VIRGINIA SHARED SOLAR INCENTIVE WORK GROUP REPORT

2024

VIRGINIA Energy

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INTRODUCTION

Pursuant to House Bill 106, House Bill 108, Senate Bill 253, and Senate Bill 255 passed by the General Assembly in 2024, the Virginia Department of Energy convened a stakeholder work group to evaluate project incentives for shared solar facilities when they are located on rooftops, brownfields, landfills, are dual-use agricultural facilities, or meet the definition of another category established by the Department of Energy.[1] Additionally, the Act states that the Department shall give special consideration to projects seeking to leverage funding from the Virginia Brownfield and Coal Mine Renewable Energy Grant Program established pursuant to § 45.2-1725. Finally, the Act requires that the Department shall document the proceedings of the stakeholder work group, submit a written report to the Chairmen of the House Committee on Labor and Commerce and the Senate Committee on Commerce and Labor no later than November 30, 2024, and make such report publicly available on the Department's website.

The Virginia Department of Energy organized and facilitated the work group and hosted three virtual public meetings from August 2024 to October 2024 to gather input and feedback to inform this report. The Department also researched policy examples of incentives from other states with community solar or shared solar programs. The conclusions and recommendations contained in this report are reflective of the research presented to the stakeholder work group and the discussions that followed. The contents of this report do not necessarily reflect the opinions of the individual workgroup participants and should be solely attributed to the Virginia Department of Energy unless otherwise stated.

As of the writing of this report, the Virginia Department of Energy has not received any state funding to implement project incentives for shared solar facilities. The Virginia Brownfield and Coal Mine Renewable Energy Grant Program created in 2021 by HB 1925 remains unfunded. Additionally, the Virginia General Assembly has not allocated any other sources of funding to the Department for this purpose. Accordingly, the discussion and recommendations contained in this report are focused on how project incentives could be implemented. The report does not establish any new project incentives for shared solar facilities.

[1] SB 253 (2024), SB 255 (2024), HB 106 (2024), HB 108 (2024)

SUMMARY OF WORK GROUP PROCEEDINGS

Three meetings of the work group were conducted via Microsoft Teams between August 22, 2024, and October 4, 2024. In facilitating the work group, Virginia Department of Energy staff invited stakeholders to participate. The Act did not guide the selection of stakeholders, so the Department used its discretion to invite a range of stakeholders that were representative of the interests relevant to the work group. This included solar developers, industry groups, universities, state agencies, environmental organizations, and agricultural organizations. In addition to invited stakeholders, other interested stakeholders and members of the public also participated in the meetings. The Virginia Department of Energy also opened a public comment period as a part of this process. The Department received comments by email and on Virginia Regulatory Town Hall from August 22, 2024, to September 27, 2024.[2]

Twenty organizations were invited to participate in the work group, and meetings were open to members of the public. Aaron Berryhill from the Virginia Department of Energy facilitated the meetings with support from other Department staff. The stakeholders listed below were invited and participated in at least one meeting:

Stakeholder	Category
Coalition for Community Solar Access (CCSA)	Industry Group
Chesapeake Solar & Storage Association (CHESSA)	Industry Group
Solar Energy Industries Association (SEIA)	Industry Group
Dimension Energy	Shared Solar Developer
Summit Ridge Energy	Shared Solar Developer
Sun Tribe Solar	Shared Solar Developer
Okovate Sustainable Energy	Agrivoltaics Solar Developer
SynerGen Solar	Brownfield Solar Developer
Appalachian Voices	Special Interest Group
Piedmont Environmental Council	Special Interest Group
Southern Environmental Center (SELC)	Special Interest Group
Virginia Association of Counties (VaCo)	Special Interest Group
American Farmland Trust	Special Interest Group
Virginia Farm Bureau	Special Interest Group
State Corporation Commission (SCC)	State Agency/Commission
Commission on Electric Utility Regulation (CEUR)	State Agency/Commission
Department of Environmental Quality (DEQ)	State Agency/Commission
University of Virginia – Weldon Cooper Center	University
Virginia Tech University – Virginia Cooperative Extension	University
Appalachian Power	Utility
Dominion Energy	Utility

Throughout the three meetings, stakeholders were presented information from Department staff on project incentives and commented on discrete aspects of project incentives for shared solar facilities. Below is a summary of the topics discussed in each of the meetings.

[2] Virginia Regulatory Town Hall Public Comment Forum

MEETING #1 – AUGUST 23, 2024

The August 23, 2024, meeting focused on reviewing the purpose of the work group and relevant regulations, as well as discussing shared solar in a broader view. A summary of the current state of Virginia's Shared Solar Program was provided, including a discussion of the existing incentives within Virginia for shared solar projects. Shared solar policies and incentives in other states were reviewed; programs included those in Massachusetts, New York, Maryland, Illinois, New Mexico, and Connecticut. Definitions of eligible categories for shared solar incentives were also discussed to identify consensus and recommendations from the workgroup participants; these categories include rooftops, brownfields, landfills, and dual-use agricultural facilities. Potential additional categories discussed include "previously developed project site", "small project", "community-based", and "Low and Moderate Income (LMI)". There was a public comment period at the end of the meeting.

MEETING #2 – SEPTEMBER 12, 2024

The second meeting was held on September 12th, 2024. Participants discussed the goal of establishing incentives for shared solar projects. The work group also discussed the program status and capacity in relation to identifying what incentives would be effective within the current structure. The group also reviewed and discussed different financial incentive programs with the goal of identifying potential pathways for implementation. A key focus was defining dual-use agricultural facility, given the lack of standardized definitions; definitions developed by several states were reviewed, as well as federal efforts to develop a generally accepted definition. Finally, there was a discussion regarding current project registration guidelines and how to change these to incentivize preferred projects.

MEETING #3 – OCTOBER 4, 2024

The third and final meeting was held on October 4th, 2024. Virginia Energy staff presented a draft of identified conclusions and recommendations and requested feedback from the work group members. Work group members helped to refine the contents of the report and identify any missing points to be included. Additionally, there was a presentation regarding the Department's Solar for All program, which will provide incentives for shared solar facilities serving low-income customers. The potential overlap between the Solar for All program and the efforts of this work group were discussed.

OVERVIEW OF CURRENT SHARED SOLAR PROGRAM & SITING ACTIVITY

About Virginia's Shared Solar Program

Virginia's shared solar program allows customers of Dominion Energy Virginia and Appalachian Power to purchase subscriptions for electricity from solar facilities that are owned, operated, and managed by private subscriber organizations. Customers purchase a subscription from an off-site shared solar facility and receive a bill credit for their proportional output of the shared solar facility. This allows customers who cannot install solar on their own to be able to access bill credits from solar energy similar to how rooftop solar customers receive bill credits through net-metering.

In Virginia, there are two different types of subscription-based solar programs. This report specifically addresses projects seeking to participate in the ***shared solar program***.[3]

- *Shared solar* is a program where a non-utility subscriber organization offers subscriptions for the output of a solar facility to utility customers. Customers of shared solar pay a subscription fee to a subscriber organization to participate.
- *Community solar* is a program where a utility offers subscriptions for the output of a solar facility to utility customers. Customers of community solar pay for a subscription through a voluntary companion rate schedule that goes to the utility to participate.

History of Shared Solar in Virginia

Virginia's *shared solar* program was originally established by enabling legislation in 2020. The legislation created a program of 200 megawatts for customers of Dominion Energy Virginia.[4] Prior to 2020, previous bills in the Virginia General Assembly in 2012, 2014, 2015, 2016, and 2018 to establish a comparable '*community solar garden*' program in Virginia were not successful.[5]

Following the enabling legislation in 2020, the State Corporation Commission (SCC) established rules governing the shared solar program that became effective in January 2021.[6] Dominion Energy began accepting applications for the registration of new shared solar projects on October 1, 2021 and the SCC established the initial bill credit rate and minimum bill for shared solar subscribers in July 2022.[7] Finally, on July 1, 2023, subscriber organizations began enrolling new subscribers into the shared solar program in Dominion Energy territory.

Legislation passed in 2024 further expanded the shared solar program to include Appalachian Power (50 MW) and a larger total program capacity for Dominion Energy (350 MW).[8] This was

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[3] In many other states, the comparable program to Virginia's shared solar program is referred to as community solar

[4] HB 1634 (2020) & SB 629 (2020)

[5] HB 672 (2012), HB 1158 (2014), HB 1729 (2015), HB 1636 (2015), HB 618 (2016), HB 1285 (2016), SB 311 (2018), SB 313 (2018)

[6] PUR-2020-00125 – Final Order, Dec 23, 2020

[7] PUR-2020-00125 – Final Order, Jul 7, 2022

[8] SB 253 (2024), SB 255 (2024), HB 106 (2024), HB 108 (2024)

preceded by SB 660 passed in 2022 that directed the SCC to convene a stakeholder workgroup and submit a report that evaluated the potential for shared solar programs for Appalachian Power, Old Dominion Power, and the electric cooperatives.[9] Additionally, unsuccessful legislation in 2022 and 2023 to expand the shared solar program informed the amendments that were ultimately approved in 2024.[10]

*The Virginia General Assembly established a separate '*community solar'* pilot program in 2017 for Dominion Energy Virginia, Appalachian Power, and electric cooperatives.[11] This program allows a utility to offer subscriptions from a solar facility to utility customers through a voluntary companion rate schedule. In 2019, the General Assembly enabled utilities to make the *community solar* program a permanent program.[12] In Virginia, the *community solar* program allows a utility to offer subscriptions, while the *shared solar* program allows third-party subscriber organizations to offer subscriptions. Currently, Dominion Energy and several of the state's electric cooperatives and municipal utilities offer a *community solar* program which is separate from the *shared solar* program.[13]

**The Virginia General Assembly also established a separate '*multi-family shared solar*' program in 2020 for Dominion Energy Virginia, and Old Dominion Power.[14] This program is specifically for facilities developed on the premises of a multi-family customer. Subscriptions are only available to on-site multi-family customers. This program has separate rules and regulations from the '*shared solar'* program.

Current Siting of Shared Solar in Virginia

As of October 2024, **53 projects** totaling **199 MW** have been awarded capacity into the shared solar program.[15] The first phase of the shared solar program for Dominion Energy has a capacity of **200 MW**. An additional 7 projects totaling 25 MW are currently on the program's waiting list. The second phase of the program (150 MW) will not be awarded to new projects until the first phase of the program (200 MW) is 90% constructed and subscribed:

> *"Upon a determination that at least 90 percent of the megawatts of the aggregate capacity of such program have been subscribed and that project construction is substantially complete, the Commission shall approve up to an additional 150 megawatts of capacity as part two of such program..."*

As of October 2024, there are at least seven fully operational shared solar projects with a capacity of at least 28 MW.[16] Several other shared solar projects are currently under construction. Based on

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[9] SB 660 (2022), *SB 660 Report of the Stakeholder Working Group Shared Solar Programs for Virginia's Electric Cooperatives*, *SB 660 Report of the Stakeholder Working Group Shared Solar Programs for Phase I Utilities*

[10] HB 832 (2022), SB 659 (2022), HB 1853 (2023), SB 1083 (2023), SB 1266 (2023)

[11] SB 1393 (2017)

[12] HB 2547 (2019)

[13] Utilities that offer a community solar subscription program include *Dominion Energy*, *Rappahannock*, *Shenandoah Valley*, *CVEC*, *A&N*, *Harrisonburg*, *Northern Neck*, *BARC*, and *Bedford*

