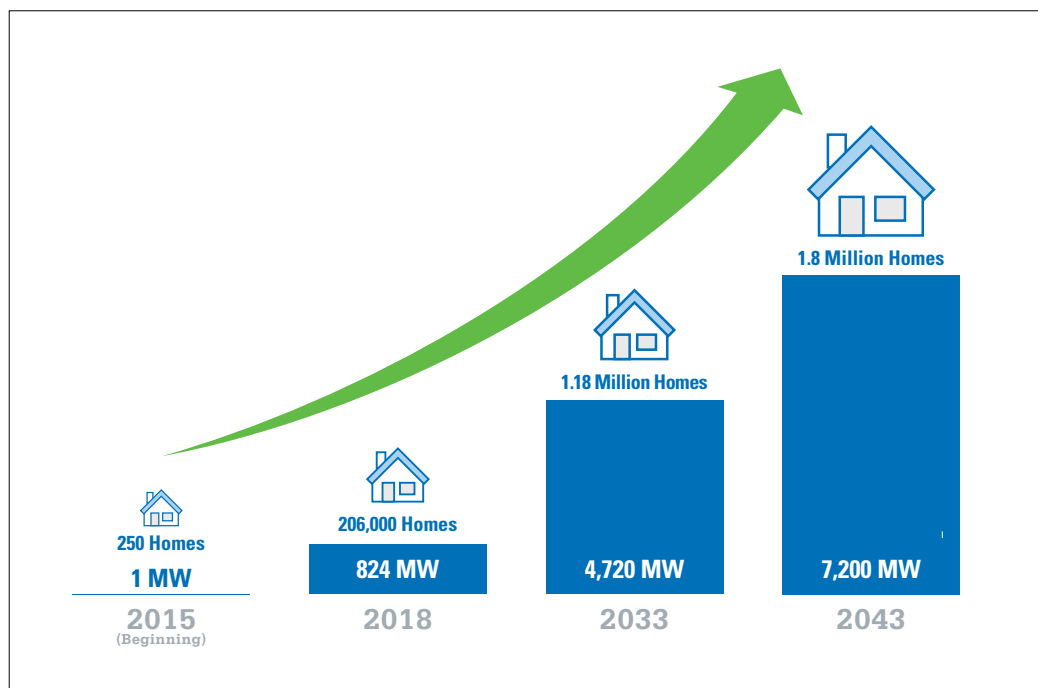
- In August 2018 S&P Global found that Dominion Energy at the holding company level is ranked 4th among utility holding companies for owned solar (both operational and planned) nationwide. In terms of operational solar Dominion Energy is ranked 5th. In terms of planned projects, Dominion Energy is ranked 3rd.
- In October 2018, Dominion Energy won a Moxie Award for being one of the "boldest in business" in the Washington D.C region. The company's

recognition was specifically tied to its leadership in solar power generation and environmental stewardship. <https://moxieaward.com/winners/>

This is just the start.

The company's recent Integrated Resource Plan (IRP) projects that it could add 4,720 MW of additional solar capacity to the company's generation fleet by 2033 and 7,200 MW of additional solar capacity by the conclusion of a longer, 25-year study period ending in 2043 (Figure 3).

Figure 3: CURRENT SOLAR CAPACITY (OPERATIONAL AND PLANNED) VERSUS FORECASTED SOLAR CAPACITY



Dominion Energy Undertook a Robust Stakeholder Engagement Process

Dominion Energy initiated a comprehensive and far-reaching engagement process with the goal of hearing from all interested stakeholder groups. This included: customers, residential, commercial, and industrial; environmental organizations; renewable energy advocates; business organizations; and governmental and community leaders.

To hear from such a broad array of stakeholders, the company utilized a number of information-gathering tactics, including:

- Working with Public Opinion Strategies, a well-established Alexandria-based polling firm with extensive experience in the Commonwealth, to conduct a statewide poll of Virginia voters in late September to gauge attitudes towards, and awareness of, solar energy and policy; and,
- Contracting with Meridian Institute to design and facilitate a stakeholder engagement process focused on the issues put forward by the General Assembly in enacting the Grid Transformation and Security Act. The Meridian Institute is a not for profit firm with expertise in facilitation, mediation, and strategy assessment and planning. The process included gathering perspectives on the specific issues identified in the legislation:
 - A. Existing renewable energy net

metering programs;

- B. The pilot programs for community solar development;
- C. Expanding options for customers with corporate clean energy procurement targets;
- D. Impediments to the siting of new renewable energy projects.

The Meridian Institute process was executed in collaboration with the Governor's Office, and the findings also served as input into development of the 2018 Virginia Energy Plan.

As part of their work, Meridian Institute held two large public forums. The first, or kickoff event, was held July 10th at Virginia Commonwealth University. The second, the concluding forum, was held August 22nd at the Omni Hotel in Richmond.

In addition to those larger meetings, between the kickoff and concluding forums, Meridian Institute also held smaller, sector specific meetings with interested stakeholders to go over issues of particular relevance to them. Those meetings, or webinars, were as follows:

- » **August 3rd:** Virginia Electricity Providers
- » **August 7th:** Environmental and Environmental Justice Organizations
- » **August 7th:** Solar Energy Industry and Advocacy Organizations
- » **August 9th:** Wind Energy Industry and Advocacy Organizations
- » **August 10th:** Business Associations

and Large Customers

- » **August 20th:** Advocacy Groups for Energy Affordability for Residential Customer Meeting
- » **August 20th:** Solar Energy Industry and Advocacy Organizations
- » **August 21st:** Business Associations and Large Customers
- » **August 21st:** Local Governments
- » **August 22nd:** Historic Preservation and Land Use
- » **August 22nd:** Environmental and Environmental Justice Advocacy Organizations
- » **August 23rd:** Other Energy Sources Stakeholder Group Webinar
- » **August 23rd:** Companies with Renewable Energy Pledges Webinar

Finally, Meridian Institute also conducted an online survey to receive written comments.

The information received during this process was extremely helpful to the company's investigation and this report, as well as in helping Dominion Energy and its stakeholders better understand all the various issues, challenges, and opportunities that exist in the renewable energy space. To ensure that the recipients of this report, as well as all interested parties, have access to all of Meridian Institute's findings, their final summary is attached to this report. The full report is available at this link: http://merid.org/VA_Solar_Energy.aspx

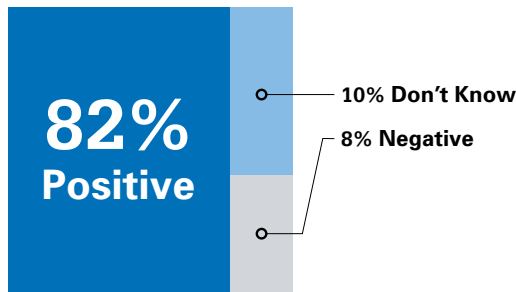
Public Polling

Consumers are still in a learning phase about solar power as an energy source, as well as its applications, limitations, and impacts. Despite the relative newness of the issue however, Virginians already have some very

clear, and intriguing, opinions on this issue.

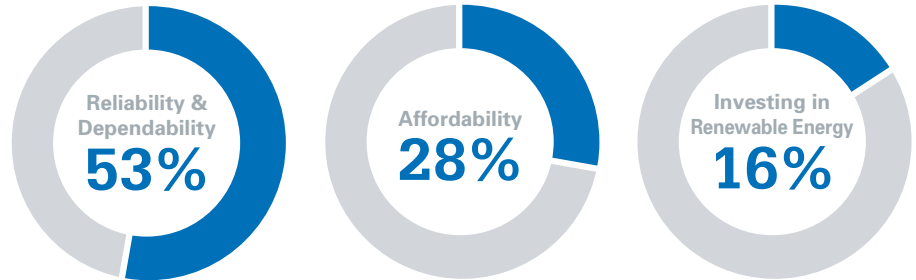
From September 20th-26th Public Opinion Strategies polled 798 individuals in the Commonwealth about the matter. Notable findings from the poll are as follows:

Voters have very positive opinions about solar power as an energy source:



In fact solar power is the most popular energy source of all those tested in this polling (Nuclear, Wind, Solar, Natural Gas, and Coal)

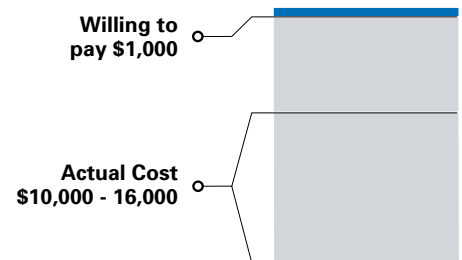
However, when asked to choose what is most important to them regarding their own electricity provider (from the three choices to the right) customers chose as follows:



Virginians generally are not aware of net metering or Virginia's net metering law:

82% had **No Familiarity** with the term.

Among Virginians who expressed interest in installing solar panels on their home, the average total median dollars they would be willing to pay for that installation is \$1,000 (It costs between \$10,000-\$16,000 to install panels at this time for a typical residential rooftop installation.)



Clearly, Virginians like the idea of solar power. Nevertheless, they have limited knowledge about its particulars, and they continue to rank energy reliability and affordability high above increasing renewable energy

when it comes to their priorities for their electricity providers. There is also a significant gap between the concept and the reality of solar power.

Solar Power in Virginia: Moving Forward

Per the language in the Grid Transformation and Security Act of 2018, “each Phase I Utility and each Phase II Utility, as such terms are defined in subdivision A 1 of § 56-585.1 of the Code of Virginia, shall investigate potential improvements to the net energy metering programs as provided under § 56-594 of the Code of Virginia, potential improvements to the pilot programs for community solar development as provided under § 56-585.1:3 of the Code of Virginia, expansion of options for customers with corporate clean energy procurement targets, and impediments to the siting of new renewable energy projects.”

This section is focused on addressing these four areas of potential improvement set out in the GTSA.

Potential improvements to the net energy metering programs

As evidenced by the map (Figure 4), the issue of whether and how to reform net metering, and the compensation structure for customer-generation, is not unique to Virginia. As of May 2018, 26 states had either enacted reforms to net metering or had proceedings underway to consider doing so.

