

# VIRGINIA CLEAN ENERGY ADVISORY BOARD

## MEETING AGENDA

December 15, 2021 (Wednesday)

3:00 – 5:00 pm

**Libbie Mill -- Henrico County Public Library**  
2100 Libbie Lake E St, Richmond, VA 23230, USA

**\*\*Meeting will be held in-person and open to the Public \*\***

*Virtual accommodations have also been arranged through Webex. See Page 2 for Details.*

Time	Topics	Speakers/Presenters
3:00 pm	Call to Order and Roll Call	Hannah Coman, Chair
3:05 pm	Board Member Introductions, Virginia Energy and Office of Attorney General Staff Introductions	Board, Virginia Energy Staff and OAG Staff
3:10 pm	Board Meeting Minutes Approval <ul style="list-style-type: none"><li>• <i>October 20, 2021 (In-person Meeting)</i></li><li>• <i>November 3, 2021 (IOU Consultations)</i></li><li>• <i>November 5, 2021 (Greenbank Meeting)</i></li><li>• <i>November 15, 2021 (LMI Solar Prog Update)</i></li></ul>	Hannah Coman, Chair Carrie Hearne, Staff
3:15 pm	Amend Bylaws and Board Mission statement reflecting Virginia Department of Energy's new name	Hannah Coman, Chair
3:20 pm	Committee Updates <ul style="list-style-type: none"><li>• Program Development Committee</li><li>• Stakeholder Engagement &amp; Marketing</li><li>• Policy &amp; Regulatory Committee</li></ul>	Committee Chairs Committee Members
3:25 – 3:45 pm	Virginia Energy – Virginia LMI Solar Pilot Program <i>Update on RFP Progress and Technical Assistance from Clean Energy States Alliance</i>	Carrie Hearne, Staff Wafa May Elamin, CESA
3:45 – 4:30 pm	Annual Report Review and Approval	Hannah Coman, Chair Carrie Hearne, Staff
4:30 – 4:45 pm	Public Comment	Members of the Public
4:45 pm	Discussion and Next Steps <i>Action Plan, Upcoming Meetings, Committees Strengthening relationship with General Assembly and new Administration</i>	Board and Staff
5:00 pm	Meeting Adjourn	Hannah Coman, Chair

**Code of Virginia Title 45.2. Mines and Mining  
Chapter 19. Clean Energy Advisory Board § 45.2-1913.**

*The Clean Energy Advisory Board (the Board) is established as an advisory board in the executive branch of state government. The purpose of the Board is to establish a pilot program for disbursing loans or rebates for the installation of solar energy infrastructure in low-income and moderate-income households.*

More information can be found at the Virginia Department of Mines, Minerals and Energy:  
<https://www.energy.virginia.gov/renewable-energy/CEAB.shtml>

**Clean Energy Advisory Board – Virtual Guest Participation Accommodations through Webex**

**For guest participation:**

<https://covaconf.webex.com/covaconf/j.php?MTID=m5bf04d1d305371945ec742d9a3422cdd>

Wednesday, Dec 15, 2021 3:00 pm | 2 hours | (UTC-05:00) Eastern Time (US & Canada)

Meeting number: 2438 745 8719

Password: VAEnergy1

Join by video system

Dial [24387458719@covaconf.webex.com](https://covaconf.webex.com/join/24387458719)

You can also dial 173.243.2.68 and enter your meeting number.

Join by phone +1-517-466-2023 US Toll +1-866-692-4530 US Toll Free Access code: 243 874 58719

**CLEAN ENERGY ADVISORY BOARD**  
**DRAFT MEETING MINUTES**  
**October 20th, 2021 (Wednesday)**  
**10:30AM – 12:00PM**  
**\*\*Meeting was open to the Public \*\***

Meeting Recording Found [here](#)  
CEAB website hosted at [energy.virginia.gov](http://energy.virginia.gov), direct link [here](#)

**Call to Order**

Chair Hannah Coman called the meeting to order at 10:35AM

**Roll Call**

KC Bleile - present, Taylor Brown - present, Sam Brumberg - present, Will Cleveland - present, Hannah Coman - present, Susan Kruse - present, Kendyl Crawley Crawford - present, William Greenleaf - present, Kirk Johnson - present, John Warren - present, Janaka Casper -present (electronic), Sarah Nerette - present (electronic)

Tony Ostrowski, Katharine Bond, William Reisinger were absent.