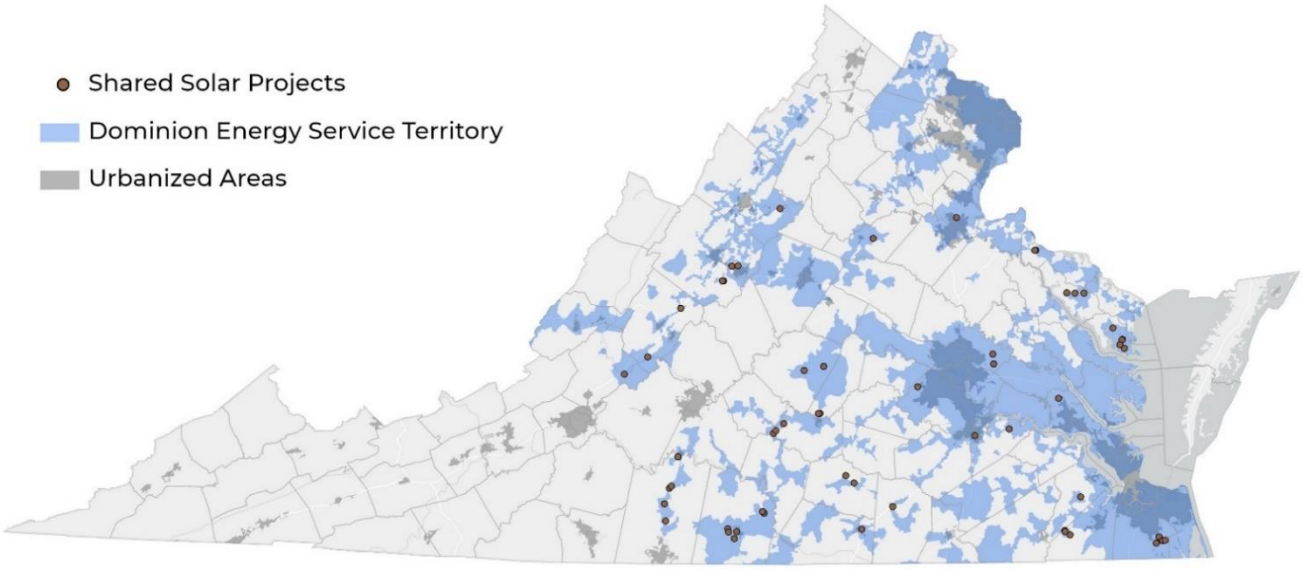
[14] § 56-585.1:12. Multi-family shared solar program.

[15] Dominion Energy Shared Solar Program

[16] PUR-2024-00122: *Comments of Dimension Energy*

the Virginia Department of Environmental Quality's database of active construction permits there are 31 shared solar projects with an active Stormwater Construction General Permit as of October 1, 2024.[17]

Currently, all shared solar projects with awarded capacity are located in Dominion Energy's service territory. Projects in Appalachian Power territory will not be awarded capacity until 2025. These projects with awarded capacity are primarily sited on undeveloped, rural, or exurban sites throughout Dominion Energy's service territory. Shared solar projects may be sized up to a nameplate capacity of 5 MW and the most common size (mode) for a proposed shared solar project is 5 MW (21 of 53 projects). The smallest proposed shared solar project is 1 MW, the average size of all projects is 3.8 MW, and the median size is 4 MW.



PERMITTING

Shared solar projects are subject to local land use approval similar to other solar projects. At the state level, shared solar projects are subject to the Department of Environmental Quality's (DEQ) expedited Section 130 permit within the Permit-by-Rule program for small renewable energy projects.[18] This is because all shared solar projects are sized to be less than or equal to 5 MW in capacity, making them eligible for the expedited process. The Section 130 permit only requires the developer to submit a local certification to DEQ, but they are exempt from having to submit a full application with more detailed information about site impacts and mitigation.

SITING ON PREFERRED SITES – PREVIOUSLY DEVELOPED SITES

There are currently no shared solar projects planned on a brownfield, landfill, or rooftop based on the projects that have been awarded capacity or are on the waiting list for Dominion Energy's shared solar program.

[17] Virginia DEQ Active SWCGP Permit List
[18] 9VAC15-60-130.

Some developers participating in the workgroup acknowledged that they have explored potential shared solar projects on previously developed sites and rooftops, but they have not formally advanced any of these projects into the shared solar program.[19] Since the shared solar program has a limited capacity, it is highly competitive for a project to be awarded capacity. As a result, developers are unlikely to pursue projects on previously developed sites that may have greater risk or complexities.

Specifically, projects on brownfields and landfills have not advanced for the following reasons:

- *Longer Development Timelines*: Projects on brownfields and landfills are more complicated and require more upfront work to prepare the project to be able to participate in the shared solar program. This includes navigating environmental risk, additional site assessment and preparation, and special remediation practices. A program with limited capacity discourages developers from spending additional time to plan a more complicated project when there is no guarantee that there will be remaining capacity for the project.

- *Incremental Costs:* Projects on previously developed sites incur additional project-specific costs. The projects may require special design features and construction measures that increase the cost of development.

Projects on rooftops have not advanced for similar reasons such as:

- *Lower yields*: The roof orientation and pitch are fixed can impact the ability the maximize the tilt of panels and reduce the overall yield of rooftop systems compared to ground-mounted systems.
- *Incremental Costs*: Projects on rooftops incur additional project-specific costs. Additional engineering reviews and special design features to prioritize panel placement and provide support mechanisms for weight increase the cost of development.
- *Leasing Rates*: Building owners prefer shorter-term leases that are less likely to align with the lifespan of a solar project. This mismatch leads to a higher total lease rate for rooftop shared solar projects.

SITING ON PREFERRED SITES – DUAL-USE AGRICULTURE

The practice of dual-use agriculture is currently not clearly defined or documented within the shared solar program. Some stakeholders shared that they have plans to incorporate sheep grazing into existing or proposed shared solar projects. Other agrivoltaics designs have been considered within the shared solar program, but to date there are no examples actively being deployed as a part of Virginia's shared solar program.[20]

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[19] *Example*: The City of Norfolk has approved a potential shared solar project on a landfill site that has yet to advance into the shared solar program: Campostella Landfill Redevelopment Proposal | City of Norfolk, Virginia - Official Website

[20] BlueWave Energy proposed two agrivoltaics shared solar projects that would have incorporated crop growing in Halifax County, VA. Both project proposals were ultimately rejected by the local Board of Supervisors. https://www.halifaxcountyva.gov/AgendaCenter/ViewFile/Agenda/_05212024-503

RELEVANT TRENDS IN SHARED SOLAR SITING IN VIRGINIA

While there are no shared solar projects sited on previously disturbed sites in Virginia, the smaller size of shared solar allows for projects to be sited in other strategic and less impactful locations as compared to larger utility-scale projects. Smaller ground-mounted solar projects, including shared solar, have been able to take advantage of underutilized property, collocate with other more impactful land uses, or support the conservation of land that may otherwise be subject to more intensive development. Several developed and planned shared solar projects exemplify some of the potential land use efficiencies of smaller-scale solar projects even if they are not located directly on previously developed sites.

EXAMPLES

Sweet Spring Solar (1 MW): Orange, VA

Approved by the Orange County Board of Supervisors on May 10, 2022, Sweet Spring Solar is planned on an underutilized parcel directly adjacent to the Orange County Landfill and along a right of way that includes a natural gas pipeline.

Fairfield Lee Solar (5 MW): Fairfield, VA

Developed in Rockbridge County, Fairfield Lee is located on an underutilized parcel located directly in between Interstate 81 and U.S Highway 11.

Augusta CSG Solar (2.9 MW): Fishersville, VA

Developed in Augusta County, Augusta CSG Solar is collocated with an existing cellphone tower and alongside a railroad right of way. The project is located in area that is experiencing significant residential development. The solar project serves as a buffer between existing agricultral lands and ongoing residential development.

ABOUT INCENTIVES FOR SHARED SOLAR FACILITIES

Existing Support Programs and Incentives in Virginia

Currently, there are no programs or incentives in Virginia that exclusively apply to the siting of shared solar facilities. There are however some other active policies and programs that may be relevant to the siting of shared solar facilities that are discussed below.[21]

PERMITTING

The Virginia Department of Environmental Quality permits renewable energy facilities through the Small Renewable Energy Permit-by-Rule program as is provided in 9VAC15-60.[22] This includes the permitting of solar, wind, and energy storage projects with a rated nameplate capacity of 150 MWac or less.

Within the Permit-by-Rule program, all solar projects with a rated nameplate capacity of 5MWac or less are considered *de minimis* and are not required to submit a full permit application. Projects of this size must notify DEQ and submit certification from the local government but are not required to conduct an analysis of the impact to natural resources or submit a mitigation plan. DEQ refers to these project permits as a 'Section 130' permit as is provided in 9VAC15-60-130. Shared solar facilities are required to be no larger than 5 MWac and therefore are all eligible for this expedited permitting process.

TAXATION

Shared solar facilities, like other types of solar facilities, are eligible for exemptions from both state and local taxation. Effective in 2022, as is provided in § 58.1-2606.1, solar facilities of 5 MW or less are to be taxed at a rate that does not exceed the local real estate rate and are eligible for a stepdown exemption of 80 percent of the assessed value in the first five years in service, 70 percent of the assessed value in the second five years in service, and 60 percent of the assessed value for all remaining years in service.[23] Solar facilities of 5 MW or less may also be subject to the assessment of a revenue share ordinance ($1,400 per MW) in lieu of taxation.

Additionally, as is provided in § 58.1-3660, any solar facility owned or operated by a business may qualify to be certified as a certified pollution control facility.[24] The equipment used for a certified pollution control facility is exempt from the state sales tax if it has been certified by the Virginia Department of Energy.

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[21] The Virginia Department of Energy published a handbook in 2022 about the siting of renewable energy facilities on brownfields and coal mined lands. The handbook provides additional detail on many of the existing relevant programs and policies.

[22] Small Renewable Energy Projects (Solar) Permit by Rule: 9VAC15-60

[23] § 58.1-2606.1.

[24] § 58.1-3660.

TECHNICAL ASSISTANCE

For projects considered on brownfield sites or previously mined sites, the Virginia Department of Environmental Quality and the Virginia Department of Energy may have relevant resources and programs that can provide technical assistance. The DEQ Brownfields program can help stakeholders navigate the regulatory requirements that may be preventing a brownfield project from moving forward. This includes issuing a brownfield concurrence letter to affirm that a site meets the definition of a brownfield, drafting bona fide prospective purchaser letters and implementing the Voluntary Remediation Program.[25] The Virginia Department of Energy also has several programs including the Abandoned Mined Land Program and the Mined Land Repurposing Program that focus on aiding in the redevelopment of mined lands. The Department also maintains a web map inventory of abandoned coal mined lands and mineral mined lands.[26]

History of Incentives for Solar Energy in Virginia

The Virginia General Assembly has considered a number of bills to establish state-supported incentive programs for solar energy. To date, none of the proposed grant programs or funds have ever received any allocation of state funding by the General Assembly. As a result, Virginia Energy has not implemented any state-supported incentive programs for solar energy. This includes the following grant programs or funds that have been either proposed or established by the General Assembly:

- *Renewable Electricity Production Grant Program* [27]
    - Established 2006, Repealed 2021
- *Solar and Wind Energy System Acquisition Grant Program* [28]
    - Established 2006, Repealed 2021
- *Voluntary Solar Resource Development Fund* [29]
    - Established 2011, Expired 2016
- *Renewable Energy Property Grant Fund* [30]
    - Established 2014, Not reenacted in 2015
- *Low-to-Moderate Income Solar Loan and Rebate Pilot Program* [31]
    - Established 2019, Currently unfunded
- *Virginia Brownfield and Coal Mine Renewable Energy Grant Fund* [32]
    - Established 2021, Amended 2024, Currently unfunded
- *Parking Lot Solar Development Pilot Program and Fund* [33]
    - Proposed 2024, Continued to 202

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[25] DEQ Brownfields Program Resources Page

[26] Virginia Energy's Abandoned Coal Mined Land Map and Mineral Mining Map

[27] SB 1152 (2007)

[28] SB 1152 (2007)

[29] SB 975 (2011), *2015 Annual Report*: Virginia Energy (DMME) received donations totaling $344.27 which was well below the necessary amount to establish a viable program.