The Meridian Institute report accurately reflected the larger national stakeholder conversation surrounding net metering policies when it reported:

“Participants had diverse and, in some cases, polar opposite perspectives on current restrictions on net metering in Virginia, including the 1% cap of a utilities’ previous year peak load, system size limitations for residential customers based on energy use during the previous year, the 1 MW system size limitations for non-



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26 states have enacted net energy metering (NEM) reforms or have proceedings underway to consider reform as of May 2018

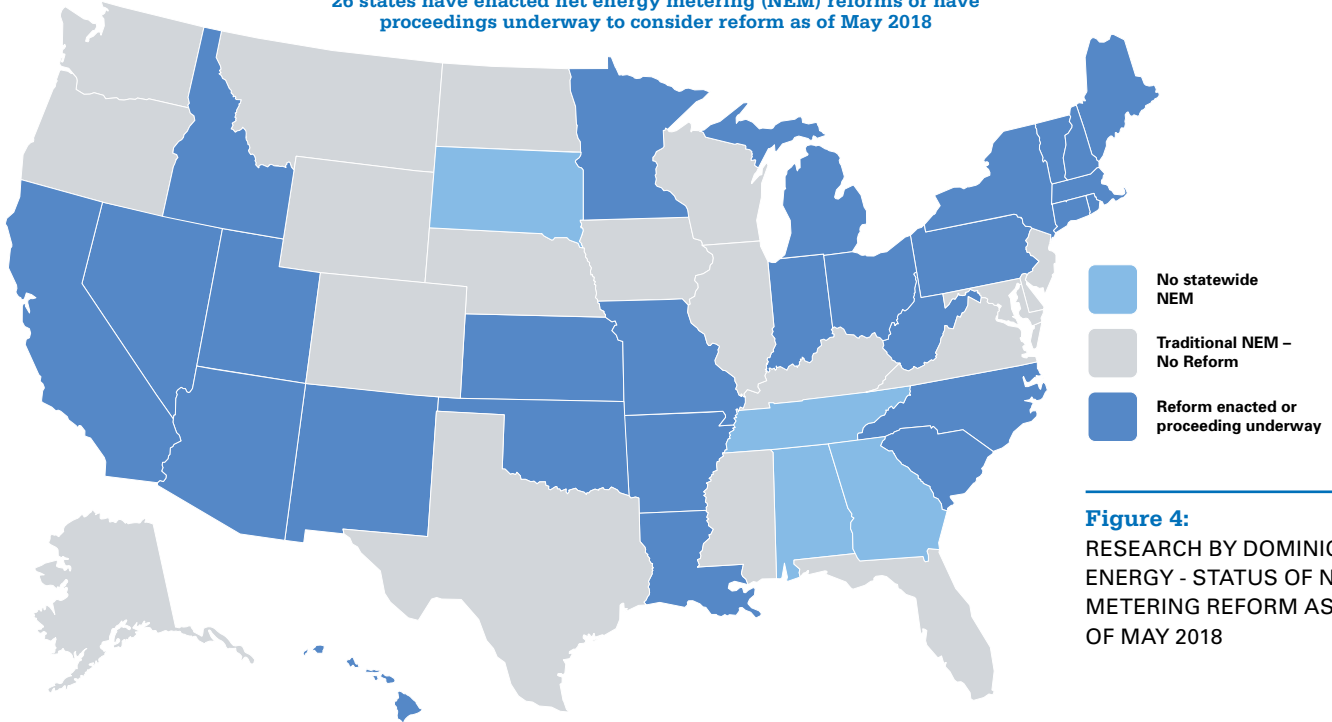


Figure 4:
RESEARCH BY DOMINION ENERGY - STATUS OF NET METERING REFORM AS OF MAY 2018

residential customers, standby charges for residential systems between 10-20 KW, and restrictions on whether and how net metering customers can engage in purchase power agreements (PPAs) with third parties. For each of the limitations listed above, some participants supported current limitations while participants offered a variety of suggested alternatives.”

This is a challenge. Depending on

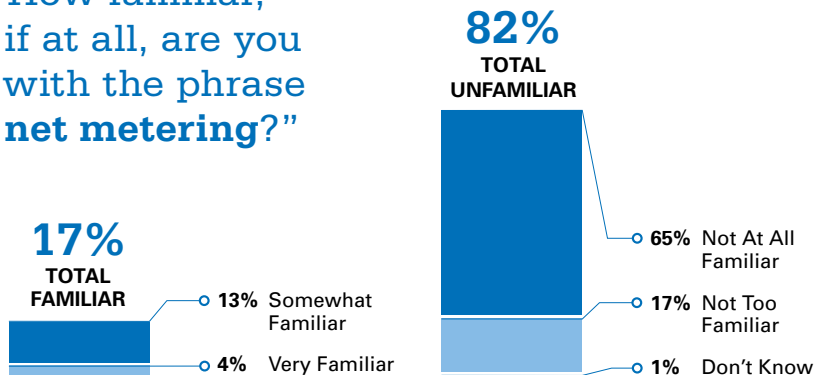
an individual or group’s specific circumstances, perspectives on net metering policy among those conversant with the subject vary wildly. It also is critical to remember that this is a conversation that does not include the overwhelming majority of Virginians, who generally are unaware about this subject. As noted in the earlier section, according to polling only 17% of Virginians are familiar at all with the phrase “net metering.” 82% are

unfamiliar.

These findings clearly speak to the need for much greater education on the issue of net metering. That should be a focus for all parties going forward.

In terms of current policy, as the provider of energy to approximately 65% of Virginia’s residential customers and approximately 60% of Virginia’s businesses, Dominion Energy must continue to strike a responsible balance on this issue. The company’s top priority is providing safe, affordable, and reliable energy, which includes a focus on the operability of the grid. That will always take precedence. But, consistent with the company’s commitment to renewable energy, Dominion Energy will continue to move forward with a number of innovative programs and initiatives designed to provide more options for customers interested in adopting renewable energy, including energy related to net metering.

“How familiar, if at all, are you with the phrase net metering?”



Solar Power in Virginia: Moving Forward

In alignment with the State Corporation Commission's (SCC) Regulations Governing Net Energy Metering (the "Net Metering Rules"), Dominion Energy has established a process for customers who wish to interconnect a qualifying distributed energy resource (DER). The current process is manual in nature and inefficient, requiring the completion of forms and documentation and hand-offs between a wide-range of departments at Dominion Energy. With the volume of applications growing by an average of approximately 30% per year over the last three years, this process presents potential delays in the time between when the customer's net metering application is initiated and when the application is completed.

Like several peer utilities, Dominion Energy has proposed investments to improve the net metering application process and improvements to better manage the increasing number of customer DER applications. These investments and improvements are outlined in the Grid Transformation Plan (GTP), filed with the SCC on July 24, 2018. Dominion Energy plans to streamline the net metering application process and improve the customer experience by deploying a new net metering application system that will improve internal processing, allowing for workflow automation through a common software platform. This new software platform will allow the company to complete the application process efficiently while simultaneously allowing the customer to submit their application more easily in a digital and dynamic manner. The implementation will also enable increased capacity for

processing net metering applications within the timeline required by the Net Metering Rules.

The new net metering application system will be a software asset to facilitate the integration of customer owned renewable electric generation resources with the utility's electric distribution grid. Dominion Energy anticipates initial deployment of the new net metering system to begin in 2019, subject to review and approval by the SCC.

Additionally, the Grid Transformation Plan includes the full deployment of smart meters. For the increasing number of customers who are deploying DER and enrolling in the company's net metering program, having a smart meter will significantly improve visibility into the details of the energy received and exported at their homes, and how that translates to their net charge each month. Smart meters also play a key role in enabling a more streamlined DER integration process, as well as greater transparency and visibility for customers that enroll in net metering and other advanced rate structures.

Potential improvements to the pilot programs for community solar development

Legislation enacted by the Virginia General Assembly in Senate Bill 1393 (2017) and customer interest in local solar energy generation led to the development of the Virginia Community Solar Pilot Program, a voluntary program allowing Dominion Energy customers the opportunity to purchase energy from new solar facilities located in communities throughout Dominion Energy's service territory. The legislation is one of several

successful outcomes of the Solar Collaborative Workgroup consisting of Dominion Energy, Appalachian Power, the state's electric cooperatives and other interested renewable energy stakeholders. The goal of the workgroup is to develop consensus on policy changes for renewable energy initiatives.

The Meridian Institute report found broad support for the establishment of this pilot program as well, noting:

"Several participants from the environmental and environmental justice organizations, business associations and large customers, and solar energy industry and advocacy organizations groups expressed support for SB 1393, the 2017 bill that created the current framework for community solar pilot programs. Many participants explicitly supported the program because it allows a wider range of Virginians to access solar energy."

On January 19, 2018, Dominion Energy filed an Application with the SCC for approval of the Virginia Community Solar Pilot Program. The Application and other procedural information are available on the SCC's website under Case Number PUR-2018-00009.

The program was designed as an option for customers to "go solar" without the high upfront costs, usually ranging from several to tens of thousands of dollars, to install their own solar panels. It is a great option for customers who cannot install solar at their homes or businesses for reasons such as leasing vs. owning the property or issues such as roof condition or shading. It was designed with just a one-year minimum term which helps customers avoid having to sign long

Solar Power in Virginia: Moving Forward

term commitments and contracts which are viewed as barriers in other community solar programs.

On September 11, 2018 the SCC issued an Order approving the Virginia Community Solar Pilot Program including the design of the Pilot Program, structure of the rate schedule, and the proposed Community Solar Portfolio. In the Order, the SCC also found the company's proposed Pilot Program costs are reasonable and prudent. Participating customers will subscribe to the Pilot Program

through a voluntary companion rate schedule specific to the Virginia Community Solar Pilot Program. A public website has been established at www.DominionEnergy.com/CommunitySolar, and within six months of the date of the Order (by March 10, 2019), the company will make subscriptions for participation in its Pilot Program available to its retail customers on a voluntary basis.

In addition to the reporting requirements set forth in Code § 56-585.1:3 F, the Order requires the company to report on the actual costs

and revenues of the Pilot Program at its conclusion to verify that non-participating customers will not be required to pay for, or subsidize, the costs of the Pilot Program.

As with other pilot programs, Dominion Energy could potentially offer recommended improvements to community solar developments in future reports to the SCC. This will only be possible, however, after enough time has transpired to properly assess program implementation and customer response. The company looks

Table 2: CURRENT RENEWABLE ENERGY OPTIONS*

CUSTOMER GROUP				SIZE LIMITATIONS	
RESIDENTIAL	SMALL COMMERCIAL	LARGE COMMERCIAL	INDUSTRIAL	INDIVIDUAL	AGGREGATE
Dominion Energy Green Power® Allows customers to purchase renewable energy certificates (RECs) equal to a portion or 100% of their usage					
●	●	●	●	None	None
Virginia SCC Renewable Energy Pilot Program Allows eligible customers to enter into a power purchase agreement with a third party renewable energy supplier					
	●	●	●	50 kW – 1 MW	50 MW
Net Metering Allows eligible customer-generators producing renewable energy to offset their usage					
●	●	●	●	Res. 20 kW Non-res. 1 MW	1% of Adjusted Peak Load Forecast for Prior Year
Agricultural Net Metering Allows eligible agricultural customers to net meter across multiple accounts on contiguous property					
	●	●	●	500 kW	Within Net Metering Cap
Market Based Rate MBR Allows eligible customers to pay for their retail energy use at a market rate which could offset their renewable energy purchases if they are sold into the wholesale market					
		●	●	> 5 MW	200 MW
Schedule RF (Renewable Facility) Allows eligible customers to promote development of new renewable energy facilities by enhancing their cost effectiveness for all customers in exchange for the environmental attributes of up to 100% of the facility					
		●	●	≥ 30,000 MWh of New Customer Load	None
Avoided Cost Tariff (Schedule 19) Requires Dominion Energy to purchase output from qualifying facilities at avoided cost rates					
●	●	●	●	≤ 20 MW	None

*Two current programs are excluded from this chart. The Solar Purchase Program is excluded because the pilot program enrollment period has ended so the program has been closed to new participants. The Solar Partnership Program is excluded because Dominion Energy is not currently accepting applications for the program.