Janaka participated electronically due to a personal medical condition and Sarah participated electronically due to a personal matter and was out of town.

Quorum was met with the above present in person.

*Virginia Energy Staff:* Carrie Hearne, John Warren (Director), Larry Corkey, Aaron Berryhill, Bettina Bergoo (electronic)

*Office of Attorney General:* Grant Kronenberg

The meeting was held in-person with a hybrid electronic system via Webex. There were no objections to virtual participation for the above referenced Board members.

**Board Member Introductions**

The meeting began with a brief round of introductions of board members and others in attendance.

**Review Previous Meeting Minutes**

The meeting minutes from the previous meeting on July 21st, 2021 were reviewed. They were circulated on October 14th and posted online. Corrections were submitted:

- Change to reflect that Kirk Johnson was not present at the previous meeting

Sam Brumberg moved to adopt the meeting minutes, seconded by Taylor Brown. A vote was conducted with all votes in the affirmative. The motion carried; minutes approved.

### **Adoption of Electronic Meeting Minutes Policies**

Grant Kronenberg of the Office of the Attorney General presented for the Board's consideration two policies concerning electronic meetings of the Board and its committees. The first was the draft Policy on Individual Participation in Clean Energy Advisory Board Meetings by Electronic Means Pursuant to § 2.2-3708.2. Mr. Kronenberg explained that the draft policy amends the Board's current electronic meeting participation policy to reflect recent statutory changes, and he described the nature of those changes and the requirements contained in the draft policy. The second was the draft Policy on Meetings of the Clean Energy Advisory Board Pursuant to Enactment 17 of Chapter 1 of the 2021 Special Session II Acts of Assembly. Mr. Kronenberg explained the draft policy and the authority for its adoption.

Grant Kronenberg clarified that these new rules do not apply to meetings for informational purposes only. These new rules are in place for any meetings that will require a quorum where votes will be cast.

Motion by Sam Towell, and seconded by Sam Brumberg to adopt both of the electronic meeting policies. A vote was conducted with all votes in the affirmative. The motion carried and each of the electronic meeting policies were approved.

### **Virginia LMI Solar Pilot Program Update**

Carrie Hearne of Virginia Energy provided an overview of the Virginia LMI Solar Pilot Program. The program is at the phase of engaging with the Stakeholder Engagement and Marketing committee and working to identify target pilot markets to consider for the LMI Solar Pilot. Clean Energy States Alliance (CESA) has helped to identify at least 5 localities. Factors used to identify localities included: available property tax exemptions; percentage of LMI single family owner-occupied households; and commitment to 3 day review of solar projects for permitting (as represented through a SolSmart Gold designation) among other factors previously discussed.

The next step is to reach out to key stakeholders at localities, utilities, and community-based organizations to push this ahead. Localities under consideration at this time include: Wise County, Shenandoah County, City of Waynesboro, City of Franklin and Augusta County.

CESA is working on an RFP for Virginia Energy to review and bring to board by the end of the year.

### **Updates from Subcommittee Chairs**

*Program Committee:* William Greenleaf: No updates

*Policy and Regulatory Committee:* Sam Brumberg: Recently met in Charlottesville in September where the Committee sought to resolve two issues related to solar leases:

- Legality of solar leases: Based on internal review, solar leases appear to be legal
- Need for CPCN for net metering activities: Evidence points to the fact that no certification is necessary.

The committee is looking to receive written agreement from all utilities in Virginia in regards to these subjects. The committee will draft a memorandum to distribute to utilities to complete by the end of the year. It will include a clear response deadline by year's end.

*Questions:*

- Will the question to the utilities apply to all types of customers or just residential?

- Utilities should affirm that anyone eligible to net meter is eligible to use a solar lease to do so.
- Any initial outreach to utilities on their interest in solar leases?
  - Have spoken briefly with Dominion and Electric Cooperatives. Each is looking forward to responding to the memo.

*Stakeholder Engagement Marketing Committee:*

Hannah Coman: Have not met since last meeting, however the committee has a plan in place to conduct outreach in the five communities identified for a potential pilot program. Each of the Board members have been emailed to participate in stakeholder engagement tasks. A spreadsheet has also been created to collect information on interested stakeholders; Board members are encouraged to volunteer for this outreach effort.