[30] SB 653 (2014)

[31] HB 2741 (2019)

[32] HB 1925 (2021)

[33] SB 234 (2024)

Despite a lack of state funding, Virginia Energy has designed and implemented grant and incentive programs for solar with federal funds. For example, Virginia Energy used funding from the American Recovery and Reinvestment Act of 2009 (ARRA) to establish a rebate program for privately-owned onsite solar. Virginia Energy also used ARRA funds to create a grant program to fund solar installations at state and local government facilities. More recently in 2024, Virginia Energy applied for and received a Solar for All award of $156 million from the US EPA's Greenhouse Gas Reduction Fund. Virginia Energy will administer the Solar for All funds as a grant program to incentivize the deployment of low-income solar, which will include residential solar and shared solar systems that will provide benefits directly to low-income customers.

Virginia Brownfield and Coal Mine Renewable Energy Grant Program

As is provided by House Bill 106, House Bill 108, Senate Bill 253, and Senate Bill 255, the Virginia Department of Energy is to give special consideration to shared solar projects seeking to leverage funding from the Virginia Brownfield and Coal Mine Renewable Energy Grant Program. The program was established in 2021 and amended in 2024 by HB 199 and SB 25.[34] The program was established to provide grants on a competitive basis to renewable energy projects (solar, wind, or geothermal) located on brownfields or previously coal mined lands and is to be administered by Virginia Department of Energy.

The enabling statute provides that grants shall be awarded in an amount of:

- $500 per kilowatt of nameplate capacity from renewable energy sources that are located on previously coal mined lands ($0.50 per watt).
- $100 per kilowatt of nameplate capacity from renewable energy sources that are located on brownfields ($0.10 per watt)

As of 2024, the Program remains unfunded. As a result, the Virginia Department of Energy has not published any guidelines or criteria for grant awards within this Program.

Examples of Incentives for Solar Siting in Other States

As a part of the work group process, Virginia Energy and stakeholders reviewed relevant examples of incentive programs for the siting of solar energy, and specifically shared/community solar facilities in other states. Some other states have incentive programs to encourage solar facilities to be sited in locations such as rooftops, brownfields, parking lots, landfills and agrivoltaics. In general, siting-based incentives can be classified into four distinctive categories: (1) *financial incentives*, (2) *project selection criteria*, (3) *program design*, (4) *tax exemptions*. A full list of example programs and policies is included in **Appendix A**.

FINANCIAL INCENTIVES

Financial incentives may be provided for solar projects that meet certain siting-based criteria. In general, when incentives are available to solar facilities that meet specific siting-based criteria, they are not offered exclusively to shared/community solar projects.

[34] HB 199 (2024) and SB 25 (2024)

Funding for financial incentives often comes from charges on customers' bills such as a system benefit charge, a public purpose charge, or another cost recovery mechanism. In most states, if financial incentives exist, the funding rarely comes from an allocation from a state's budget.

In states with limited funding, financial incentives are typically implemented as grant programs that award money to projects on a limited and competitive basis. States with more expansive financial incentive programs offer generation or capacity-based adders to all projects that meet specific siting-based criteria. Specifically, some states may use SRECs adders as the mechanism to provide additional financial incentives to specific types of projects.

PROJECT SELECTION CRITERIA

In some states with a dedicated shared/community solar program, capacity may be awarded to projects on a competitive basis. As a part of this process, a program may choose to prioritize projects that meet specific criteria, which may include siting-based criteria. Implementers of a community solar program develop a rubric to score and rank projects seeking to participate in the program. Some states score all projects seeking to participate in a program while others only score and rank projects that are on the waiting list.

PROGRAM DESIGN

Shared/community solar programs may also be designed to specifically accommodate or encourage the siting of projects in certain locations. Examples may include colocation or sizing exemptions that allows projects in preferred locations to exceed the program's maximum nameplate capacity for individual projects. In other cases, a program may have a specific carveout that reserves a portion of the program's total capacity for projects that meet specific siting-based criteria. Finally, a program may even mandate that projects can only be sited in specific locations to be able to participate in the program.

TAX EXEMPTION

Solar projects may also receive preferential tax treatment if they are sited in eligible locations. This could include local property tax exemptions or state franchise tax exemptions.[35] Projects making use of dual-agriculture may also receive preferential tax assessments as an agriculture use.

[35] In 2022, Maryland established a local personal property tax exemption for community solar projects located on rooftops, brownfields, landfills or agrivoltaics. By December 31, 2024, the Maryland Energy Administration will issue a report to the Maryland General Assembly on the effectiveness of those tax incentives. See MD - HB 1039 (2022).

DETERMINING FORMS OF PROJECT INCENTIVES IN VIRGINIA

Purpose

Any potential incentives for shared solar facilities should be informed by the intent and purpose for providing incentives. Stakeholders were asked to reflect on their interests and desired outcomes from a program that would incentivize the deployment of shared solar facilities. Given the diversity of perspectives participating in the work group, there was a wide range of perspectives on the preferred outcomes of an incentive program for shared solar facilities.

Potential goals and outcomes for an incentive program that were mentioned by stakeholders included:

1. Ensure that different projects can be economically viable within the shared solar program.
2. Allow for a greater diversity of system types to participate in the shared solar program.
3. Encourage investment and economic development in preferred locations.
4. Compensation to projects that are reflective of the benefits they provide to the Commonwealth.
5. Avoidance of adverse impacts to forests and agricultural lands.
6. Development of projects that offer demonstration and research opportunities.

Financial Incentives

Most stakeholders in the work group preferred to see an incentive program that creates opportunities for a diversity of system types to be economically viable within the shared solar program. As a result, a majority of stakeholders identified financial incentives as the preferred mechanism to incentivize the siting of shared solar projects in Virginia. The Department conducted additional research on examples of financial incentives and led a discussion on how it could be implemented in Virginia. *It is important to note that most examples of siting-based financial incentives are available to all solar projects and are agnostic as to whether or not a project is participating in a community / shared solar program*.

DESIGNING FINANCIAL INCENTIVES

Financial incentive programs can be designed and implemented based on their purpose, desired outcomes, and funding availability. Most incentive programs are designed as *cost-based* policies that consider the project economics and incremental costs of different types of solar projects. Some cost-based incentive programs have a fixed incentive amount that is consistently applied to all projects that meet a predetermined set of criteria. Other cost-based incentive programs may offer incentives on a variable, case-by-case basis based on the demonstrated need of an individual project type or design.

While financial incentive amounts are often designed as a *cost-based incentive,* incentives may also reflect the overall policy priorities and goals in a particular state or region. For example, the enabling legislation for the *Virginia Brownfield and Coal Mine Renewable Energy Grant Program* sets

potential incentive amounts of $0.50 per watt on coal mined lands, and $0.10 per watt on brownfields. While these amounts were created with the intention of offsetting the incremental costs of development in these locations, it also reflects a policy preference within Virginia to specifically prioritize the revitalization of coal mined lands.

Additionally, cost-based incentives may be implemented as either capacity-based (per watt) or performance-based (per kWh). Feed-in tariffs, SRECs, and SREC adders are common forms of performance-based incentives. Grant awards are a common form of a capacity or investment-based incentive. Currently, the *Virginia Brownfield and Coal Mine Renewable Energy Grant Program* is established as a capacity-based incentive. A potential incentive program that includes shared solar facilities would likely adopt a similar capacity-based approach. Additionally, subscriber organizations participating in Appalachian Power's shared solar program and in the second phase of Dominion Energy's shared solar program will not retain ownership of the SRECs leading to further challenges in being able to implement a performance-based incentive in Virginia.

DETERMINING A COST-BASED INCENTIVE AMOUNT

In general, most stakeholders preferred a fixed *cost-based incentive* for shared solar projects sited on rooftops, brownfields, and landfills where a predefined financial incentive amount is available to offset the incremental costs of each project type. According to developers that participated in the work group, a predefined incentive amount creates more certainty throughout the project development process. However, for dual-use agricultural facilities where the project types and costs may vary widely, most stakeholders suggested that a variable, needs-based incentive may be more appropriate.

The Department reviewed several examples of models for cost-based incentives as a part of the work group process, but the Department did not have sufficient resources or time to develop a Virginia-specific model for this report. Specifically, the National Renewable Energy Laboratory's (NREL) Cost of Renewable Energy Spreadsheet Tool (CREST) is a widely known resource that can be used to develop cost-based incentives for solar facilities.[36] Many states have used the CREST tool to determine incentive amounts for solar facilities, but few have used it with an additional level of granularity on different siting-based criteria.[37]

Models like the CREST tool also require reliable data on project economics to be used as cost inputs. Currently, detailed data that differentiates the project economics of solar facilities making use of brownfields, landfills, rooftops, and dual-use agriculture is not widely available in Virginia. To gather data on project economics, some states have sought to survey or collect data from developers about project costs. Other states have used national resources like the NREL's U.S. Solar Cost Benchmarks Annual Report to determine project costs.[38]

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[36] NREL CREST Model User Manual

[37] The Massachusetts Solar Massachusetts Renewable Target (SMART) program is a notable exception that is discussed below.

[38] NREL U.S. Solar Photovoltaic System and Energy Storage Cost Benchmarks, With Minimum Sustainable Price Analysis: Q1 2023

COST-BASED MODELING AND INCENTIVE EXAMPLE IN MASSACHUSETTS

As a notable example of an incentive program that modeled different incentives for rooftops, brownfields, landfills, and dual-use agriculture, the work group reviewed the Massachusetts' Solar Massachusetts Renewable Target (SMART) incentive program. The Massachusetts Department of Energy Resources (DOER) implements the SMART incentive program as a performance-based incentive with the use of tariffs. DOER receives significant support from third-party consultants to design and update the program on an annual basis. This includes surveying developers on project economics, building a model to determine cost-based incentives, and evaluating the effectiveness of incentives on an ongoing basis.

In 2024, MA DOER conducted a review of the SMART program which included updating the data on project costs and the resulting incentive amounts. In the table below are the assumptions made about the incremental costs of different types of solar projects in Massachusetts after surveying developers on project economics.[39] While not identical to Virginia, this data may provide relevant context on the incremental costs of different project types that could be used to develop incentives in Virginia.

Table*: Massachusetts Incentive PV Cost/Performance Inputs 2024*

Component	Adjustment	Siting-based Adjustors					
		Residential Rooftop	C&I Rooftop	Brownfield	Landfill	Canopy	Dual-use Agricultural
Capacity Factor	*Relative % change*	N/A	N/A	-2.50%	-5.00%	-5.01%	-3.77%
Total Installed Cost	*Incremental Installed Cost*	N/A	N/A	$286.4/kW	$310.9/kW	$1,129.6/kW	$1,095.4/kW
Fixed O&M	*Varies*	+15.0%	+15.0%	+14.5%	+19.2%	+20.0%	+40.1%
Insurance	*Relative % change*	N/A	+10%	+15%	+10%	+5%	N/A
Project Management	*Relative % change*	N/A	N/A	+7%	+10%	N/A	N/A
Site Lease	*Relative % change*	N/A	N/A	N/A	+87.7%	-27.1%	-12.7%

[39] *Solar Massachusetts Renewable Target (SMART) Programmatic Review: Evaluation of Solar Costs and Needed Incentive Levels across Sectors from 2025-2030,* prepared by Sustainable Energy Advantage, March 2024.
Additionally, see the 2024 SMART Straw Proposal to see more information on the incentive amounts that have been proposed based on the evaluation of solar costs.

Programmatic Incentives

In addition to project economics, many stakeholders expressed concern that the current design of the Virginia shared solar program limits the development of projects on rooftops, landfills, and brownfields. While the shared solar program's limited capacity impacts all types of projects, it may be especially restrictive for projects with more complex design elements and lengthy development timelines. Since capacity is available on a first-come basis, developers are more likely to prioritize simpler projects that can progress in a timely and cost-effective manner.