Solar Power in Virginia: Moving Forward

forward to monitoring the Virginia Community Solar Pilot Program and reporting back at the appropriate time on the lessons learned from its implementation.

Expansion of options for customers with corporate clean energy procurement targets

Dominion Energy has a number of renewable energy programs applicable to both residential and small commercial as well as large non-residential and business customers. Just three years ago the company had eight customer programs. Today, a total of 12 programs are implemented or in various stages of development.

Large corporate and institutional customers have become increasingly focused on procuring more of their energy needs from renewable resources. Many of the company's largest energy users have established aggressive goals for significantly increasing adoption of renewable energy. In response to this growing interest, the company remains engaged with this customer segment

to learn about their needs and desires, and to provide customized solutions where appropriate.

On page 15 is a summary of currently available customer offerings and below is a summary of proposed offerings for customers that Dominion Energy has developed to respond to the growing desire for renewable energy.

Schedule "RF" – Large customers can purchase renewable energy attributes from new solar facilities that serve all Dominion Energy customers through a specially designed, SCC approved-tariff that is known as "Schedule RF." This tariff allows the customer to meet their renewable energy targets embedded in their sustainability goals, while lowering the cost of new solar facilities for all other customers.

As referenced in *Collaboration with Large Customers to Grow Solar in Virginia* (Table 1), Facebook has committed to subscribing to Schedule RF to meet its renewable energy goals connected to its proposed data center complex in Henrico County.

Market-Based Rate (MBR) with Solar – This is a rate designed to more closely follow pricing in the PJM wholesale market. Among other things, this tariff allows a large customer who has large amounts of solar energy under a wholesale contract to subscribe to a market-based retail rate that aligns better with their wholesale market activity.

Collaboration with Large Customers to Grow Solar in Virginia (Table 1) also profiles the significant investment in solar energy that Amazon Web Services (AWS) has made in Virginia, and they are one of the company's customers utilizing the MBR rate schedule to financially integrate their renewable energy purchases with their retail electricity billing.

Ring-Fencing – This custom offering allows for a large customer to enter into a contract with Dominion Energy to purchase output from a renewable energy facility dedicated specifically to that customer. The specific large customer bears all the cost of the project and can claim the renewable

Table 3: PROPOSED RENEWABLE ENERGY OPTIONS

CUSTOMER GROUP				SIZE LIMITATIONS			
RESIDENTIAL	SMALL COMMERCIAL	LARGE COMMERCIAL	INDUSTRIAL	INDIVIDUAL		AGGREGATE	
Virginia Community Solar Pilot*							
Allows eligible customers to purchase energy and RECs from solar facilities in communities							
○	○	○	○	Each site ≤ 2 MW	Participation Options and Limits Vary by Customer Group	Initial Cap: 10 MW	Participation Options and Limits Vary by Customer Group
100% Renewable Option – Residential and Small Commercial CRG Rate Schedules							
Allows eligible customers to purchase energy, capacity, and RECs to meet 100% of their energy usage 100% of the time							
○	○			Customer Peak Load < 1,000 kW		Initial Program Cap: 25 MW of Customer Peak Load	
Schedule RG (Renewable Generation)							
Allows eligible customers to meet a portion of their energy needs from renewable facilities							
	○	○	○	Minimum Purchase: 1,000 kW Maximum: Customer Annual Load		None	

*The Virginia Community Solar Pilot Program was approved September 11, 2018 and will available for customer subscription by March 10, 2019.

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energy attributes, while the project is “ring-fenced” to the dedicated customer, shielding all other customers from a cost and risk perspective.

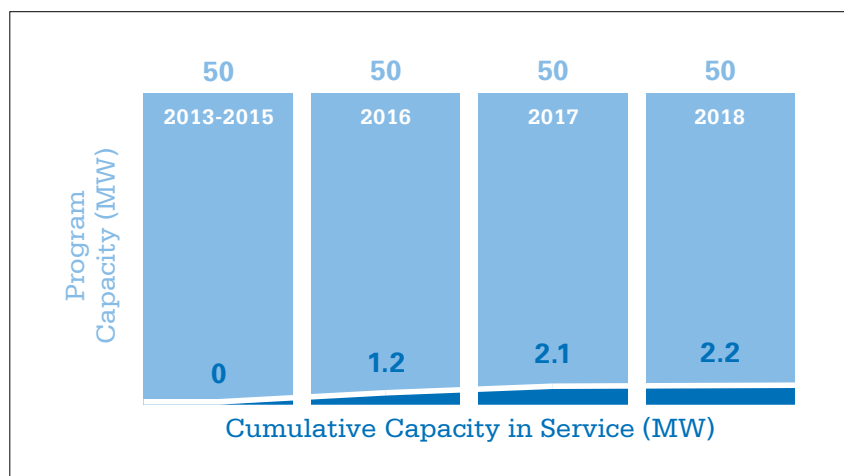
The company has developed several solar energy facilities for large customers using the Ring-Fencing model. As reflected in *Collaboration with Large Customers to Grow Solar in Virginia* (Table 1), the company has utilized this pathway to enable organizations such as the Commonwealth, The University of Virginia, Microsoft, and the U.S. Navy to meet their renewable energy needs.

Schedule “RG” - This is a “renewable generation” (RG) tariff offering. This is currently under consideration for approval at the State Corporation Commission (SCC) in Case No. PUR-2017-00163. This allows large customers to choose to meet a portion of their needs (up to 100%) from renewable energy purchased through a voluntary, companion retail rate tariff. The World Resources Institute recognized Dominion Energy for its innovation in the design and offering of its first Schedule RG option, which was a pilot program that concluded in spring 2017. Working with customers, the company has updated the first Schedule RG in this iteration and looks forward to its approval.

Virginia SCC Renewable Energy Pilot Program

Another offering available to qualifying institutional customers, is the SCC’s Renewable Energy Pilot Program, facilitated by legislation enacted by the Virginia General Assembly in 2013 and implemented through guidelines approved by the SCC in November 2013, Docket No. PUE-2013-00045.

Figure 5: VIRGINIA SCC RENEWABLE ENERGY PILOT PROGRAM – AGGREGATE CAPACITY LIMIT COMPARED TO SUBSCRIBED CAPACITY



Under the pilot program, a person who owns or operates a solar-powered or wind-powered electricity generation facility with a capacity between 50 kilowatts and one megawatt that is located on premises owned or leased by an eligible customer-generator will be allowed to sell the electricity generated from such facility exclusively to the eligible customer-generator under a power purchase agreement. The power purchase agreement will provide for third party financing of the costs of the renewable generation facility. The pilot program aggregate capacity of 50 MW includes participation among jurisdictional and non-jurisdictional customers. The minimum individual generation facility size requirement does not apply to certain nonprofit entities.

The steps needed for participation are available at www.DominionEnergy.com/home-and-small-business/renewable-energy-programs/renewable-energy-pilot-program and include providing written notification of intent to participate, an approval for interconnection to the grid,

and changes to existing facilities (if applicable) in order to begin to purchase power from a third party supplier. Note, these steps are in addition to the notification and requirements found on the SCC website, <http://www.scc.virginia.gov/pur/pilot.aspx>

As noted above (Figure 5), the program is limited to 50 MW of combined generation capacity for both jurisdictional and non-jurisdictional participants. As of September 2018, the pilot has thirteen projects in service for a total of 2.2 MW. Thus, the program has yet to reach even 5% of its potential capacity. And even when considering new pending projects, this pilot program is not close to reaching capacity anytime soon.

The SCC’s guidelines for the pilot program state that the SCC will review the pilot program every two years to determine whether the statutory limitations on the capacity of the generation facilities included in the pilot program should be continued, expanded, or reduced.

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REMINGTON SOLAR FACILITY

Impediments to the siting of new renewable energy projects

On August 9th of this year, *The Culpeper Star-Exponent* ran an article regarding a proposed solar farm in that county. The newspaper spoke with the owner of a neighboring property and reported that:

Gloria Jean Stegmaier cherishes the pastoral views from her front porch, but is fearful the view will be shattered by the utility scale solar project planned on 1,000 acres near her Blackjack Road home in southeastern Culpeper County . . .

"In my later years, I just don't need this aggravation. I don't need it," she said, near tears. "Just bottom line, I don't like it. I like my view the way it is."

The anecdote is instructive. As reported above, while many consumers desire to see more solar power, the generation of that power, and its incorporation into the existing grid, comes with numerous challenges. Some are inherent in the construction of any large energy project. Others are more specific to the needs of solar power facilities in particular. Ms. Stegmaier speaks to just one: the amount of land needed to build a substantial solar facility. But there are many other issues to consider. As solar facilities are constructed, just as with all energy infrastructure projects, Dominion Energy strives to be a good and responsive member of the communities in which the company operates. Dominion Energy is committed to getting these projects right. To help accomplish this, the following is a list of siting criteria Dominion Energy considers when determining potential solar facility locations:



Land

Solar facilities require approximately 8 - 10 "usable" acres per MW of solar. As such, to produce 20 MW of solar power, one needs 160 to 200 acres of land. And, it can't be just any land. Generally, usable

Solar Power in Virginia: Moving Forward

land should not exceed 8% slope, and it should require only minimal grading as well as clearing and grubbing. Further, there needs to be good road and highway access to the site, with minimal additional road building required.

Subsurface conditions should have sufficient depth to allow driven post installation. And, as one would anticipate, there should be minimal impacts from shading, ruling out many areas that are near trees, buildings, hills/valleys and the like. Solar farms take up a lot of space, and the spaces they need are particular and limited. Rooftop solar and the development of solar projects on brownfield sites offer two innovative ways to potentially address land use issues moving forward and should be studied in greater detail.



Environmental Impact

As with all projects built today, solar facilities must have

limited, controlled and permitted environmental impacts. As such, and among other things, generally, these projects need to avoid or limit impacts to wetlands and streams, as well as negative impacts on threatened or endangered species. The proper management of stormwater runoff during construction and operation is also an important issue.