This process of conducting a qualitative analysis to understand if a pilot program will be successful in each of these communities should be completed in the next three weeks. Board volunteers are asked to complete the spreadsheet by November 3rd. This information will be passed to CESA to fold input into the RFP design by the end of the year.

**Shared Solar Update**

Carrie Hearne and Hannah Coman provided an update of recent activities regarding shared solar programs. Virginia Energy recently facilitated 8-12 stakeholder meetings on the LI Shared Solar Program as required by the SCC. This is for the Shared Solar Program eligible for Dominion Customers (not multi-family shared solar).

Topics for the stakeholders meetings included PIPP (least resolved; needs to go back through PIPP group within SCC), low income verification and eligibility, and self-attestation. The Commission adopted all the previous recommendations and they are currently reviewing this round of recommendations.

Larry Corkey of Virginia Energy provided a summary of the minimum bill issue with shared solar. There is an ongoing question on what the minimum bill should be for customers enrolled in shared solar that impacts the viability of the program. There will be a hearing on November 18th with the SCC focused on the minimum bill limit. Virtual participation and public witness testimony is available. This minimum bill topic was not part of the working groups since low income customers would not be subject to a minimum bill.

Virginia Energy was recently awarded a Community Solar Leadership Award from the Coalition for Community Solar Access, relating to the above work.

*Questions:*

- In regards to multifamily shared solar, has Dominion filed a new tariff for this program?
- Has anyone tried to do multifamily shared solar in Virginia yet?
  - Virginia Energy is in consultation with NREL and Cliburn Energy to gather more information on this topic of multi-family shared solar. Need to follow up with more information on this topic
  - There have been some concerns from solar and MF housing developers about how the metering will work. Virginia Energy anticipates conducting further outreach to

understand what barriers still exist and what pathway provides an opportunity to participate.

## **2022 Legislative Agenda and Update on Green Bank Market Assessment**

Director Warren explained that Virginia Energy is working with the Governor's office on a legislative packet. More information will be provided on the packet and the Governor's priorities as it relates to clean energy financing and low-income financing programs, as information becomes available to share publicly. Virginia Energy, as an executive branch agency, works in service of the Governor's priorities.

Bettina Bergoo, the Energy Efficiency and Financing Programs Manager at Virginia Energy, provided a presentation on Green Banks and a market assessment for a statewide program. Green banks operate as a clean energy fund that are market responsive depending on where there is a need for renewable energy financing. Types of financing could include direct lending, credit enhancement, loan loss reserves, etc. While HB 1919 authorized localities to establish their own green banks, most do not seem to have the resources and staff to successfully implement a program of this scale. This is where a statewide program could support all areas of the Commonwealth.

Virginia Energy is currently exploring a market assessment of a statewide Green Bank fund to complement any local Green Bank Program that may arise. This assessment will include identifying sectors in the clean energy landscape that are most in need of financing.

In the future, a discussion is necessary to ensure that a Green Bank program would interact productively with the LMI Solar Fund. This means that the Clean Energy Advisory Board would be involved with a Green Bank Program since it has a similar mission as the LMI Solar Fund.

### *Questions:*

- If the LMI Solar Fund stayed separate, could it receive financing from a Green Bank?
  - This would need to be looked into from a legal perspective, but it would not necessarily be disallowed. It would essentially be a transfer of funds between different funds/programs.
- Would Green Banks be a separate entity of Virginia Energy?
  - To date, most Green Banks have been established in a quasi-government status and not fully in government. Virginia needs to find a sweet spot that is close to the market as well as policy oversight.
- What kind of outreach has been occurring on this subject? Who has been contacted?
  - A Board member recommended that outreach would be beneficial to engage with locality leadership, elected officials, or local utilities (variety of levels/perspectives). Different responses may come from different levels of leadership in a locality (e.g. energy and sustainability staff at localities, or the municipal utilities, or statewide association groups)
  - The Virginia Solar Survey did include a question on Green Banks which went to planning directors of every locality in Virginia. There was some interest based on responses in the survey. Results are still being tallied.
- How would Green Banks interact with the Brownfield fund?

- Might need a distinction from typical utility-scale solar projects, but recognize potential in certain cases for developments on brownfields.

**Public Comment:**

Ruth Amundsen of Norfolk Solar LLC asked if there has been any discussion on how to use RGGI funds for solar.