As a result, some stakeholders expressed an interest in a program with a carveout or project selection criteria that prioritizes or reserves capacity specifically for projects on rooftops, brownfields, and landfills. For example, Maryland's pilot community solar program specifically reserved 30% of the available capacity for facilities that are placed on a brownfield, an existing structure, or sized smaller than 500 kilowatts.[40] Moreover, some stakeholders suggested that financial incentives would not be effective without additional programmatic incentives that ensure that projects in preferred locations can be admitted into the program. Other stakeholders, however, thought that given Virginia's limited program size, a carveout to incentivize specific project types may become a more relevant consideration if the shared solar program is ever expanded in Virginia. Some stakeholders also discussed the impact of colocation exceptions that allows projects on preferred sites to take advantage of economies of scale.

Permitting and Project Registration

The work group also discussed opportunities to ease some of the permitting and registration requirements for facilities making use of rooftops, landfills, and brownfields. Currently, all projects that are awarded capacity in the shared solar program have 24 months from the date they are awarded capacity to achieve substantial completion. Projects may receive an additional 12-month extension with an additional deposit. However, proposed changes to the rules governing the shared solar program propose reducing the 12-month extension to 4 months. Given the longer development timelines for projects on previously developed sites, some stakeholders proposed allowing these projects to be provided a longer timeline to be able to achieve substantial completion.

[40] Maryland Community Solar Program – Maryland Public Service Commission

DEFINING ELIGIBLE CRITERIA

Eligibility criteria would be used in a potential incentive program to identify what projects are selected or eligible to receive incentives. An incentive program should be designed to provide clear guidance to developers and regulators on what exact sites are eligible to avail of an incentive program.

Brownfields and Landfills

The definition of brownfields in an incentive program would be influenced by the overall intent of the program. For example, broader definitions increase the likelihood of projects locating on sites that have experienced development or contamination, however, more prescriptive definitions can direct projects to locations that accomplish specific goals related to environmental protection, economic development, adaptive reuse or other factors.

Virginia Code § 10.1-1230 defines a brownfield as "real property; the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant." This definition aligns with the definition used by the U.S. Environmental Protection Agency. The DEQ Brownfields program can provide assistance to affirm that a site meets this definition.

More specifically, as it relates to energy siting, the Virginia Clean Economy Act (VCEA) of 2020 created a definition of "*Previously developed project site*" which includes the existing brownfield definition but also provides greater clarity by incorporating definitions for other types of past development:

> *"Previously developed project site" means any property, including related buffer areas, if any, that has been previously disturbed or developed for non-single-family residential, nonagricultural, or nonsilvicultural use, regardless of whether such property currently is being used for any purpose. "Previously developed project site" includes a brownfield as defined in § 10.1-1230 or any parcel that has been previously used (i) for a retail, commercial, or industrial purpose; (ii) as a parking lot; (iii) as the site of a parking lot canopy or structure; (iv) for mining, which is any lands affected by coal mining that took place before August 3, 1977, or any lands upon which extraction activities have been permitted by the Department of Energy under Title 45.2; (v) for quarrying; or (vi) as a landfill."*

This definition of *previously developed project sites* is currently used to apply to the solar developments of Dominion Energy Virginia where at least 200 megawatts of the 16,100-megawatt total capacity to be developed by 2035 shall be placed on a previously developed project site. The "*previously developed project sites*" criteria provide a clearer and more expansive definition of the exact types of sites that may be eligible. The definition may also create greater alignment on eligible criteria for both the shared solar program and for Dominion Energy's VCEA requirements.

There is no official definition in the Code of Virginia for landfills in the context of energy development, however, landfills are considered 'brownfields' and 'previously disturbed sites' provided that a project is located directly on a landfill. Project sites located next to a landfill may qualify as a brownfield under current statutes, but this would require an additional determination.

Rooftops

Virginia Code § 56-576 defines a “rooftop solar installation” as “a distributed electric generation facility, storage facility, or generation and storage facility utilizing energy derived from sunlight, with a rated capacity of not less than 50 kilowatts, that is installed on the roof structure of an incumbent electric utility’s commercial or industrial class customer, including host sites on commercial buildings, multifamily residential buildings, school or university buildings, and buildings of a church or religious body.” This definition captures a wide scope of potential rooftop projects that could host shared solar facilities and the workgroup viewed it as a reasonable definition to import into a shared solar incentive program.

Rooftop projects are usually more expensive to build on a per-watt basis than comparable ground-mounted projects as they are generally limited to smaller projects, experience higher lease rates and often require more intensive engineering to ensure that they are properly secured and do not cause structural problems to the host building. However, because they are typically close to populated areas, and therefore close to load, these systems may be able to provide greater grid benefits compared to projects in less densely populated areas.

Dual-Use Agricultural Facilities

Under Virginia’s shared solar programs, per Virginia Code § 56-594.3 and § 56-594.4, "dual-use agricultural facility" means “agricultural production and electricity production from solar photovoltaic panels occurring simultaneously on the same property. Types of agricultural production and products are further defined:

> *"Agricultural production “(§ 15.2-4302.) means the production for commercial purposes of crops, livestock and livestock products, and includes the processing or retail sales by the producer of crops, livestock or livestock products which are produced on the parcel or in the district.*
>
> "*Agricultural products “(§ 15.2-4302.) means crops, livestock and livestock products, including but not limited to: field crops, fruits, vegetables, horticultural specialties, cattle, sheep, hogs, goats, horses, poultry, furbearing animals, milk, eggs and furs.*

While these definitions provide general descriptions of the types of agricultural activity that may qualify, the work group concluded that the existing definitions in Virginia Code do not adequately incorporate all the factors that may be appropriate when determining if a solar facility has reasonably accommodated agricultural activity.

DISCUSSION OF DUAL-USE AGRICULTURAL FACILITIES

As a relatively new and rapidly evolving field, the definition for dual-use agricultural facilities (or agrivoltaics) is not widely understood or consistently defined within federal and state policies across the country. While there have been some developments at the federal and state levels that may offer guidance, dual-use agriculture remains a topic that deserves additional consideration in the future. For example, the U.S. Congress has reviewed several proposals about agrivoltaics systems, including a proposal for USDA and U.S. DOE to work with stakeholders to develop a

definition for 'agrivoltaics system' that can be incorporated into federal programs. Some states have also worked in recent years to refine a workable definition and guidelines for dual-use solar/agrivoltaics for use within existing programs.

Given the complexity of the topic, this work group dedicated time to specifically discuss and identify potential priorities for a definition of dual-use agricultural facilities that can be used in Virginia. The work group also acknowledged that topic is deserving of additional attention by a broader group of stakeholders in Virginia. Further clarification of specific issues could help to address areas where stakeholder expectations differ as to what should qualify. Some stakeholders preferred a more farmer-centric approach while others preferred a more developer-centric approach. For example, some stakeholders consider grazing sheep that are solely used to curtail onsite vegetative growth to be an acceptable agricultural application whereas other stakeholders contend that the site would have to be proactively selling meat or wool from the animals to qualify for an incentive program or that grazing should not be a qualifying practice under any circumstances.

Relevant considerations identified by stakeholders included thresholds for the level of activity that is expected at a site, such as production yields or revenue expectations for the agricultural products, or other metrics that could be included to ensure that projects are acting as effective agricultural enterprises. Stakeholders also discussed the importance of the physical design requirements of dual-use solar facilities as well as the preservation of existing agriculture uses of sites that are used for dual-use facilities.

EXAMPLES OF DUAL-USE AGRICULTURE PROGRAMS

To provide context to the discussions, the work group reviewed programs in other states that have worked to create a definition and criteria that qualify as a dual-use agricultural facility or an agrivoltaics facility. These states have dedicated significant time and effort to engage with stakeholders to refine a workable definition of dual-use agricultural facilities. Some stakeholders with experience in these other states shared that these existing programs are still relatively new and unproven.

MASSACHUSETTS

Massachusetts has the one of the most established dual-use agriculture incentive programs as it created the Agricultural Solar Tariff Generating Units (ASTGU) in 2018. The program's definitions, guidelines, and application requirements have been reviewed and revised several times since its inception in response to ongoing stakeholder feedback. As of 2023, 12 projects had qualified for the ASTGU incentive, but only 3 projects totaling 4.25 MW had been constructed and were actively receiving incentives.[41]

Several stakeholders in Massachusetts have contended that the program's requirements and definitions have become too arduous, and the lack of flexibility has made the development of dual-use agricultural projects unviable within the program.[42] Most recently in July 2024, the Department

[41] Agrivoltaics in the SMART Program: March 25, 2023 and the SMART ASTGU Annual Reports
[42] SMART Programmatic Review: SMART Review Comments – February 2024

of Energy Resources proposed additional changes in response to feedback.[43] Currently, the proposal includes requirements that projects must be "located on Land in Agricultural Use or Important Agricultural Farmland that allows the continued use of the land for agriculture." Projects must be designed with a raised structure of 8 feet for fixed tilt, 10 feet for tracking facilities to accommodate growth of crops and/or grazing. Project design must be based on a shading analysis tool for crop growth with no more than a 50% reduction in direct sunlight in the project area. Newly created farmland from the conversion of forest land is not eligible for the incentive. Additionally, a project owner must submit soil tests to demonstrate viability of crop growth and grazing.

NEW JERSEY

New Jersey officially launched its Dual-Use Solar Energy Pilot Program in October 2024 to meet the requirements of the Dual-Use Solar Energy Act of 2021.[44] The New Jersey Board of Public Utilities (NJBPU) collaborated with stakeholders for over a year to develop a proposal and establish rules for the program. The Pilot Program is expected to facilitate the installation and operation of up to 200 megawatts of solar over three years.

The program rules defines a Dual-Use Solar Energy Project as "energy generation facilities, structures, and equipment for the production of electric power from solar photovoltaic panels located on unpreserved farmland in agricultural or horticultural production that ensures the continued simultaneous use of the land below and adjacent to the panels for agricultural or horticultural use."[45] Criteria require the land where a the Dual-Use Solar Energy Project is installed on land with preexisting agricultural or horticultural usage. Additionally, the design of arrays must take into account the requirements of specific farming practices and the energy collection impacts. There is also an annual reporting requirement on agricultural productivity.

ILLINOIS

As part of Illinois's Adjustable Block Program, the incorporation of agrivoltaics can be awarded up to two points (out of a maximum of 16 points) when determining positions in the waiting list.[46] That program defines "[a] dual-use configuration where solar photovoltaic energy generation and agricultural production (crops, livestock, and livestock products) are directly integrated and simultaneously producing within the footprint of the project. At least 50% of the project footprint must feature agricultural production at the time of project energization." Projects must accommodate continuous growth of crops underneath or between the solar photovoltaic modules, with height enough for labor and/or machinery as it relates to tilling, cultivating, soil amendments, harvesting, etc. and grazing animals. They must also maintain or enhance the agricultural productivity of the land and soil health throughout the lifetime of the system. Projects must submit an agricultural use plan and commit to annual reporting of productivity.

[43] SMART Straw Proposal – July 2024

[44] NJBPU Launches First State-Led Dual-Use Agrivoltaics Pilot Program

[45] Order Launching the NJ Dual-Use Solar Energy Pilot Program

[46] Illinois Shines Program Guidebook: Appendix C- Agrivoltaics Requirements

Other Eligible Categories

The enabling Act also provides flexibility for the Virginia Department of Energy to determine definitions of other categories that may also be eligible to receive incentives. The work group provided input on this topic and shared that it may be appropriate to also have an incentive program for projects that meet other non-siting related criteria.

LOW-INCOME

Shared solar projects that specifically provide added savings to low-income customers could be considered for financial incentives. The Department has already worked to define initial guidelines for shared solar projects that will be eligible for Solar for All funding. Specifically, projects must offer at least 20% bill savings to low-income customers to be eligible for funding through Virginia Energy's Solar for All program. Low-income customers are defined as households with an income of equal to or less than 80% of the area median income. Additionally, projects must have at least 49% of their capacity allocated to low-income customers to be eligible.

Similar provisions could also be applied to incentivize projects beyond or in addition to the Solar for All Program. Stakeholders shared that there is an additional cost to subscriber organizations to acquire and maintain low-income participation in the program. Currently, low-income customers are exempt from paying the minimum bill in the Dominion Energy shared solar program which provides a considerable cost-saving compared to other customers under the existing formulation.