Cultural Resources

Solar facilities also generally need to avoid negatively impacting areas of archeological or historical significance, such as

battlefields, a very real consideration in a Commonwealth like Virginia. This consideration extends past their mere physical footprint, and also must take into account view shed impacts as well.



Interconnection, Long Term Leasing, and Decommissioning

Solar farms need to be interconnected to the grid. While some projects are located adjacent to the necessary existing lines for interconnection purposes, some are not. For those that are not, new generation interconnection (or tie) lines will need to be constructed. The size and capacity of a solar facility generally determines the nature of its interconnection, and thus, the type (and thus size) of the line needed. A solar project typically is interconnected to the grid at distribution level (34.5 kV) when it is 20 MW and below, and at transmission level (above 69 kV) for projects above 20 MW. Thus, generally speaking, while each project is unique and is evaluated on its own facts, larger, utility scale solar projects that are not located adjacent, or in close proximity, to existing lines likely will need new distribution or transmission lines for their interconnection. Such new facilities can carry with them additional impacts and concerns, such as those noted above.

The construction and operation of transmission lines in the Commonwealth requires a Certificate of Public Convenience and Necessity from the SCC, unless such work is considered to be an ordinary course improvement for the utility in question. The timing and costs of obtaining such approvals can be substantial and are borne by the

project, thereby potentially delaying or preventing a solar project from being developed.

When Dominion Energy looks to identify property for a solar facility, the company does so cognizant of the fact that long term lease rates will vary based on location, size, condition, and other factors. The typical rate will range from \$300 - \$700 per acre, per year. Lease terms need to accommodate the development period including installation, operation, and decommissioning of a facility. Typically this means a 35 year term with construction period and removal period, or 37 years in total. Decommissioning is necessary to ensure aging generation assets are not abandoned, but addressed properly to minimize potential environmental impacts and to make the land available for future use.



Land Use Planning

Local officials make local land use

decisions. County supervisors or city/town councils adopt long term visions in comprehensive land use plans, plus more detailed zoning ordinances that limit development potential and define acceptable use for each parcel of land. Local officials approve parcel specific site plans to ensure compliance with erosion and sediment control, design standards for fire protection, noise, fugitive emissions (dust), traffic, setbacks and buffers along roadways and adjoining property owners.

The process to obtain land use planning approvals is a public process that requires public notification and participation.

Conclusion

Since 2000, Dominion Energy has reduced its average emission rate of sulfur dioxide (SO₂), mercury (Hg) and nitrogen oxide (NO_x) per MWh of energy produced from its electric generating units serving Virginia by 98%, 97% and 89%, respectively (Figure 6).

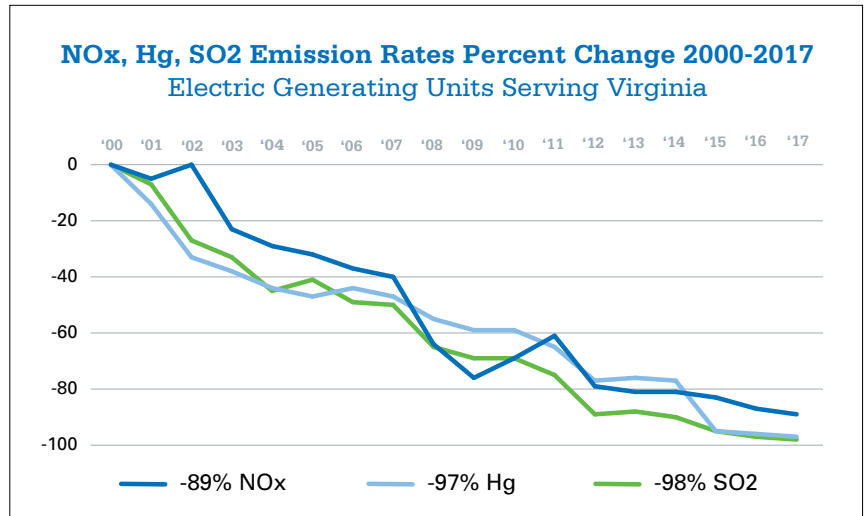
Comparing annual year 2017 to annual year 2000, the company has reduced its average carbon dioxide (CO₂) emissions rate per MWh of energy produced from its electric generating fleet serving Virginia (based on ownership percentage) by approximately 35% (Figure 7).

As Dominion Energy moves forward in this ongoing effort to further reduce emissions, improve our environment and incorporate more sources of renewable, carbon-free energy into the grid, solar power will play a major role. But its proper incorporation and utilization are not without challenges.

For one, as the polling demonstrates, there is an awareness gap about the issue of solar energy in general. Virginians consistently report their chief priority for their electricity provider is reliability and affordability. That is not anticipated to change. And, for Dominion Energy's part, keeping the lights on at prices consumers can afford is the foremost mission, and chief obligation. The company works every day to do this in a safe and sustainable manner.

At the same time, Virginians have a very positive opinion about solar energy, and they want to see more of it brought online. It is in the realities of achieving that goal where one can see the policy challenges in front of not only Virginia's electricity providers, but our state and local governments as well. How does

Figure 6: NO_x, Hg, SO₂ EMISSION RATES PERCENT CHANGE 2000-2017



Virginia incorporate more solar energy in a way that does not threaten the operability and reliability of the grid, and that maintains fair and equitable electricity rates for all of the individuals, families and businesses this company serves? This is the shared challenge facing all interested and responsible parties.

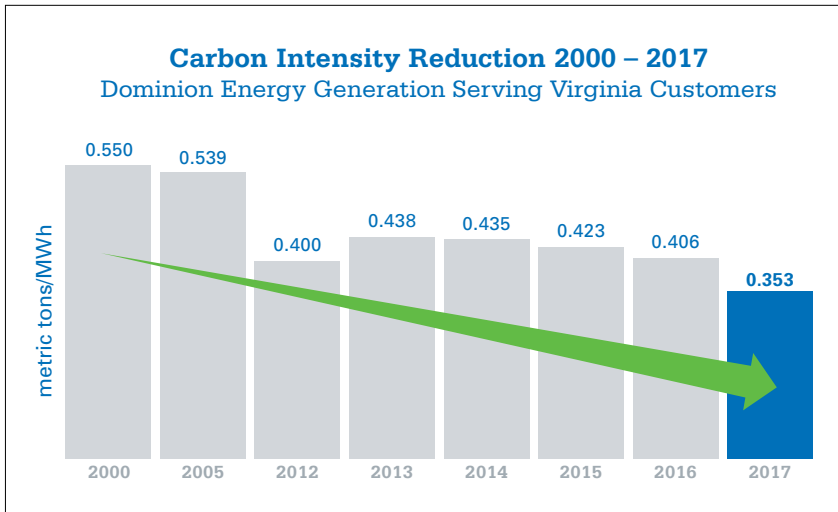
Dominion Energy will endeavor to continue to grow its solar footprint from the 1 MW of capacity possessed just four years ago in the beginning of 2015, to the 824 MW of capacity either operational or under development today, to the forecasted thousands of MW's as reflected in Dominion Energy Virginia's 2018 IRP. That is dramatic growth. But it also must be responsible growth.

Looking at just one area, net metering, policy makers will need to work with all interested and impacted parties to reconcile diverse perspectives and ensure outcomes that work for all energy customers. All involved must be cognizant of the cost of installing solar panels

on a freestanding home, between \$10,000-\$16,000, and work to ensure that we are not creating a system that inadvertently penalizes lower and fixed-income consumers by leaving them to offset the costs of higher-income consumers attaining potentially lower electricity bills and the free use of the electric grid. A bifurcated system with "winners" and "losers" is in no one's interest as a Commonwealth.

Similarly, customers who do move forward with solar power installations need and deserve to know exactly how that decision is impacting their electric bills. Thankfully, the GTSA includes the full deployment of smart meters in upcoming years, subject to review and approval by the SCC, and this will give customers a clear look at how much net energy they are both importing and exporting, and what that means for their bottom line. Smart meters will play a major role in helping manage future growth of solar power in Virginia.

Figure 7: CARBON INTENSITY REDUCTION 2000-2017



In another area, and as noted in the siting section of this report, solar farms are beginning to face many of the objections and concerns long encountered by more traditional forms of energy production and transportation. Just as impacted homeowners and localities have resisted projects such as pipelines and transmission lines over worries about view sheds, the environment and property considerations, among other things, so too are they now resisting solar facilities on the same grounds. The reality is solar farms take up large amounts of land. Consumers want more solar power and that will require the use of greater amounts of acreage going forward. And the acreage cannot just be anywhere. As discussed, only certain areas will work for the solar farms necessary to achieve Virginians' clear public policy desire to increase the amount of solar power in our energy portfolio.

Part of the solution to this growing issue may be found in installing more rooftop solar and utilizing brownfields

in the Commonwealth. These locations will allow energy interests to develop existing physical locations that do not require the purchase of additional "new" land and the myriad issues that comes with that. These are the kinds of locations that should receive more attention going forward as they could be a major part of the solution as to how to find the space needed for solar farms without causing significant disruptions in communities. This will be a major conversation in the years ahead, and one all must work to get right.

While it's the larger solar projects that receive the bulk of attention, individual and smaller projects are just as important as we continue this energy transition. As evidenced by the growth in the company's net metering program, customers are increasing adoption of renewable energy. Many customers, however, cannot or do not wish to install onsite renewable energy resources, but may still have an overall interest in renewable energy. Dominion

Energy is committed to helping customers of all sizes and needs meet their solar energy goals. For these reasons the company is working to increase the suite of options that allow customers to procure renewable energy. The Virginia Community Solar Pilot Program that was authorized during the writing of this report and will launch in March of 2019 is one such option that will enable any interested customer to adopt solar energy.

Finally, no discussion of solar energy should occur without addressing the realities of incorporating an inherently intermittent energy source into an electrical grid that must be instantaneously available and fully operational at all times; 24 hours a day, 7 days a week, 365 days a year. That includes at night and on cloudy days. In order to ensure reliability while more solar power is brought online, we should investigate developing and deploying other, complimentary renewable energy resources, as well as energy storage capacity.

Earlier this year, the General Assembly recognized in the GTSA the importance of advancing emerging storage technologies such as battery energy storage systems. The Act requires the SCC to establish pilot programs under which each Phase I and Phase II Utility shall submit a proposal to deploy electric power storage batteries pursuant to a pilot program to accomplish at least one of five possible battery storage use cases. The SCC must adopt rules or guidelines for battery storage pilot programs by December 1, 2018 and has established docket number PUR-2018-00060 to do so.