COMMUNITY-BASED

Projects that provide additional opportunities for community ownership or direct community involvement may also be eligible for incentives. Several other states have created a precedent for incentivizing these type of community-based community solar projects. Examples include projects where subscribers have an ownership stake or projects owned by non-profits.

CONCLUSIONS

The report's conclusions are intended to summarize the key takeaways of the input provided by the stakeholders that participated in the work group process as well as the findings of the Virginia Department of Energy's research. The conclusions are intended to guide the recommendations in this report as well as to inform future policy development.

This report solely focused on shared solar incentives and does not evaluate the effectiveness of shared solar incentives relative to broader solar incentives or incentives for other forms of energy.

- **There are currently no shared solar projects on previously disturbed sites or rooftops that have been awarded capacity or are on the program waiting list.**
    - Projects on previously disturbed sites and rooftops are more costly and have longer development timelines that limit their ability to advance into the current program without additional incentives.
- **Shared solar projects, by their nature, are smaller in size (≤5 MW) which allows them to be sited in more strategic locations with fewer environmental impacts.**
    - Although no shared solar projects are currently planned on previously developed sites or rooftops, several shared solar projects are planned in other strategic locations. Smaller solar projects may take advantage of underutilized property, be collocated with other land uses, or support the conservation of land that may be subject to development for more intensive uses.
- **Stakeholders have different goals and desired outcomes they would like to see from incentivizing the siting of shared solar projects on preferred locations.**
    - Examples of desired outcomes include:
        - Targeting investment in preferred locations with reuse potential
        - Maximize the total development potential of the shared solar program
        - Avoid adverse impacts to forests and agricultural lands
        - Research and demonstration of more complex project designs
        - Maximize benefits accrued by all ratepayers
        - Local economic development opportunities in locations that would not otherwise exist
        - Building further expertise and institutional knowledge about different project types
- **The shared solar program's remaining capacity is a limitation to the siting of shared solar projects on preferred sites.**
    - A limited capacity program restricts the ability to site projects on preferred sites regardless of the availability of financial incentives. Developers prioritize projects that are most likely to progress in a timely and cost-effective manner to ensure they can be awarded capacity to participate in the program.
    - Developers are less likely to take on the risk associated with more complex and costly projects when there is no guarantee that there will be remaining capacity left in the program.

- **Some states with policies to incentivize the siting of shared solar projects (*adders, carveouts, project selection criteria*) have a larger program with more total capacity available for projects.**
    - Virginia's shared solar program is currently approved for a total of 400 MW of shared solar capacity statewide in Virginia across two phases of Dominion Energy's program and Appalachian Power's program.
    - By comparison, several states with policies to incentivize siting on preferred locations have larger programs with more available capacity.
        - *Maryland*: 583 MW of capacity through 2023, now unlimited capacity
        - *New York*: Unlimited capacity, 2,000 MW already installed
        - *Minnesota*: 1,600 MW by 2032, 900 MW already installed
        - *Massachusetts*: 3,200 MW, 900 MW already installed
- **Virginia's shared solar program is designed to prioritize larger and more mature projects that are farther along in the development process and can be completed in a timely manner.**
    - More speculative or explorative project proposals are less likely to advance into the shared solar program because of the requirements to have a fully executed interconnection agreement and to complete the project within 24 months of being awarded capacity into the program.
- **Stakeholder input identified financial, cost-based incentives as the preferred method for incentivizing the siting of shared solar projects.**
    - Some stakeholders also expressed interest in program carveouts or project selection criteria because of the limited remaining capacity of the program
- **Properly implementing cost-based incentives for shared solar facilities requires additional resources to effectively collect data on project economics, model appropriate incentive amounts, and update modeling methods over time.**
    - The process to design cost-based incentives for solar facilities that accounts for the incremental costs of different siting-based criteria requires ongoing effort to account for evolving market realities.
    - Some states that have designed cost-based incentives for solar have retained consultants to design and maintain a model with detailed data on project costs. Other states have dedicated internal staff to collect project data and update modeling on an ongoing basis. Currently, Virginia Energy does not have the resources to fully design, implement, and maintain a cost-based incentive for shared solar facilities.
- **There is currently limited access to data on the incremental costs of developing shared solar facilities on previously developed project sites or as dual use agricultural facilities. A successful incentive program would rely on data on project costs to properly align incentive amounts with project costs.**
    - If shared solar projects receive financial incentives, they should disclose pertinent information about project cost and economics to help inform future modeling.
- **Most other statss that incentivize the siting of solar on preferred locations rarely provide financial incentivizes only for shared solar or community solar projects.**

    - Financial incentive programs in other states for solar on specific sites including brownfields, landfills, rooftops, floating solar, agrivoltaics, and parking lots are made available to all types of solar and not just community solar.
- **The economics for all shared solar projects remains uncertain until the SCC determines the minimum bill and bill credit rate for projects in both Dominion Energy and Appalachian Power's shared solar programs.**
    - Designing appropriate project incentive amounts is dependent on other policy decisions that will impact overall project economics.
- **Incentives for dual-use agricultural facilities (agrivoltaics) need to be designed and implemented separately from other incentives for projects developed on previously developed sites.**
    - Dual-use agricultural facilities can take on many different forms of agriculture and design features. The incremental cost of dual-use solar is not likely to be consistent or similar across different project types. Incentives for dual-use facilities must be flexible and responsive to a rapidly evolving segment of the industry.

RECOMMENDATIONS

The recommendations in the report are intended to be considered by the General Assembly and other actors that are responsible for implementing the shared solar program.

- **If the Virginia General Assembly wants to financially incentivize the siting of shared solar facilities in specific locations, it must enable or provide for a source of funding.**
    - The Virginia Department of Energy is currently implementing several federal funding programs, including the Solar for All award, but these programs are not intended to be used to directly incentivize the location-based siting of shared solar facilities.
    - While not taking a position on funding source in Virginia, other states most often rely on funding from utilities and ratepayers to fund financial incentives for the siting of solar on preferred locations.[47]
    - If shared solar projects were to leverage funding from the *Virginia Brownfield and Coal Mine Renewable Energy Grant Program,* it would require general funds to be dedicated to the fund/program.
- **Consider using the term '*previously developed project site*' to clarify definitions of eligible sites for shared solar incentives that align with other definitions used in the Virginia Electric Utility Regulation Act (§ 56-576)**
    - The term is used elsewhere in Virginia Code. It clearly defines the eligible criteria for solar siting and can also apply to shared solar project siting. Under this definition, Dominion Energy is required to place 200 MW of the 16,100 MW requirement for solar or onshore wind on 'previously developed project sites'.
    - 'Previously developed project site' means any property, including related buffer areas, if any, that has been previously disturbed or developed for non-single-family residential, non-agricultural, or non-silvicultural use, regardless of whether such property currently is being used for any purpose.
    - "Previously developed project site" includes:
        - a brownfield as defined in § 10.1-1230
        - any parcel that has been previously used
            - (i) for a retail, commercial, or industrial purpose;
            - (ii) as a parking lot;
            - (iii) as the site of a parking lot canopy or structure;
            - (iv) for mining, which is any lands affected by coal mining that took place before August 3, 1977, **or** any lands upon which extraction activities have been permitted by the Department of Energy under Title 45.2;
            - (v) for quarrying;
            - (vi) as a landfill.

[47] Previous proposals in the VA General Assembly in 2022 and 2023 to establish similar shared solar siting incentives would have allowed utilities to recover the cost of such incentives [HB 832 (2022) and SB 1083 (2023)]

- **Add project siting categories as information collected during the licensing of subscriber organizations and registration of a shared solar facility with the utility. Utilities should also include this information on the project lists that are made available online.**
    - Shared solar subscriber organizations should disclose during the registration process if the project is to be located on a previously developed project site.
    - Dominion Energy and Appalachian Power should include information about the project locations on previously developed project sites in the publicly available list hosted online. This information would be posted along with existing information about project applicant name, project location, project capacity rating, amount of capacity allocated to low-income customers, and date of project acceptance in program.
- **If the Virginia General Assembly wants to specifically promote or incentivize the use of dual-use agricultural facilities (agrivoltaics) for the shared solar program or elsewhere, a dedicated process is necessary to fully develop the definition and eligible activities that may qualify for incentives and/or additional support.**
    - There is not currently consensus on what should qualify for additional support based on the existing definition for *dual-use agricultural facility* in § 56-594.3 and § 56-594.4.
        - Some stakeholders have advocated for a broad interpretation of *dual-use* that is inclusive of existing practices like sheep grazing where agriculture is integrated into established solar facility designs. Other stakeholders have advocated for a stricter farmer-centric interpretation of *dual-use* that prioritizes the continued agricultural production of land. This includes designing solar facilities purposefully to be able to support ongoing agricultural production.
- **The process of applying for and distributing siting-based financial incentives should be different for *previously developed project sites/rooftops* and '*dual-use agricultural facilities*' (agrivoltaics).**
    - Eligibility as a *previously developed project site* is clearly defined, and with additional effort, incremental costs could be modeled and determined for different project locations and sizes. If funded, Virginia Energy could offer fixed incentive or adder amounts for projects on previously disturbed sites.
    - Eligibility as a *dual-use agricultural facility* is not clearly defined and the incremental costs may vary widely depending on the type of agriculture and the design features of each project. Financial award amounts should be adjustable and flexible to account for the qualities of individual dual-use facilities.

- **Shared solar projects developed on previously developed project sites should be offered greater flexibility within the program regulations.**
    - Shared solar projects must reach mechanical completion within 24 months of the date it was awarded capacity. Projects may receive a 12-month extension with an additional deposit to reach mechanical completion. Proposed changes to the rules governing the shared solar program propose reducing the 12-month extension to 4 months. Given the longer development timelines for projects on previously developed sites, they should continue to be eligible for a 12-month extension period.
    - Shared solar projects should be eligible for less stringent restrictions on the co-location of multiple projects if they are located on a previously developed project site.
- **Incentive amounts for shared solar projects should be adjusted or not fully defined until the project economics of shared solar projects is more clearly defined based on the minimum bill and bill credit rate proceedings at the SCC to be determined in 2025.**

APPENDIX A

APPENDIX A – INCENTIVE EXAMPLES IN OTHER STATES

Direct Financial Incentives

State	Program	Policy Type	Details	Categories	Specific to Community/ Shared Solar	Funding Source	Notes
New York	NY-Sun Megawatt Block Program	**Direct Financial Incentive**	Adder- Capacity Based	Rooftops, Parking canopies, brownfield/landfill, floating	**No**	Clean Energy Fund *-Statewide non-bypassable charges on customer bills* RGGI Auction Revenue	Capacity Based Feed-in Tariff totaling $2.1 billion $0.15/w for brownfields and floating. Additional adders/credits available for community solar.
Massachusetts	Solar Massachusetts Renewable Target (SMART) Program	**Direct Financial Incentive**	Adder- Generation Based	Rooftops, Brownfield, Landfill, Parking Canopy, Agricultural, Floating, Pollinator, Community Shared	**No**	Distributed Solar Charge *-Non-bypassable charge on customer bills*	Compensation based on kwh similar to SRECs in annual blocks. Adders for specific location based criteria. Greenfield subtractor
Maryland	FY 24 Solar Canopy and Dual Use Technology Grant Program	**Direct Financial Incentive**	Grant Program	Parking Lots, Floating	**No**	Strategic Energy Investment Fund *-RGGI Auction Revenue* *-Alternative Compliance Revenue Payments*	$1,400,000 in total funds
Rhode Island	Brownfields Solar PV Program	**Direct Financial Incentive**	Grant Program	Brownfields	**No**	Renewable Energy Fund *-Charges on customer bills* *-Alternative Compliance Payments* *-RGGI Auction Revenues*	Grant fund for any solar on a brownfield. Total budget = ~$5,000,000
Washington	Community Solar Expansion Program Incentives	**Direct Financial Incentive**	Grant Program	Rooftops, landfills, brownfields, water, dual-use	**Yes**	State of Washington General Fund	General fund of $100 million. Projects cannot be larger than 199 kw and must be on a preferred location to qualify for incentive payment
New Jersey	Dual Use Solar Energy Pilot Program	**Direct Financial Incentive**	Adder- Generation Based (SREC)	Dual-Use Agriculture	**No**	Non-bypassable charge on customer bills	SREC-II adder as determined by NJ BPU
New Jersey	Successor Solar Incentive Program	**Direct Financial Incentive**	Adder- Generation Based (SREC)	Rooftop, Carport, Canopy, Floating Solar	**No**	Non-bypassable charge on customer bills	Higher solar renewable energy certificate prices for landfill & brownfield (& historic fill) projects
Maryland	Brighter Tomorrow Act	**Direct Financial Incentive**	Adder- Generation Based (SREC)	Rooftop, Parking Canopy, Brownfield	**No**	Non-bypassable charge on customer bills	Projects up to 5 MW on eligible sites placed in service between July 1, 2024 and January 1, 2028 will have SRECs with a 150% compliance value

APPENDIX A – INCENTIVE EXAMPLES IN OTHER STATES

Community Solar / Shared Solar Program Design Incentives

State	Program	Policy Type	Details	Categories	Specific to Community/ Shared Solar	Funding Source	Notes
Illinois	Illinois SHINES	**Project Selection Preference**	Preferential Scoring Criteria (All Projects)	Rooftops, Contaminated Lands, Brownfield, Agrivoltaics, Pollinator	**Yes**	N/A	Included in scoring criteria for REC purchases application for all projects in annual blocks (MW)
Minnesota	Prioritization Scoring Rubric for Excess Projects	**Project Selection Preference**	Preferential Scoring Criteria (Only if full)	Nongreenfield site; rooftop, carport, landfill, etc. Resiliency Benefits: Agrivoltaics	**Yes**	N/A	If project list exceeds the annual 100 MW cap, then the scoring prioritization is used for a more scrutinized selection.
New Mexico	PNM Competitive Selection of Community Solar Facilities	**Project Selection Preference**	Preferential Scoring Criteria (All)	Brownfield, Rooftop, Built Environment	**Yes**	N/A	Awarded two additional points in competitive bid application.
Connecticut	Statewide Shared Clean Energy Facility (SCEF) Bid-Preference	**Project Selection Preference**	Preferential Scoring Criteria (All)	Brownfields, landfills, canopies (and potentially agrivoltaics)	**Yes**	N/A	20% bid preference for brownfields or landfills and 30% bid preference for solar canopies
Colorado	SB24-207 - 2024	**Program Design**	Colocation Exemption, Preferential Scoring Criteria (Only if full)	Rooftop, Parking Lot, Brownfield, Previously Disturbed Site, Agrivoltaics = "Preferred Location"	**Yes**	N/A	A community solar facility on a preferred site may be 10 MW instead of 5 MW. If annual capacity is exceeded, IOUs should prioritize community solar facilities on preferred locations.
Maryland	HB 908 - 2023	**Program Design**	Colocation Exemption	Agrivoltaics, Rooftop, Brownfield, Landfill, Parking Lots	**Yes**	N/A	Projects can be collocated and up to 10 MW as opposed to just 5 MW.
Pennsylvania	HB 1842 - 2024 (Proposed)	**Program Design**	Colocation Exemption	Brownfield, Rooftop	**Yes**	N/A	Projects can be up to 20 MW and collocated, instead of just 5 MW
New Jersey	Community Solar Energy Program (CSEP)	**Program Design**	Mandate	Rooftops, carports, contaminated sites, landfills, bodies of water	**Yes**	N/A	Community solar projects only permitted on these specific preferential sites
Maryland	Community Solar Pilot Program - SBO Carveout	**Program Design**	Carveout	Brownfields, Rooftops, Parking Structures, Landfills	**Yes**	N/A	Small, Brownfields, and Other (SBO) 30% carveout of capacity reserved specifically for SBO projects. Also includes projects less than 500 Kw.

APPENDIX A – INCENTIVE EXAMPLES IN OTHER STATES

Tax Exemption Incentives

State	Program	Policy Type	Details	Categories	Specific to Community/ Shared Solar	Funding Source	Notes
Maryland	HB 1039 - 2022	**Tax Exemption**	Property Tax Exemption	Agrivoltaics, Rooftop, Brownfield, Landfill	**Yes**	N/A	Community solar projects are 100% exempt from property tax if located on eligible generation sites
Maryland	SB 281 - 2020	**Tax Exemption**	Franchise Tax Exemption	Rooftops, Parking Lots, Landfills, Brownfields, Reclaimed Mines	**No**	N/A	Company does not pay a franchise tax if the project is sited on an "eligible generation site".
New Jersey	Dual Use Solar Energy Pilot Program (Straw Proposal)	**Tax Exemption**	Tax Assessment	Dual-Use	**No**	N/A	Maintain state farmland tax assessment if it is a dual-use agricultural facility

APPENDIX B

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September 27, 2024

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CC: Shared Solar Incentives Work Group Participants

Summit Ridge Energy (SRE) thanks the Department of Energy (the Department) for facilitating the Shared Solar Incentives Work Group and for the opportunity provide comments

Background

Headquartered in Arlington, Virginia, Summit Ridge Energy is the market leader in our home state with over 100 megawatts of Shared Solar projects in our development pipeline. With this continued investment in the Commonwealth, we are excited to stimulate additional economic growth while helping our home state support their decarbonization goals.

Our projects span from Virginia's southernmost border up to the Richmond and the D.C. metropolitan areas. These locally sited projects will generate enough power to lower the energy bills for thousands of our customers and incentivize equitable access to clean energy for Virginia families.

These projects make up an investment of over $250 million in Virginia that will provide more than 1,000 jobs for construction workers, vendors, and local businesses.

Across the country, Summit Ridge Energy has deployed over $1.6 billion into clean energy assets in the rapidly growing commercial solar and battery storage sectors. With a development pipeline of more than 2 gigawatts, Summit Ridge Energy will have more than 400 megawatts of projects online by the end of 2024, providing solar power to 50,000 homes and businesses.

Outside of Virginia, Summit Ridge Energy has successfully developed numerous rooftop solar arrays. This includes the nation's largest rooftop community or shared solar project in

Hampstead, Maryland that is spread across 23 acres and provides 1,300 Maryland households and businesses with solar energy savings.

Through our development experience working on a wide range of project types, we have the necessary experience to answer the questions provided to the workgroup on what Virginia could do to help incentivize development on preferred sites.

Impactful incentive structure for Shared Solar

Virginia's Shared Solar Program currently has 200 megawatts of available capacity with a waitlist for development opportunities. During the 2024 legislative session, the Legislature granted the State Corporation Commission the option to expand the program by an additional 150 megawatts. Compared to other state programs, Virginia has a limited program capacity size where carveouts would not effectively drive policy change.

Virginia can provide options for developers to clear the hurdle to building more difficult projects. One state to consider is Maryland who has similar siting challenges and local jurisdictional opposition to solar siting to the Commonwealth. Maryland has made program changes, provided financial incentives, and made tax exemption changes to encourage rooftop development.

In Maryland, projects can be collocated on preferred sites adding economies of scale and allowing developers to utilize more of the built environment space. This includes 10 megawatts capacity colocation for agrivoltaics, 15 megawatts colocation for brownfields and landfills, and unlimited colocation on commercial rooftops which are naturally constrained by the size of the roof. These projects will also have access to SRECs with a 150% compliance value. Lastly, shared solar sized projects are 100% exempt from property tax if located on sites.

Together this creative design has helped Summit Ridge build rooftop projects in the state with minimal impact to ratepayers or the tax base. SRE recommends establishing a similar preferred site incentive structure for the Commonwealth by leveraging renewable energy credits as an asset and encourage market behavior through economies of scale.

Project viability for preferred sites without additional incentives

With the current 200 megawatts of available capacity in the Dominion program already allocated, developers are waiting for the release of the additional capacity in the expansion legislation 2024 HB 106/SB 253. The uncertainty in the program capacity, updates to the minimum bill, and loss of the financial value of the RECs in the new legislation have made these more difficult to build and finance projects less of an option.

Siting-based incentives specific to shared solar

Shared Solar is one source of renewable energy that can be built on preferred sites such as rooftops, brownfields, and landfills. Shared Solar is not the only category of projects who could benefit from incentives for preferred siting opportunities and such incentives should be a policy decision for the state to consider. However, 2024 HB 106/SB 253 explicitly created the Shared Solar Incentives Work Group to examine incentive recommendations and funding opportunities.

SRE strongly recommends the work of this Work Group should be limited to the Shared Solar Program.

The Department's recommendations from the Work Group will establish market mechanisms to achieve the Commonwealth's policy objectives for 2024 HB 106/SB 253 and provide a blueprint for preferred siting for other energy sectors.

Data on project costs of solar on rooftops, landfills, rooftops, or dual-use agriculture

In the matter of being cautious of antitrust concerns we want to be careful in providing the workgroup with the requested information without giving out key specifics regarding project financing. Below is a list of estimated percentages that reflect the development differences between ground mounted arrays and rooftop systems for projects located in Virginia.

20-25% Decrease - Yield for Rooftop Systems

Ground mounted systems are more efficient at capturing sunlight because they can more easily be positioned to capture sunlight throughout the day than a fixed surface roof. Roof orientation, ability to maximize the tilt of panels, and problems with roof pitches can all factor into a decrease in comparable yield.

40-50% Increase - Engineering, Procurement, and Construction (EPC) Costs for Rooftop Systems

Rooftop projects need additional engineering review due to changes between roofs in structural integrity, load-bearing capacity, and orientation. Each design must be tailored to the specific layout of the roof while prioritizing panel placement for maximum yield. Additionally, many projects will need more support mechanisms for weight and require HVAC systems and other utilities to be moved.

Together these changes increase the costs for engineering, procurement, and construction in the project financing calculation.

10-15x Increase – Rooftop Lease Rates

Lease terms for ground mounted projects line up well with the life span of the solar panels. A typical ground mounted project has a lease with the local landowner for between 25-40 years. Building owners who are interested in leasing rooftops prefer shorter lease durations due to the solar project not being the primary use of the structure. The shorter lease timeline greatly affects the financing and associated costs with rooftop systems due to the uncertainty on the payback window.

Developer Benefits for Rooftop Projects

Though each of these factors negatively affects the financial model for rooftop projects, it is important to note the benefits of rooftop projects to developers as well. Our team has noticed a recognizable decrease in the time and costs for permitting rooftop projects compared to greenfield ground mount developments. Additionally, interconnection costs, which are rising rapidly across the industry, are typically less for rooftop projects.

Federal Tax Credits

The federal investment tax credit (ITC) is the primary tax credit available to Shared Solar developers. The ITC reduces the federal income tax liability for a percentage of the cost of a solar system that is installed during the tax year. The ITC does not make considerations to preferred siting between ground-mounted projects on agriculture land or other project types. Additionally, the ITC does not distinguish between smaller projects like the 5 megawatts capped Shared Solar size and larger utility scale developments. The ITC assists developers in financing projects, but further guidance and assistance from states can help drive where these developments occur. Many states have created their own incentives to help steer these projects to the built environment like rooftops or hard to develop locations like brownfields or landfills.

Federal Tax Incentive Qualification

Summit Ridge Energy recommends, at a minimum, projects be eligible for additional state incentives developers should first qualify and utilize existing federal funds including the 30% federal ITC. This will also assist the Commonwealth in screening viability of projects for state level incentives.

Summit Ridge would also support the minimum threshold being placed at 40% ITC, with the domestic content bonus credit available for projects built with certain percentages of components manufactured in the United States. This additional level supports an investment in the American workforce and supply chain with benefits to the Commonwealth.

Preferred sites and the project registration process

For the Dominion Shared Solar Program, Dominion keeps a publicly available list online of projects awarded capacity and projects on the waitlist. This list includes important information including project applicant name, project location, project capacity rating, amount of capacity allocated to low-income customers, and date of project acceptance in program.