One proven, cost-effective technology that can provide energy storage

capability at scale involves pumped storage hydroelectric facilities. These facilities essentially act as large batteries. When excess energy is available, power is used to pump water from a lower elevation reservoir up to a higher elevation reservoir providing grid stability. The water is stored until a later period when energy is in high demand at which point water is allowed to flow downhill to a power generation facility where it spins turbines to produce electricity.

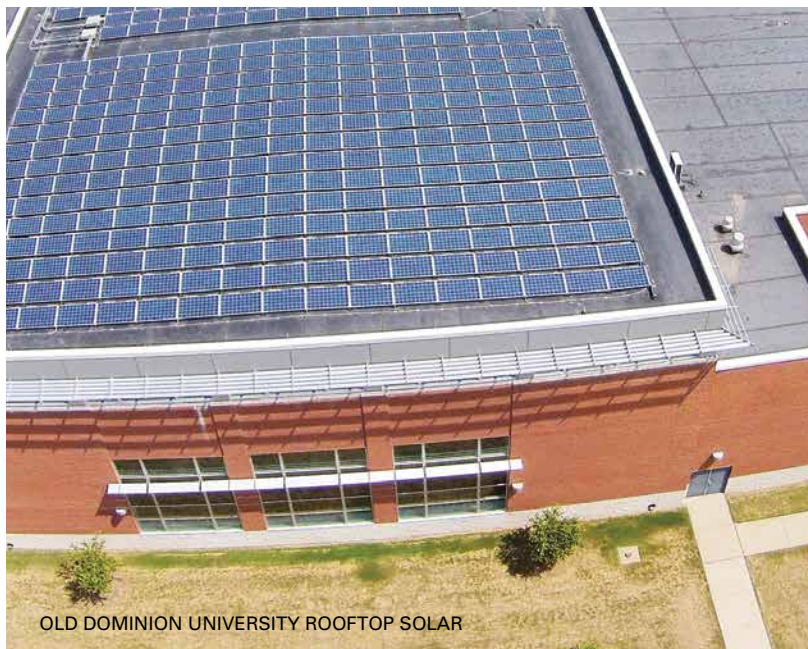
Dominion Energy already operates one of the largest pumped hydro storage facilities in the world in Bath County. Now, the company is evaluating locations for an additional pumped hydro storage facility in the Coalfield region that would represent a \$2 billion investment and could help support the addition of 240 MW of solar generation every year. Dominion Energy hopes to be able to announce a location in 2019.

In addition, the Atlantic Coast Pipeline will play a key role in supporting the growth of solar and wind energy

for Virginia customers. As the company adopts larger volumes of these intermittent resources, fast ramping dispatchable natural gas powered generation stations, fueled by a reliable supply of domestically produced natural gas, will help maintain grid stability and provide vital back up generation during the times that wind and solar are unavailable.

The GTSA, which required this report, represented a critical step forward in the effort to get more solar power, and other renewable sources, online. The Act will enable an electric grid designed originally for one-way flow of energy from dispatchable generation resources to accommodate a new world of distributed energy resources. The grid as we know it today was simply not designed with the direct connection of dispersed distributed energy resources in mind. Fortunately, the Act allows Dominion Energy to begin addressing in earnest these structural and operational limitations, and to modernize the grid to ensure greater energy safety, security and reliability.

Dominion Energy will continue to add more solar power to our energy portfolio. This is what consumers and stakeholders want to see, and the company is committed to managing the transition to such resources successfully as the amount of solar energy continues to expand in the Commonwealth. Dominion Energy is equally committed to ensuring that all stakeholders are part of this conversation and this effort, and this report was the result of the kind of comprehensive and collaborative process that should be the standard going forward. Dominion Energy looks forward to continuing to work with state lawmakers, regulators, government officials, environmental leaders, businesses, families and all stakeholder groups in this same manner to continue to add more solar power to the grid while at the same ensuring Virginians in the company's service areas will always have the reliable, affordable energy they have come to expect from Dominion Energy.



OLD DOMINION UNIVERSITY ROOFTOP SOLAR

35% Carbon Dioxide Emission Rate Reduction

Comparing annual year 2017 to annual year 2000, the company has reduced its average carbon dioxide (CO₂) emissions rate per MWh of energy produced from its electric generating fleet serving Virginia (based on ownership percentage) by approximately 35%.

Final Report
*Virginia Solar and Wind Energy
Stakeholder Feedback Summary*

September 20, 2018



Meridian Institute

Connecting People to Solve Problems

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Overview of the Stakeholder Engagement Process

Dominion Energy contracted with Meridian Institute to design and facilitate a stakeholder engagement process that focused on four specific topics set forth in the Grid Transformation and Security Act (SB 966) which was signed into law by Governor Northam on March 9, 2018. As set forth in the Grid Transformation and Security Act SB966, these topics included:

- Potential improvements to net metering programs as provided under § 56-594 of the Code of Virginia;
- Potential improvement to the pilot programs for community solar development as provided under § 56-585.1:3 of the Code of Virginia;
- Expansion of options for customers with corporate clean energy procurement targets; and
- Impediments to the siting of new renewable energy projects.

The process was executed in close collaboration with the Virginia Governor's Office, and the findings in this report will serve as input into development of the [2018 Virginia Energy Plan](#). In addition, the topics addressed in the stakeholder engagement process are a subset of the topics that Dominion Energy is required to report on under SB966. This report will be incorporated into the public report that Dominion Energy will issue by November 1, 2018, the deadline for reporting under the Grid Transformation and Security Act.

The stakeholder engagement process had four primary components: 1) a Public Kickoff Meeting on July 10, 2018; 2) a series of stakeholder group meetings over the course of August 2018; 3) an online survey to collect written comment; and 4) a Public Forum on August 28.

Public Kickoff Meeting

On July 10, 2018 Meridian convened a Public Kickoff Meeting for the Solar and Wind Energy Stakeholder Engagement Process that approximately 90 people attended. At this meeting, Meridian presented and gathered feedback on the planned approach to the process and the questions that would serve as the focus for collecting stakeholder perspectives on the four topics articulated in the Grid Transforming and Security Act. The draft list of questions presented during the Stakeholder Group Meetings is located in Appendix A, and the participants list from the July 10 meeting is located in Appendix B. At this meeting, Meridian also gathered feedback on the types of stakeholder groupings that could serve as a means of organizing the process. Based on input received at the July 10 meeting, as well as through other sources, Meridian identified the following nine stakeholder categories which served as the basis for structuring the process:

- Solar energy industry and advocacy organizations
- Wind energy industry and advocacy organizations
- Organizations representing other energy sources
- Environmental and environmental justice organizations
- Business associations and large customers
- Historic preservation and land use organizations
- Advocacy Groups for energy affordability for residential customers

- Local governments
- Virginia electricity providers

Stakeholder Group Meetings

Throughout August 2018, Meridian held Stakeholder Group Meetings with approximately 160 participants excluding Meridian, Dominion Energy and APCO Government staff who self-identified with the categories listed above. The purpose of these meetings was to provide an opportunity for input from all participants. Participants were afforded an opportunity to participate in-person or virtually through an online webinar-type platform.

Meridian conferred with representatives from Dominion Energy and the Governor's office to identify and recruit a co-convenor organization for each stakeholder meeting and, through a joint effort, all of the stakeholder groupings listed above had one or more organizations agree to serve as the co-convenor. For most of the groupings, there was one co-convenor. The solar energy industry and advocacy organizations had two co-convenors and two separate meetings, and the business associations and large customers had three co-convenors and three separate meetings. In the case of the local governments and organizations representing other energy sources groups, there were two co-convenors for each of those groupings but only one meeting. In the case of the environmental and environmental justice organizations group, there was one co-convenor and two meetings. In total Meridian conducted 13 stakeholder meetings between August 3 and 23.

A summary from each of these 13 meetings is included in this report. As stated at the start of each meeting and as stated in the introduction to the meeting summaries, no effort was made to ascertain whether points of view expressed at the meeting were agreed to by all participants. Rather, the intent was to provide all participants with an opportunity to express their views in response to the questions (Appendix A). Meridian produced a draft summary of each meeting and shared the draft with everyone who participated in-person or virtually in that meeting. Meridian provided all participants with an opportunity to suggest comments and revisions to the draft to improve the accuracy and completeness of the draft summary. Meridian shared the final version of the summary with participants and included the final summary in this report as explained below.

Survey to collect written feedback

For a variety of reasons, not all interested stakeholders were able to attend a stakeholder group meeting. To provide an additional avenue for input, Meridian developed an online survey to collect written comments. The survey asked respondents to indicate which of the stakeholder groups they were affiliated with. The questions posed in the survey were the same questions that were posed in the stakeholder group meetings (Appendix A).

Five stakeholders provided written comment. The vast majority of comments provided through the written form were reflected in the summaries for relevant stakeholder group meetings. There were a couple of comments from solar energy industry and advocacy organization stakeholders that were not reflected in the existing solar energy and advocacy organization meeting summaries. As such, at the end of the summary of August 7 Solar Energy Industry and Advocacy Organizations

Stakeholder Group Meeting, Meridian created a section titled “Additional Input from Online Survey” where this feedback was summarized.

Concluding Public Forum

On August 28, 2018, Meridian convened a Public Forum to provide a final opportunity for input from those participants who did not attend a stakeholder group meeting, review all the stakeholder input collected to date, and provide an opportunity for feedback on a verbal summary of stakeholder input collected to date. Appendix C contains a list of the 45 participants who attended the Public Forum.

Overview of this Final Report

Following the public forum, Meridian synthesized all feedback collected from the initial Public Kickoff Meeting, the 13 Stakeholder Group Meetings, the online survey, and the concluding Public Forum as the basis for this report. The High-Level Summary of Stakeholder Feedback contained in the section that follows identifies the overarching themes that emerged from the stakeholder group meetings. It builds upon the verbal presentation Meridian presented at the concluding Public Forum, and incorporates feedback received from stakeholders who participated in that final public forum. The final versions of the summaries of each of the 13 stakeholder group meetings will be posted on the project [website](#) on November 1, 2018 – the date Dominion Energy is required to report under SB966.

High-Level Summary of Stakeholder Feedback

Overarching themes

Expansion of renewable energy in Virginia – Most stakeholders who expressed a general opinion about the expansion of renewable energy in Virginia indicated that they support such expansion. Others indicated that their support for renewable energy was dependent upon a variety of factors. Some stakeholders did not express a general opinion about the expansion of renewable energy in Virginia. Some solar energy industry and advocacy organization and environmental and environmental justice organization participants emphasized that expansion of renewable energy in Virginia means expanding the choices that Virginia have for their energy procurement. Participants from the other energy sources stakeholder group and some business association and large customer participants indicated they support renewable energy development in Virginia in the context of an all-of-the-above energy policy for Virginia that recognizes the important contribution to energy security, reliability, and resilience that results from a diverse supply of energy. Additionally, at the Public Forum, a number of participants emphasized that expansion of renewable energy should be accomplished in a manner that is cost effective, equitable, context sensitive, competitive, transparent, and ensures grid reliability and resilience.