Summit Ridge Energy would support a recommendation that adds preferred site status to this registration process, making this information available to the public. We recommend the Appalachian Power Company program have the same list.

Dual-use agricultural solar facilities and agricultural productivity

Summit Ridge Energy believes the intent of agrivoltaics is to keep agriculture land in production while simultaneously generating solar energy. SRE strongly believe that this technology is farmer centric and should be designed as such.

Thus, SRE believes the definition should be the complete integration of crops under and around the solar array. Incentives can help the farmer adapt their growing practices to this new technology while also assisting the developer offset increased system costs for raised panels and other changes.

Desired outcomes of incentives for shared solar projects in Virginia

Summit Ridge Energy recommends targeted investment and economic development in preferred locations with reuse potential.

Type of incentive that are most impactful in driving more siting on preferred sites

Summit Ride Energy strongly recommends financial incentives, economies of scale through co-location and tax exemptions.

Best sources of data for potential inputs into a model to determine cost-based incentives

Summit Ridge Energy strongly recommends using publicly available data from The National Renewable Energy Laboratory (NREL), National Community Solar Partnership (NCSP), United State Energy Information Administration (EIA) data, and other relevant information published by the United State Department of Energy.

Category definitions should be limited to siting-specific variables

Summit Ridge Energy would support a recommendation for capacity buckets based off preferred siting types. It is important to note that the limited program size in Virgina under the current program makes this a less viable option at the moment. Still, if the Legislature decides in the future to expand the program based off the benefits to the Commonwealth, these capacity buckets would be a helpful policy tool incentive.

Respectfully submitted,

Summit Ridge Energy, LLC

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VIA E-MAIL

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RE: Virginia Energy Public Comment Opportunity – Incentives for Shared Solar Projects

Dear Mr. Berryhill:

The Southern Environmental Law Center ("SELC") offers the following comments to the Virginia Department of Energy ("Department") as it prepares a report pursuant to HB 106, HB 108, SB 253, and SB 255 from the 2024 General Assembly on potential incentives for shared solar projects that make use of rooftops, brownfields, landfills, dual-use agriculture, or meet the definition of another category established by the Department. In particular, we encourage the Department to establish "previously developed project sites," as defined in Virginia Code § 56-585.5 as another category eligible for shared solar incentives. By incentivizing shared solar on these previously developed lands, Virginia has an unprecedented opportunity to reenergize its economy and implement environmentally sustainable solutions that increase access to clean energy benefits without placing an outsized burden on other important natural resources.

Purpose of Incentives

The Department should consider a wide-range of shared solar incentives to maximize the total development potential for the shared solar program, target investment and economic development in preferred locations with reuse potential, and create bill savings for subscribers.

Incentivizing shared solar development on previous disturbed and developed lands will extend access to solar energy to more Virginians while avoiding adverse impacts to forests, prime agricultural lands, and other natural resources.

Types of Incentives

There are several different types of incentives that may be impactful in helping to achieve these goals. Financial incentives encourage development by reducing costs for projects located at preferred cites. Most financial incentives for projects located on preferred sites reduce project costs over the lifetime of the project. These long-term financial incentives can take the form of an explicit dollar amount per kilowatt of energy produced, an enhanced solar renewable energy certificate ("SREC") value for projects located on preferred sites, or a capacity-based adder that provides an explicit dollar amount per kilowatt of nameplate capacity. Financial incentives can also encourage siting on preferred sites by reducing up-front costs (e.g., project-specific grant funds or loan financing).

Incentives could also take another form, like a carveout target for projects located on certain preferred sites (e.g., at least 5 megawatts of program capacity must be developed on landfills). This non-financial incentive would allow the Department to target development on certain preferred sites that may be more challenging due to upfront costs. Upfront costs can also be reduced by providing direct technical assistance, siting and project development tools, and other hands-on resources.

At the federal level, the Inflation Reduction Act ("IRA") contains stackable tax credits that can add up to huge incentives for shared solar projects. For new shared solar projects, leveraging private capital will likely involve assessing the IRA's tax-based incentives, including the

investment tax credit ("ITC") and production tax credit ("PTC"). All new solar projects are eligible for either the ITC or PTC, but not both.

The ITC is an upfront tax credit equal to 30% of the project's cost, assuming prevailing wage and apprenticeship requirements are met.[1] This credit can reach up to 70% of the project's cost with stackable credit bonuses. Projects built with domestically manufactured materials are eligible for an additional 10% bonus,[2] projects located in "energy communities" like those located within brownfields or former coal mines can receive another 10% bonus,[3] and projects located in low-income communities are eligible for an additional 10–20% bonus.[4]

The PTC is a ten-year, generation-based tax credit with similar, stackable bonuses for domestic content and projects located in "energy communities."[5] Maximizing these financial incentives will lower the overall costs of a shared solar project, allow more savings to be passed on to shared solar participants, and could also enable higher low- and moderate-income customer participation. Unfortunately, some potential shared solar projects may have trouble qualifying for these bonus credits. To equitably and effectively expand the Commonwealth's shared solar program, projects should not be required to qualify for federal tax credits or bonuses to be able to access state incentives. However, the Department should incentivize projects to maximize federal tax credits by providing resources, training, and other expert capacity, when appropriate.

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[1] I.R.C. §§ 48, 48E. Projects 1 megawatt or larger that do not satisfy prevailing wage and apprenticeship requirements are only eligible for a 6% ITC and receive reduced tax credit bonuses.
[2] *Id.* §§ 48(a)(12), 48E(a)(3)(B).
[3] *Id.* §§ 45(b)(11)(B), 48(a)(14), 48E(a)(3)(A).
[4] *Id.* §§ 48(e), 48E(h).
[5] *Id.* §§ 45, 45Y. The credit amount for the PTC is adjusted for inflation annually and has not been determined for solar energy for calendar year 2024. Credit for Renewable Electricity Production and Publication of Inflation Adjustment Factor and Reference Price for Calendar Year 2024, 89 Fed. Reg. 56924 (July 11, 2024). Projects 1 megawatt or larger that do not satisfy prevailing wage and apprenticeship requirements receive a reduced PTC.

Incentives for Preferred Sites

Under subsection B 8 of the shared solar laws, "projects shall be entitled to receive incentives when they are located on rooftops, brownfields, or landfills, are dual-use agricultural facilities, or meet the definition of another category established by the Department of Energy."[6] The sections below discuss incentives that may be impactful in driving shared solar siting for each of these preferred site categories. The Department should consider a suite of different incentives for each category of preferred sites, as developers are likely to find certain incentives more appealing than others depending on the project's location, financing structure, and ownership model.

As mentioned above, the Department should also consider incentives for shared solar located on "previously disturbed project sites." As defined in the Virginia Code, this category includes parking lots, parking lot canopies, former mine lands, and quarries in addition to brownfields and landfills.[7] Expanding shared solar incentives to all types of "previously disturbed project sites" is consistent with the Virginia Clean Economy Act's requirement for Dominion to build at least 200 megawatts of renewable energy on "previously disturbed projects sites" by 2035.[8]

1. Rooftops

Virginia Code defines a "rooftop solar installation" as "a distributed electric generation facility, storage facility, or generation and storage facility utilizing energy derived from sunlight, with a rated capacity of not less than 50 kilowatts, that is installed on the roof structure of an incumbent electric utility's commercial or industrial class customer, including host sites on

[6] Va. Code §§ 56-594.3 B 8, 56-594.4 B 8.
[7] *Id.* § 56-585.5.
[8] *Id.* § 56-585.5 D.

commercial buildings, multifamily residential buildings, school or university buildings, and buildings of a church or religious body."[9] While this definition presents significant potential for rooftop shared solar, rooftop projects are usually more expensive to build on a per-watt basis than comparable ground-mounted projects.[10] In many cases, this results in higher prevailing wage requirements, construction costs, and leasing rates. However, because they are close to populated areas, and therefore close to load, these systems still provide an important mix of benefits. [11]

Financial incentives that reduce the up-front project costs or provide continuous benefits would be the most impactful for driving rooftop siting (e.g., Illinois Adjustable Block Program's Community Solar Rooftop Adder).[12] The Department should also consider incentives that would encourage property owners to lease their rooftops for community solar.[13] Similar incentives would be helpful for shared solar on other forms of built infrastructure that fit within the definition of "previously developed project sites," including parking lots and parking lot canopies.[14]

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[9] *Id.* § 56-576.

[10] *See Solar Installed System Cost Analysis*, National Renewable Energy Laboratory, https://www nrel.gov/solar/market-research-analysis/solar-installed-system-cost html (showing residential solar at an average of $2.70 per watt versus utility-scale solar at an average of $1.20 per watt).

[11] *Analysis of the Incremental Value of Rooftop Community Solar + Storage in California*, The Brattle Group (June 6, 2023), https://drive.google.com/file/d/1lb6vXDhEyTg-TDjmJ3pwsA0Yx4T7bX9n/view.

[12] Illinois Shines (Adjustable Block Program), Program Guidebook, Ill. Power Agency (Mar. 13, 2024), https://illinoisshines.com/wp-content/uploads/2024/03/CLEAN-PY-2024-25-Shines-Program-Guidebook_March_13_2024-1.pdf.

[13] *See* 2024 Va. Acts Ch. 783 (authorizing eligible customer generators in the net metering program to enter into lease agreements).

[14] *See, e.g.*, Maryland Solar Canopy and Dual Use Technology Grant Program ($0.80 per watt for canopy mounted or floating solar PV), https://energy.maryland.gov/business/SiteAssets/Pages/incentives/PVEVprogram/FY25%20Solar%20Canopy%20FOA.pdf; New York NY-Sun Megawatt Block Program ($0.20 per watt for canopy mounted solar), https://www nyserda.ny.gov/All-Programs/NY-Sun/Contractors/Dashboards-and-incentives/ConEd-Dashboard; Massachusetts SMART Adders ($0.06 per kilowatt-hour for canopy mounted solar), https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fmasmartsolar.com%2F_%2Fdocuments%2FCapacity-Block-Base-Compensation-Rate--Compensation-Rate-Adder-Guideline.xlsx&wdOrigin=BROWSELINK.

2. Brownfields

Virginia Code defines a brownfield as "real property; the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant."[15] Solar development on brownfields often incurs higher upfront costs because of the need for site assessment, decontamination, and potential remediation of pollutants. These steps can delay the start of project construction and increase financial risk. Financial incentives that target these upfront costs and federal tax credits can help lower the cost burden of solar brownfield projects.[16] However, given the small size of the program, a brownfield carveout would be the most impactful incentive in driving shared solar siting on these preferred sites. Additional flexibility within program registration for these projects could also encourage siting on brownfields, as the complexity, costs, and length of the siting process can be barriers.

With respect to financial incentives, Enactment Clause 2 of the 2024 legislative changes to the shared solar program requires Virginia Energy to "give special consideration to projects seeking to leverage funding from the Virginia Brownfield and Coal Mine Renewable Energy Grant Fund and Program established pursuant to Article 7 (§ 45.2-1725) of Chapter 17 of Title 45.2 of the Code of Virginia." While this grant program has never received funding, it was meant to provide funds to restore and redevelop contaminated sites like brownfields and former coal mines for renewable energy. When funded, project-specific grant programs can be an impactful way of driving solar siting on brownfields or former coal mines, as they reduce upfront project costs.

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[15] Va. Code § 10.1-1230.

[16] For example, the New Jersey Brownfields Redevelopment Incentive Program provides a state tax credit for 80% brownfield remediation costs, up to a maximum of $12 million for projects located in qualified incentive tracts or government-restricted municipalities and up to a maximum of $8 million for projects located elsewhere. *Brownfields Redevelopment Incentive Program*, N.J. Econ. Dev. Auth., https://www njeda.gov/brownfield-redevelopment-incentive/.