Piecemeal and Outdated Policy – Many participants expressed the view that some of Virginia’s laws and regulations regarding renewable energy are outdated and that there currently is a patchwork policy landscape. This can create challenges for accessing renewable energy because a)

engaging in renewable energy in Virginia can require a steep learning curve; and b) this patchwork landscape at times creates legal uncertainties that can create barriers to the expansion of renewable energy in Virginia.

It's not just solar – It was repeatedly highlighted that renewable energy policy should not be equated with solar energy policy. Several participants highlighted that wind and other energy sources, including natural gas, hydropower, and biogas, should receive more attention in both formal and informal policy settings.

Education – Many participants echoed that they see a need for education regarding challenges and opportunities for expanding renewable energy in Virginia.

Federal Tax Incentives – Numerous stakeholders urged that Virginia policy consider how to best take advantage of federal tax incentives related to renewable energy before they are reduced and/or eliminated. Some business associations participants also emphasized that uncertainty on the longevity of the federal tax credit creates uncertainty that may make it difficult for businesses to plan out long-term energy development and/or procurement strategies.

Smart grids, meters, and storage – Throughout the process, stakeholders commented that grid modernization, including smart meters, along with advances in renewable energy storage will provide important opportunities for improving renewable energy policies in Virginia based on factual evidence rather basing policy on anecdotal evidence and assertions.

Economic development and workforce development – It was frequently emphasized that expansion of renewable energy in Virginia provides significant economic development opportunities. These opportunities can come in the form of jobs and activities surrounding construction and maintenance of new renewable energy projects (whether they be small-scale distributed generation (DG) systems, medium-scale community systems, or large, utility-scale systems), as well as in the form of jobs and activities associated with the arrival of very large corporate entities with renewable energy procurement targets. Participants urged that as Virginia sees more economic development opportunities, it should prioritize training and hiring Virginians to fill the jobs that these opportunities generate.

Key themes regarding net metering

Restrictions on Net Metering in Virginia – Participants had diverse and, in some cases, polar opposite perspectives on current restrictions on net metering in Virginia, including the 1% cap of a utilities' previous year peak load, system size limitations for residential customers based on energy use during the previous year, the 1 MW system size limitations for non-residential customers, standby charges for residential systems between 10-20 KW, and restrictions on whether and how net metering customers can engage in purchase power agreements (PPAs) with third parties. For each of the limitations listed above, some participants supported current limitations while participants offered a variety of suggested alternatives.

The 1% cap of a utilities' previous year peak load – Some electricity provider and business associations and large customer participants supported the 1% cap on net metering because it helps ensure that

DG penetration levels do not create grid reliability issues or cost shifting issues. Some solar energy and advocacy organizations, wind energy and advocacy organization, local governments, and environmental and environmental justice participants did not support the 1% cap because they found the 1% number to be arbitrary and not based on data, and because they do not believe that there are any negative impacts on the grid or any cost-shifting occurring as a result increased DG penetration until a much higher percentage of DG penetration is achieved. Some suggested that such impacts would not occur until there is 30% or more DG penetration in the Virginia market. Some of those participants who did not support the 1% cap recommended that the cap be adjusted to 2%, 2.5%, 3%, or 10%. Other participants recommended that rather than relying on a market cap, Virginia could consider using a percentage penetration to trigger the completion of well-designed study of the impacts of expanding DG in Virginia. This study could examine both the level of DG penetration that results in cost shifting, the level that creates grid reliability issues, as well as other issues that could inform policymaker's decisions relating to whether to keep or modify the 1% cap.

System size limitations for residential customers based on energy use during the previous year – Several electricity providers participants supported systems size limitations for residential customers because, in their view, these restrictions prevent customers from oversizing their system which can lead to engineering challenges with the grid. Some solar energy and advocacy organizations and environmental and environmental justice organizations participants noted that this residential system size restriction prevents customers from sizing their DG systems with future energy needs in mind, such as a new electric vehicle or the addition of a family member. Still other environmental and environmental justice participants opposed this limitation on principle, articulating their belief that citizens have a right to choose their preferred source of energy, and that system size limitation infringe on that right. Specific suggestions for appropriate limits to system size included suggestions to leave them as they are, increase the size limitation to 150% of the previous year's peak load, generally increase the size limit, and remove the limit entirely.

The 1 MW system size limitations for non-residential customers – Some solar energy industry and advocacy organizations and local governments participants raised concerns with the current 1 MW system size limitation for non-residential customers because they are aware of non-residential customers who cannot meet their full energy load with DG energy due to this limitation. Specific suggestions for appropriate modifications to the size limit included adjusting the system-size cap for individual, non-residential net metering systems from 1 MW to between 2 to 5 MW.

Standby charges for residential systems between 10-20 KW – Several electricity providers and business associations and large customers participants supported standby charges for residential customers with systems between 10-20 KW because the revenue from these charges help utilities recover the cost of service to DG customers. Many participants from the solar energy industry and advocacy organizations, wind energy industry and advocacy organizations, historic preservation and land use organizations, local governments, and environmental and environmental justice organizations did not support standby charges for residential customers. A few of these participants expressed that they opposed standby charges because they do not think that a) it has been proven scientifically that DG customers have disproportionate negative impacts on the grid and b) the costs of those hypothetical impacts do not equate to the costs of current standby charges.

Restrictions on whether and how net metering customers can engage in PPAs with third parties – Some solar energy industry and advocacy organizations and environmental and environmental justice organizations participants did not support current restrictions on whether and how net metering customers can engage in PPAs with third parties. Many of these participants reflected that generally, third-party PPA financing options for net metering customers should be expanded so that all customers can access DG from third parties if they wish. Specific recommendations included generally expanding the Dominion pilot, expanding the Dominion pilot from 50 MW to 500 MW, and expanding the Appalachian Power Company (APCO) pilot to all customer classes.

Fair Compensation – Many participants across stakeholder groups articulated the need to compensate DG customers and the utility fairly. They disagreed on whether the current system provides fair compensation.

Cost recovery – Participants generally agreed utilities should be able to recover the costs of infrastructure upgrades associated with expanding DG. However, they disagreed over what are the costs and benefits of DG, as well as what constitutes appropriate and adequate cost recovery. Several solar energy industry and advocacy organization and environmental and environmental justice organization participants emphasized the necessity for utilities to generate demonstrable and clear evidence of cost impositions associated with DG. Many participants across stakeholder groups noted that wide-spread availability of smart meters could help create a data set to help all stakeholder evaluate the costs and benefits of DG.

Who bears the costs? – Participants disagreed over equity issues regarding the ways in which the transmission, distribution, and system administration costs are borne by different utility customers. There is no agreement on whether there is “cost shifting” or “cross subsidization,” nor which customers are subsidizing other customers. Most electricity providers and many but not all business associations and large customers participants expressed a belief that DG customers are or will soon be shifting the costs of service to non-DG customers. Most, if not all, environmental and environmental justice organizations, local governments, and solar energy industry and advocacy organizations participants articulated that they are not aware of any evidence that the cost of service to DG customers is being subsidized by other customers. Several participants noted that there is a myriad of costs to establishing and maintaining the grid, and there are numerous, complex and diverse ways in which different customers both contribute to and pay for those costs. From this perspective, all customers are subsidizing each other to one degree or another because it is not possible to directly calculate the impact one customer has on the costs of the system level distribution, transmission, and administrative costs.

Meter Aggregation – Most stakeholders expressed the view that more flexible approaches to aggregating meters is needed in Virginia to increase the deployment of DG. Electricity provider stakeholders emphasized the fact that utilities will need to cover the costs of expanding meter aggregation which may include additional administrative costs and technology investments. Several advocacy groups for energy affordability for residential customers, environmental and environmental justice organizations, local governments, and solar energy industry and advocacy organizations participants noted that limits on meter aggregations are a strong barrier for further DG penetration in Virginia, especially for low- and moderate-income (LMI) customers.

Additionally, some business associations and large customers and local governments participants indicated that a wider variety of options for aggregating loads across facilities is essential for helping government entities and private companies meet corporate clean energy procurement targets.

Access & Equity – Many participants urged Virginia to explore how net metering and complementary policies and programs can be designed to work better for low and moderate income (LMI) customers who typically are renters living in multi-family housing.

Grid Resilience and Reliability – Many participants across stakeholder groups noted that as the number of net metering customers expands, Virginia policy should ensure grid resilience and reliability is maintained and enhanced.

Explore Alternatives – Across stakeholder groups there was interest in exploring alternative methods to compensate DG customers other than through net metering. Several participants observed that alternative frameworks could fairly compensate DG customers while also ensuring that utilities can recuperate necessary costs. Specifically, some participants suggested a buy-all-sell-all model, a value-stack approach, net billing in which excess generation is compensated at a non-retail rate that is closer to wholesale rates at the time the energy is generated, and the development of a unique rate class for DG customers.

Key themes for community solar pilot programs

Support for Senate Bill 1393 – Several participants from the environmental and environmental justice organizations, business associations and large customers, and solar energy industry and advocacy organizations groups expressed support for SB 1393, the 2017 bill that created the current framework for community solar pilot programs. Many participants explicitly supported the program because it allows a wider range of Virginians to access solar energy. Several business association stakeholders appreciated that subscriptions to the pilot program will be voluntary and the costs of the pilot program can only be borne by the subscribers. They noted that this approach ensures there is not cost-shifting between participants and non-participants.

Geographic independence – Some historic preservation and land use participants noted that the feature of the current program that allows the solar facilities to be developed in locations that are geographically separate from the community solar customers could be helpful in siting projects in a way that is sensitive to the preservation of historic, cultural, and natural resources. Other historic preservation and land use participants and a few business association participants noted that if siting of community solar projects occurs in a piecemeal fashion, it could lead to land fragmentation. Some participants expressed the view that it would be better if community solar projects were sited close to the communities they serve to avoid environmental justice issues pertaining to wealthy communities siting community solar facilities in poor rural communities.

Concerns Over Pricing – Some environmental and environmental justice organizations and advocacy groups for energy affordability for residential customers participants noted that the proposal from Dominion Energy submitted in the summer of 2018 for implementing SB 1393 will not be affordable for all customers. Additionally, they noted that due to current limits on meter aggregation, community pilot programs could be a very effective way to make solar available to

those who live in multi-family residential buildings. However, if price concerns are not addressed, many LMI customers will likely not be able to afford to subscribe to a community solar offering.

Concerns over System Size Restrictions – Individual projects within the 10-40 MW Dominion Energy program may not exceed 2 MW. Several participants from different stakeholder groups commented that both size caps should be increased or removed entirely. Other stakeholders expressed support for these restrictions or did not comment on the restrictions.

Definition of Community Solar in Virginia – Many participants across stakeholder groups highlighted that the current definition of community solar under the Code of Virginia is not the only definition of community solar and urged Virginia to allow for programs that provide more flexibility for third party developers and administrators of “bottom-up” approaches to community solar. These participants noted that labeling a utility-administered program as a “community solar pilot program,” as is the case under § 56-585.1:3 of the Code of Virginia, is confusing because these programs differ from community solar projects in which community members collaborate to develop and administer their own renewable energy generation capacity. Some of these participants suggested that the pilot programs for community solar are similar to green tariff programs.

Development of Community Wind – Many wind energy industry and advocacy participants urged Virginia policy makers to consider how to enable development of community wind.

Linkages between community solar pilot programs and siting new utility-scale renewable energy projects – Several participants noted that much of the discussion relating to siting new utility-scale renewable energy projects should also be considered in siting community solar projects.

Key themes for expanding options for corporate clean energy procurement targets

Definition of clean energy – While there is a statutory definition of renewable energy, there is no statutory definition of clean energy in Virginia. Participants had significantly different definitions of clean energy, with some noting that clean energy is synonymous with renewable energy. Other stakeholders expressed the view that clean energy is anything that generates lower carbon emissions than coal fired power plants. Still others identified specific energy sources they believe should be included as clean energy. For example, some business associations and large customer participants commented that clean energy should include energy from biomass, energy from manufacturing waste products such as black liquor from forest products, and the use of methane gas recovered from landfill emissions.

Unclear Legal Definition of 100% Renewable Energy Program – Some participants from environmental and environmental justice organizations and large companies with renewable energy targets noted that there is significant uncertainty over the legal definition of what constitutes a 100% renewable program. Specifically, if a utility administered 100% renewable program is approved, it is unclear whether Virginia-based businesses can continue to pursue 100% renewable energy offerings from third-party providers. Some participants expressed the view that this uncertainty creates unacceptably high risks for both the third-party provider and the customer.

Options for large customers that do not have heavy energy loads – Many participants commented that Dominion Energy’s offerings seem to be well-suited to large customers with high and consistent energy loads but there are not adequate renewable energy offerings to large companies that do not have heavy energy loads. These participants offered suggestions for expanding options to better meet the needs of large customers with variable energy demands, and medium and small businesses with clean energy procurement targets including:

- *Expanding ways that customers can interact with third party PPAs* – There are various limitations on third-party involvement in providing renewable energy to help companies meet procurement targets. Participants from solar energy industry and advocacy organizations, wind energy industry and advocacy organizations, environmental and environmental justice organizations, and businesses with renewable energy targets shared their experience that these limitations prevent corporate customers from engaging in a wide array of procurement options. Additionally, these limitations may hamper competition in procurement processes for renewable energy.
- *Modifying policies surrounding aggregation* – Some business association and large customers participants expressed the view that limits on meter and load aggregation reduce companies’ ability to procure renewable energy. They noted that the ability to aggregate energy load can be critical to reaching the 5 MW minimum for engaging with a third-party energy provider. Moreover, it would be a key first step in enabling customers to aggregate loads across the PJM market enabling the procurement of a larger amount of competitively priced renewable energy.
- *Advanced notification requirement* – A few participants from the environmental and environmental justice organizations and solar energy industry and advocacy organizations suggested that Virginia alter the requirement that customers with loads above 5 MW who contract with a third-party energy provider for any type of power must provide 5 years advance notice prior to returning to their incumbent utility. These participants recommended that this time frame can and should be reduced.

Wholesale energy contracts – Some electricity provider stakeholders noted that it can be difficult for municipal utilities and electric cooperatives to meet corporate clean energy procurement targets because they often procure energy through long-term wholesale energy procurement contracts with larger investor-owned utilities. As such, it may be difficult for them to modify their energy supply to meet corporate clean energy procurement targets.

Linkages between corporate clean energy goals and siting new utility-scale renewable energy projects – Some participants across stakeholder groups highlighted a link between efforts to assist companies with clean energy procurement targets and the siting and development of new utility-scale renewable energy projects and the environmental justice issues regarding utility-scale renewable energy projects described above.

Key themes for siting of new renewable energy projects

Permit by Rule (PBR) – Many participants across stakeholder groups commented on the PBR process, noting both effective and challenging components of the process. Several solar energy industry and advocacy organizations and wind energy industry and advocacy organizations

participants expressed support for the process. However, several historic preservation and land use organizations, solar energy industry and advocacy organizations, and wind energy industry and advocacy organizations elevated the need to increase staff resources and financial resources at the Department of Environment Quality (DEQ) and the Department of Historic Resources (DHR).

Need for guidelines – Numerous participants across stakeholder groups highlighted that many localities may not have the expertise required to make informed siting decisions. Several of these participants, particularly from historic preservation and land use organizations, suggested the creation of best practice guidelines for siting renewable energy projects in Virginia. While guidelines such as this do exist, and are identified in later sections of this report, there is no one central resource for siting of renewable energy projects in Virginia.

Need to identify most appropriate land for siting – Many participants noted the current siting process does not effectively enable developers to identify the best places to site renewable energy projects. Several participants noted that renewable energy developers often do not identify the most ideal location for siting due to the lack of relevant and sufficiently detailed information regarding several competing considerations including: proximity to and impact on existing grid infrastructure; potential impacts on existing historic, cultural, or natural resources; how the project fits in the context existing local land use plans; and other potential environmental impacts such as potential storm water impacts from large solar facilities. Several participants expressed the view that potential storm water impacts from utility-scale solar need to be thoroughly assessed during siting stage of project development, not just during the PBR process.

Varying perspectives about on-site and off-site solar – Some local governments and business associations participants suggested that Virginia policy should incentivize development of on-site solar rather than off-site solar because on-site solar can reduce impacts on communities that are not utilizing the energy and helps to ensure that the community using the energy bears the potential negative impacts of such facilities. Other participants from diverse stakeholder groups noted that off-site solar is an important option for expansion of renewable energy in Virginia because it is often cheaper to develop larger solar installations than smaller installations and installation size can be greater at off-site locations. As such, on-site solar may be less economically competitive for certain customers than offsite solar.

Utilize existing impervious surfaces – Some participants from the environmental and environmental justice organizations and local governments groups recommended that Virginia develop incentives to site solar installations on existing impervious surfaces such as large rooftops, reclaimed mine lands, etc., to help reduce pressure to site projects in prime agricultural or forested land.

Utilize reclaimed mine lands – Some participants from the environmental and environmental justice organizations, business associations and large customers, solar energy industry and advocacy organization, other energy sources, and local governments groups suggested that Virginia consider developing incentives for renewable energy developers to build renewable energy facilities on post-industrial “brownfields” and/or reclaimed mine land.

Need to consider transmission lines in siting renewable energy facilities – Several participants from the business associations and large customers, historic preservation and land use organizations, advocacy groups for energy affordability for residential customers, local governments, and electricity providers groups noted that Virginia should consider the potential need to expand transmission lines to connect new utility-scale renewable energy facilities to the grid.

Concerns surrounding local taxes – Participants across diverse stakeholder groups highlighted that it is difficult to assess the local tax implications of siting new renewable energy projects. Between variations in the tax codes between localities, the complex patchwork of policies relating to renewable energy in Virginia, and lack of clarity regarding recent changes to the Machinery and Tools (M&T) tax, it can be difficult to develop a comprehensive and accurate assessment of the local tax implications to siting of a new renewable project.

Recommendations to expedite permitting – Some solar energy industry and advocacy organization, wind energy industry and advocacy organization, and business association and large customer stakeholders noted that it could be helpful for Virginia to develop additional methods for expediting permitting for development of new renewable energy projects for specific types of projects. For example, it was suggested that industrial sites, including industrial parks developed with public funding, could be pre-permitted to include renewable energy such that the developer of the site would have an incentive to include renewable energy facilities in conjunction with the development of the industrial site.

Concerns about the Stakeholder Engagement Process

Over the course of the stakeholder engagement process, many participants expressed gratitude for Meridian's efforts to complete an intensive and inclusive process in a short time frame. However, a few participants expressed frustrations over the timeliness of email communications they received from Meridian regarding the planning and preparation of the stakeholder meetings. In addition, one participant expressed frustration that stakeholders who were not able to participate in daytime meetings were excluded from the process, thereby making the process less inclusive and less representative of the full breadth and scope of stakeholder interests from the millions of Virginians who are ordinary rate payers.

Glossary of Terms

- **Cross-subsidization** – A situation in which customers of one class or category do not pay for the full cost of the energy services they receive from their utility and those costs are born by others who are in a different class or category of customers or based on some other distinguishing characteristic within the same class or category.
- **Distributed generation (DG)** – Small power generators installed on the distribution network at lower voltages, often owned and operated by a utility customer at the customer's premises.
- **Electrical cooperative** – Any utility consumer services cooperative.
- **Investor owned utility (IOU)** – As defined by the Code of Virginia, an investor owned utility is an electric utility that is a Phase I Utility or a Phase II Utility.
- **Meter Aggregation** – A process by which a utility combines multiple meters to one account for the purposes of billing. Each utility may have different applicability requirements for meter aggregation.
- **Municipal Utility** – Waterworks, sewerage, gas works (natural or manufactured), electric power plants and distribution systems, public mass transportation systems, storm water management systems and other public utilities acquired, established, or otherwise controlled by a locality.
- **Net-metering** – Measuring the difference, over the net metering period, between electricity supplied to an eligible customer-generator or eligible agricultural customer-generator from the electric grid and the electricity generated and fed back to the electric grid by the eligible customer-generator or eligible agricultural customer-generator.
- **Pilot Program for Community Solar** – As defined in § 56-585.1:3 of the Code of Virginia, pilot program for community solar means a program conducted by a participating utility pursuant to this section following approval by the Commission, under which the participating utility sells electric power to subscribing customers under a voluntary companion rate schedule and the participating utility generates or purchases electric power from participating generation facilities selected by the participating utility.
- **PJM Market** – Refers to PJM Interconnection LLC, a regional transmission organization that serves all or parts of Delaware, Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia, and the District of Columbia.
- **Standby charges** – Charges applicable to certain customer-generators who participate in net metering utilizing an electric generation facility with an alternating current capacity that exceeds 10 kilowatts.
- **Utility Scale Solar** – A term of art that refers to large solar projects as opposed to small solar projects or solar distributed generation projects. Depending on the source, utility scale solar is defined differently in terms of size.