The Virginia Brownfield program provides a $500 per kilowatt adder for projects on "previously coal mined lands" ($10 million project cap) and a $100 per kilowatt adder for projects on brownfields ($5 million project cap).[17] The maximum allocation of funding for this program is $35 million per year, of which $20 million is reserved for coal mine projects.[18] However, if less than $20M is actually distributed to coal mine projects, the rest can go to brownfield projects. Increasing the direct financial incentive and program cap for brownfields would accelerate cost-effective shared solar on these previously developed project sites should the program receive funding. States with the most impactful incentives have uncapped programs and offer significantly higher incentives than Virginia.[19]

3. Landfills

While Virginia Code does not specifically define "landfills," they are considered "brownfields" and "previously disturbed sites" under Virginia law. The primary challenge to landfill solar is cost. Unlike other solar projects, landfill solar projects need to be ballasted and not post-driven to avoid piercing the landfill cap.[20] The concrete ballast blocks add to the project costs, especially with the cost of concrete having increased more than 10% in both 2022 and 2023.[21] Landfill solar may also involve higher upfront costs due to the need for site assessment, decontamination, and remediation—including capping the landfill in some instances.

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[17] Va. Code § 45.2-1725 D; *see also* Virginia Energy, *Developing Renewable Energy and Energy Storage Facilities on Brownfields and Previously Coal Mined Lands in Virginia: A Handbook* 28 (2022), https://energy.virginia.gov/public/documents/Public%20Meetings/HB%201925%20Handbook_FINAL%20w%20Comments.pdf.

[18] Va. Code § 45.2-1725 D.

[19] *See* NYSERDA, NY-Sun Update + Long Island Program Manual 18 (Apr. 2024) (New York $0.15 per watt adder), https://www nyserda.ny.gov/-/media/Project/Nyserda/Files/Programs/NY-Sun/Contractor-Resources/upstate-program-manual.pdf; Massachusetts SMART adders, *supra* note 14 ($0.03 per kilowatt-hour adder).

[20] *The Rise of Landfill Solar Project Development: Q&A with CEP Renewables*, Solar Power World (Oct. 26, 2023), https://www.solarpowerworldonline.com/2023/10/the-rise-of-landfill-solar-project-development-qa-with-cep-renewables/.

[21] *How Soaring Prices for Building Materials Impact Housing*, National Association of Home Builders (July 26, 2024), https://www nahb.org/blog/2024/07/how-soaring-prices-building-materials-impact-housing.

Financial incentives that reduce these upfront costs are the most impactful in driving shared solar siting on these preferred sites. This could include a state tax credit similar to New Jersey's Brownfields Redevelopment Incentive Program, which provides solar projects located on uncapped landfills a one-time transferrable tax credit equal to 100% of the costs of remediating and capping the landfill.[22] Credits awarded for the rehabilitation of properties located in qualified incentive tracts or government-restricted municipalities are increased to 60% of the cost of rehabilitation, up to a maximum of $12 million.[23] Credits awarded for the rehabilitation of other qualified properties—other than a transformative project—are increased to 50% of the cost of rehabilitation, up to a maximum of $8 million.[24] Long-term financial incentives, such as generation-based adders, are also impactful.[25]

4. Dual-use agriculture facilities

Virginia Code defines "dual-use agricultural facility" as "agricultural production and electricity production from solar photovoltaic panels occurring simultaneously on the same property" for the purposes of the shared solar program.[26] The Code further defines "agricultural production as "the production for commercial purposes of crops, livestock and livestock products, and includes the processing or retail sales by the producer of crops, livestock or livestock products which are produced on the parcel or in the district."[27]

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[22] *Brownfields Redevelopment Incentive Program*, N.J. Econ. Dev. Auth., https://www.njeda.gov/brownfield-redevelopment-incentive/.
[23] *Id.*
[24] *Id.*
[25] *E.g.*, Massachusetts ($0.04 per kilowatt-hour adder).
[26] Va. Code §§ 56-594.3, 594.4.
[27] *Id.* § 15.2-4302; *see also id.* (defining "[a]gricultural products" as "crops, livestock and livestock products, including but not limited to: field crops, fruits, vegetables, horticultural specialties, cattle, sheep, hogs, goats, horses, poultry, furbearing animals, milk, eggs and furs.").

September 27, 2024

Aaron Berryhill
Solar Program Manager
Virginia Department of Energy
aaron.berryhill@energy.virginia.gov

Dear Aaron Berryhill,

I hope this finds you well before the weekend. Please see comments below from Virginia Farm Bureau in reference to the public comment opportunity – incentives for shared solar projects (Virginia Regulatory Town Hall View General Notice).

On behalf of 34,000 producer members of the Virginia Farm Bureau Federation, we support more Virginia based research on the economic viability of agrivoltaics and more information or demonstration sites being made available to landowners. When siting shared solar projects, we believe they should not be located on prime farmland. Farmers should be an equal part of the planning team from the beginning to have successful true dual use agrivoltaics projects. If agrivoltaics are pursued, then we suggest a working group should be convened to develop the definition for any regulatory incentives and ultimately, such definition should be codified in Virginia statute. Such a working group should include faculty from Virginia Tech, agricultural and forestry groups and professionals currently working in the Virginia agriculture industry. The use of sheep or another type of grazing animal (ex. cattle) as grass/weed management without the production and sale of an agricultural product (i.e. meat, wool, etc.) should not qualify for any incentive under agrivoltaics. These actions above can help guide policy and decision making related to incentives for shared solar projects in the space of agrivoltaics or dual-use agriculture. Our policy positions support incentives for the farmer in utilizing solar for their individual use or through some type of shared solar arrangement to augment their farming operation. We don't support incentives for utility scale solar facilities.

Virginia Farm Bureau also supports incentives for solar projects sited on rooftops, brownfields, and landfills. We believe that these incentives should be significant enough to drive the further development of solar to these types of sites to further disincentive the taking of farm and forestland.

Please let me know if you have any questions. Thank you for the opportunity to participate in the workgroup and for all your time devoted to this topic.

Sincerely,

Rachel Henley

Rachel Henley

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In designing incentives to drive shared solar siting on dual-use agricultural facilities, we urge the Department to be as flexible with these definitions as possible. Letting land lie fallow is a productive use of agricultural land that is important for crop yields and compatible with solar energy. Incentives for dual-use agricultures should not discourage this co-location practice with restrictive yield or productivity requirements. Additionally, there are many nonprofit, educational, and community-based subsistence farms that may not produce enough to meet standards based on what is produced for commercial purposes. These farmers are often more interested in agrivoltaic projects than commercial farmers, as they have more flexibility with how their property is used. If there is a policy-based interest in targeting development on existing, commercial farms, the Department could consider tiering financial incentive amounts, or providing additional policy-based incentives for projects located on existing commercial farmland (e.g., direct technical assistance or educational materials).

Conclusion

As it contemplates incentives for projects on rooftops, brownfields, landfills, dual-use agricultural facilities, and other previously disturbed sites, the Department has an unprecedented opportunity to help steer the deployment of shared solar projects in a way that can avoid impacts to important natural resources. SELC appreciates the opportunity to submit comments on this important matter.

Regards,

e wellbaum

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COMMENTS REGARDING AMENDING REGULATIONS GOVERNING SHARED SOLAR PROGRAMS BY SYNERGEN SOLAR, LLC

SynerGen greatly appreciates the opportunity to provide comments for incentivizing solar development on preferred sites.

SynerGen Solar, LLC is a solar development company headquartered in Baltimore, MD that is focused on developing shared solar and other renewable energy projects in select states across the nation. SynerGen is a member of the Net Metering Working Group of the Maryland Public Service Commission and has actively participated in Working Group proceedings to help structure the State of Maryland's community solar pilot program. SynerGen developed the largest ground-mount community solar project to date in the State of Maryland's Community Solar Pilot Program, a 5 MW_{AC} solar facility located on 25 acres of an 89-acre closed landfill. The project was awarded Project of the Year in 2019 by MDV-SEIA (Maryland/DC/Virginia Solar Energy Industry Association), which is now known as CHESSA (Chesapeake Solar & Storage Association), and was one of two solar projects in the state of Maryland selected by the Maryland Department of Planning as a case study for successful solar siting and development. SynerGen is actively developing numerous other shared solar and utility-scale projects and currently has close to half a gigawatt of solar projects at various stages of development across the nation.

Section B.8. of § 56-594.3 of the Code of Virginia mandates that "Projects *shall* (emphasis added) be entitled to receive incentives when they are located on rooftops, brownfields, or landfills, are dual-use agricultural facilities, or meet the definition of another category established by the Department of Energy pursuant to this section." The current rules governing the shared solar program in 20VAC5-340 (the "Rules") do not contain provisions for any incentives for projects that are located on rooftops, brownfields, or landfills, that are dual-use agricultural facilities, or that meet the definition of another category established by the Department of Energy pursuant to this section ("Preferred Site"). Thus, SynerGen strongly supports Commission Staff's currently proposed amendment to add a newly proposed Sub-section I in Section 40 of the Rules adding such a provision to the Rules. The inclusion of this provision serves to bring the Rules in line with the aforementioned Code of Virginia so that the Commission complies with its legislative mandate. The proposed language reads:

I. Certain shared solar program projects shall be entitled to receive incentives, as established by the Virginia Department of Energy, when they are located on rooftops, brownfields, or landfills, are dual-use agricultural facilities, or meet the definition of another category established by the Department of Energy.

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SynerGen would like to propose two specific non-financial policy mechanisms that the Commission could use to incentivize shared solar projects on Preferred Sites:

1. **Program Capacity Carve-out for Preferred Sites**

   The Commission should allocate a portion of overall program capacity in the Shared Solar Program to a Preferred Sites category for a pre-defined term. SynerGen recommends allocating 30% of overall program capacity for a two-year term. At the end of the term, any unused capacity remaining in the Preferred Sites category shall be re-allocated out of the Preferred Sites category back into the "Open" category and made available to all projects, whether on a Preferred Site or a non-Preferred Site.

2. **Co-location Exemption for Preferred Sites**

   Subsection C (Subsection D of Commission Staff's currently proposed amended Rules) of Section 10 of the Rules limits colocation to a cumulative capacity of 5,000 kilowatts among all colocated facilities. The Commission should exempt Preferred Sites from this limitation for the simple reason that we should not be trying to limit development at any single location if that location is a Preferred Site. By definition, the very fact that the site is preferred should inherently justify maximizing the extent of development at that site and not subject it to colocation restrictions. Alternatively, the Commission could consider allowing a limited colocation exemption up to an increased cumulative capacity for Preferred Sites. In this scenario, SynerGen would recommend using a colocation exemption up to 25,000 kilowatts since most projects interconnecting at the distribution level will usually have interconnection limitations above 25,000 kilowatts.

The aforementioned policy mechanisms substantially mirror Maryland's community solar pilot program, which was a limited capacity program until a permanent program was established and carved out a 30% program category reserved substantially for brownfields, landfills, clean rubble fills, rooftops and parking lots and also contained colocation exemption provisions for such sites[1].

In addition to the aforementioned Preferred Sites policy incentives, SynerGen also proposes to maintain the 36-month extended substantial completion deadline for projects on a brownfield, landfill, mine or quarry because projects on these sites typically take longer to develop due to increased investor due diligence and regulatory permitting requirements. Commission Staff's currently proposed amendment reduces the post-deposit deadline extension from 12 months to 4 months. SynerGen agrees with

[1] See COMAR 20.62.02.02.A(3) at https://dsd.maryland.gov/regulations/Pages/20.62.02.02.aspx and COMAR 20.62.03.08.B at https://dsd.maryland.gov/regulations/Pages/20.62.03.08.aspx.

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Commission Staff's proposed amendment for other projects, however, given the longer development timeline for projects on a brownfield, landfill, mine or quarry, SynerGen respectfully requests that the original 12-month extension be maintained for these projects.

SynerGen has also included:

1. Attachment A - a redlined markup of Commission Staff's proposed amendments that includes potential language incorporating into the amended Rules the aforementioned discussion; and
2. Attachment B - Responses to specific questions discussed during various Work Group meetings over the past few months.

SynerGen Solar appreciates the opportunity to provide these comments.

Respectfully Submitted By,

/s/ Hillel Halberstam, electronically signed
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