Appendices

Appendix A: Questions to Guide Discussion During at Stakeholder Group Meetings

The following questions were revised based on feedback provided at the July 10, 2018 Public Kick-off Meeting for the Solar and Wind Energy Stakeholder Engagement process being conducted by Meridian Institute for Dominion Energy Services, Inc. and the Commonwealth of Virginia. The definition of key terms used in this document are the same definitions as those set forth in SB 966¹ and, for net metering, § 56-594 of the Code of Virginia². For the questions pertaining to pilot programs for community solar, the definitions are those used in Section § 56-585.1:3 of the Code of Virginia³.

Net Metering

SB 966 requires Phase I and II utilities to “investigate potential improvements to the net energy metering programs as provided under § 56-594 of the Code of Virginia.”

1. How are you/your organization affected by net metering in Virginia? (participant, provider of distributed generation, ratepayer, etc.)
2. What aspects of net metering work well in Virginia, why do they work well, and how can they be improved and/or expanded?
3. What aspects of net metering do not work well in Virginia, why do they not work well, and what suggestions do you have for improving net metering?

Community Solar

SB 966 requires Phase I and II utilities to “investigate potential improvements to pilot programs for community solar development as provided under § 56-585.1:3 of the Code of Virginia.”

1. How are you/your organization impacted by the pilot programs for community solar development authorized under § 56-585?
2. What aspects of the community solar pilot programs under § 56-585 do you anticipate will work well and why, and how can they be improved and/or expanded?
3. What aspects of the community solar pilot programs under § 56-585 do you anticipate will not work well and why, and how can they be improved?

¹ To view the relevant definitions, please view the [SB 966](#) text.

² To view the relevant definitions, please view [§ 56-594 of the Code of Virginia](#).

³ To view the relevant definitions, please view [§ 56-585.1:3 of the Code of Virginia](#).

Expanding options for customers with corporate clean energy procurement targets

SB 966 requires Phase I and II utilities to “investigate expansion of options for customers with corporate clean energy procurement targets.”

1. How are you/your organization affected by corporate clean energy procurement targets?
2. What aspects of the approach Virginia takes to providing corporate customers ways to meet their clean energy procurement targets are working well, why are they working well, and how can these positive aspects be improved and/or expanded?
3. What aspects of the approach Virginia is taking to providing corporate customers ways to meet their clean energy procurement targets are not working well, why are they not working well, and what suggestions do you have for how negative aspects can be improved?

Siting of new renewable energy projects

SB 966 requires Phase I and II utilities to “investigate impediments to the siting of renewable energy projects.”

1. How are you/your organization affected by the siting of renewable energy projects in Virginia?
2. What aspects of Virginia laws and programs are working well regarding the siting of renewable energy projects, why are they working well, and how can they be improved and/or expanded?
3. What aspects of Virginia laws and programs are not working well regarding the siting of renewable energy projects, why are they not working well, and how can they be improved?

Appendix B: July 10 Public Kickoff Meeting Participant List

Peter Anderson, Appalachian Voices	Bruce Burcat, Mid-Atlantic Renewable Energy Coalition
James Bacon, Bacon's Rebellion	Becky Campbell, First Solar
Jonathan Baker, EDF Renewables	Keith Cannady, HRPDC
Richard Ball, Sierra Club Virginia Chapter	Tom Carlson, EDF Renewables
Corrina Beall, Sierra Club Virginia Chapter	Steven Carter-Lovejoy, Sierra Club
Glen Besa, Sierra Club	Ethan Case, Cypress Creek Renewables
Carmen Bingham, VPLC	Caroline Cirrincione, Solar Energy Industries Association
Katharine Bond, Dominion Energy	
Jessica Bull, Mothers Out Front	

Hannah Coman, Southern Environmental
Law Center

Mark Coombs, American Battlefield Trust

Sarah Cosby, Dominion Energy

Kendyl Crawford, Virginia Interfaith Power
& Light

Bishop Dansby, Climate Change Advocate

Mary Doswell, Doswell Strategic
Consulting Services, LLC

Nicole Duimstra, Secure Futures

Judy Dunscomb, The Nature Conservancy

Todd Edgerton, The Oak Hill Fund

Bill Eger, City of Alexandria

David Eichenlamb, VA SCC

Christopher Ercoli, Brookfield Renewable

Brianna Esteves, Ceres

Matt Faulconer, Rappahannock Electric
Cooperative

Adam Forrer, Southeastern Wind Coalition

Hayes Framme, Orsted

Ryan Gilchrist, Coronal Energy

Adam Gillenwater, American Battlefield
Trust

Harrison Godfrey, Virginia AEE

Lydia Graves, Appalachian Voices

Andrew Grigsby, Virginia Renewable
Energy Alliance

Morgan Guthridge, Guthridge Associates

Rhea Hale, WestRock

Terry Hill, PHIUS

Francis Hodson, SolUnesco, MDV-SEIA
Board

Dan Holmes, Piedmont Environmental
Council

Ben Hoyne, Virginia Clinicians for Climate
Action

Eric Hurlocker, Greene Hurlocker

Ronald Jefferson, Appalachian Power

Robert Jorz, Suntribe Solar

Joshua Kaplan, World Wildlife Fund

Karla Loeb, Sigora Solar

Joy Loving, Climate Action Alliance of the
Valley

Tucker Martin, McGuireWoods Consulting

Chris McDonald, Virginia Association of
Counties

Matthew Meares, Virginia Solar

Jonathan Miles, James Madison University

Susan Miller, VCCA

Lisa Moerner, Dominion Energy

John Morrill, Arlington County

David Murray, MDV-SEIA

Angela Navarro, Governor Northham

Eleanor Nowak, Appalachian Power Company	Tim Stevens, Falls Church City Planning Commission
Tommy Oliver, SCC	Susan Stillman, Vienna's Community Enhancement Commission
Jennifer Palestrant, Tidewater Community College	Aaron Sutch, Solar United Neighbors of Virginia
Albert Pollard, Independent Consultant	Sarah Taylor, City of Alexandria
Drew Price, Hexagon Energy	Malesia Taylor, Dominion Energy
Beth Roach, Mothers Out Front	Maron Taylor, US Green Building Council
Dawone Robinson, Natural Resources Defense Council	Adam Thompson, Urban Grid Solar
Kaitlin Savage, Sol Vis	David Toscano, House of Delegates
Walton Shepherd, NRDC	Tyson Utt, Apex Clean Energy
Brian Smith, WGL Energy	Adam Ventre Hexagon Energy
Kristie Smith, Virginia Conservation Network	John Warren, VA Dept Mines, Minerals & Energy
Brianna Smith, Sierra Club intern	Devin Welch, Sun Tribe Solar
Tony Smith, Secure Futures Solar	Matthew Wells, WestRock
Matt Smith, Hampton Roads Planning District Commission	Connor Woodrich, Columbia Gas of Virginia
Rachel Smucker, Secure Futures Solar	Andie Wyatt, Grid Alternatives
Howard Spinner, NOVEC	

Appendix C: August 28 Public Forum Participant List

Jessica Ackerman, Virginia Municipal League	Al Christopher, VA Dept. of Mines Minerals and Energy
Kate Baker, Virginia Retail Federation	David Clarke, Eckert Seamans Cherin & Mellott
Corrina Beall, Sierra Club Virginia Chapter	Mark Coombs, American Battlefield Trust

Sarah Crosby, Dominion Energy	Joe Lerch, Virginia Association of Counties
Walid Daniel, VA Dept. of Mines Minerals and Energy	Karla Loeb, Sigora Solar
Thomas Dick, MEPAV	Christina Luman Bailey, GoGreen VML
Daryl Downing, Sierra Club	Jonathan Miles, James Madison University
Bill Eger, City of Alexandria	David Murray, MDV-SEIA
Brianna Esteves, Ceres	Eleanor Nowak, Appalachian Power Company
Sheri Givens, Givens Energy	Guy Rohling, Powered by Facts
Harrison Godfrey, Virginia AEE	Ben Rowe, Virginia Farm Bureau Federation
Rhea Hale, WestRock	Aimee Seibert, CSG
Karen Harrison, Office of Delegate Jennifer Boysko	Brian Smith, WGL Energy
Mark Hickman, CSG	Howard Spinner, NOVEC
Terry Hill, PHIUS	Adam Thompson, Urban Grid Solar Projects, LLC
Ronald Jefferson, Appalachian Power	Tyson Utt, Apex Clean Energy
Ron Jenkins, Virginia Loggers Association	Brett Vassey, Virginia Manufacturers Association
Nannette Jenkins, Virginia Loggers Association	Andrew Vehorn, VMDAEC
Petrina Jones Wroblewski, Virginia Retail Merchants Association	Michael Whatley, Consumer Energy Alliance (CEA)
Ken Jurman, VA Dept. of Mines Minerals and Energy	Alison Williams, Edison Electric Institute
Joshua Kaplan, World Wildlife Fund	Alice Wolfe, Blue Ridge Power Agency
Frank Krawczel, Commonwealth Power	Connor Woodrich, Columbia Gas
	Michael Woods, Troutman Sanders

About Meridian

Meridian Institute is a not-for-profit organization that helps people solve complex and controversial problems, make informed decisions, and implement solutions that improve lives, the economy, and the environment. We design and manage collaboration, providing services such as facilitation, mediation, convening power, and strategic planning. Drawing from over two decades of experience, we help people develop and implement solutions across a wide range of issue areas, including climate change and energy, agriculture and food systems, oceans and freshwater, forests, and health. As a neutral third-party, we bring people together to listen to one another, build trusted working relationships, and forge consensus.

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Meridian Institute

Connecting People to Solve Problems

Photo Captions

Inside Front Cover:

Remington Solar Facility - On March 16, 2016, the Commonwealth of Virginia, Microsoft, and Dominion Virginia Power, announced a partnership to construct a new 20 MW solar facility near the Remington Power Station in Fauquier County. The Commonwealth of VA has signed a long term power purchase agreement (PPA) for the energy produced by the facility, while the renewable attributes, including solar REC's, will be sold to Microsoft. The project entered service on October 1, 2017.

Page 7:

Amazon Web Services facilities are increasing the renewable energy on the electrical grid that supplies both current and future Amazon Web Services (AWS) data centers located in the AWS U.S. East (Ohio) and AWS U.S. East (Northern Virginia) Regions. These projects bring the total capacity of our solar energy alliance with AWS to 260 megawatts. Locations include the counties of Accomack, Buckingham, New Kent, Powhatan, Sussex, and Southampton.

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University of Virginia

Page 18:

Remington Solar Facility

Page 22:

125 kW installation at Old Dominion University ("ODU") in Norfolk, VA.

Back Cover:

Buckingham Solar Farm is a 20 megawatt solar installation that became operational in 2017 and is only one of the many Amazon Web Services solar facilities.

Credits

Printing

Total Printing
Richmond, Virginia

Photography

Dominion Energy and Cameron Davidson



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