- RGGI funds were specifically designated in legislation for flood prone communities and energy efficiency/weatherization programs, and not currently allowable for renewable energy projects.

Jameson Babb commented that they are present at the meeting, representing Delegate Lashresce Aird.

End of Public Comment

**Announcements and Committee Updates**

In the next two weeks, members will reach out to stakeholders in localities being considered for the Virginia LMI Solar Pilot Program. Any local stakeholder input should be received by November 3rd. CESA will send a draft RFP to Virginia Energy for review and it will be released to the Board on or around November 12th.

CESA will have the opportunity in November to present the RFP to the Board. The RFP will be attached to the annual report [Note: the RFP will be included in the Annual Report if it has been officially posted by time of publication]. December 15th is the deadline to complete the annual report to allow sufficient time for the Governor's approval by January 12th. There will be a board meeting in December to approve the annual report. The annual report will include an executive summary, reports from each subcommittee, and general statements from meetings during the year, as well as an update on the LMI solar landscape and need in Virginia.

Consultations with Appalachian Power, Old Dominion Power and Dominion Energy will be held electronically on November 3rd from 10am to 1pm, per the requirement from the VCEA.

On November 5th the board will meet electronically for a Green Bank Presentation.

There will be an Electronic Board Meeting on November 15th for CESA to present the RFP for the LMI Solar Pilot Program.

The year-end in-person meeting of the board will be held on December 15th at 3pm to discuss the RFP and annual report.

All presenters were thanked for the informative discussion.

Susan Kruse moved to adjourn the meeting, seconded by John Warren. At 12:15pm the meeting was adjourned.

**Policy on Individual Participation in Clean Energy Advisory Board Meetings  
by Electronic Means Pursuant to § 2.2-3708.2**

It is the policy of the Clean Energy Advisory Board (“Board”) that individual members of the Board may participate in meetings of the Board by electronic means as permitted by Code of Virginia § 2.2-3708.2 [copy of Code section attached]. This policy shall apply to the entire membership of the Board and without regard to the identity of the member requesting remote participation or the matters that will be considered or voted on at the meeting.

If an individual member of the Board wishes to participate through electronic communication means due to being unable to attend the meeting in-person as the result of a temporary or permanent disability or other medical condition preventing the member’s physical attendance or a family member’s medical condition that requires the Board member to provide care for such family member thereby preventing the Board member’s physical attendance, or due to a personal matter, the Board member shall notify the chair of the Board of the Board member’s request to attend by electronic communication means. If the Board member’s absence is due to a personal matter, the Board member shall identify with specificity the nature of the personal matter.

Whenever an individual member wishes to participate from a remote location, the law requires a quorum of the Board to be physically assembled at the primary or central meeting location, and arrangements must be made for the voice of the remote participant to be heard by all persons at the primary or central meeting location.

The reason that the member is unable to attend the meeting and the remote location from which the member participates will be recorded in the meeting minutes. When such individual participation is due to a personal matter, such participation is limited by law to two meetings each calendar year or 25 percent of the meetings held per calendar year rounded up to the next whole number, whichever is greater.

Individual participation from a remote location shall be approved unless such participation would violate this policy or the provisions of the Virginia Freedom of Information Act. If a member's participation from a remote location is challenged, then the Board shall vote on whether to allow such participation. If the Board votes to disapprove of the member's participation because such participation would violate this policy, such disapproval shall be recorded in the minutes with specificity.

This policy applies to all committees of the Board.



**Policy on Meetings of the Clean Energy Advisory Board Pursuant to Enactment 17 of Chapter 1 of the 2021 Special Session II Acts of Assembly**

As an executive advisory board, it is the policy of the Clean Energy Advisory Board (“Board”) that the Board may conduct a meeting by electronic communication means without a quorum of the Board physically assembled at one location if the meeting is being held solely to receive presentations, updates, public comment, or conduct other forms of information gathering. In the event of such a meeting of the Board without a quorum being physically assembled, the Board shall not take any votes or make any formal recommendations at the meeting.

The voice of those participating remotely must be able to be heard by those at the primary meeting location, if any such location exists.

This policy is adopted pursuant to Enactment 17 of Chapter 1 of the 2021 Special Session II Acts of Assembly.

This policy applies to all committees of the Board and supersedes any similar policy adopted by a committee of the Board.

**CLEAN ENERGY ADVISORY BOARD  
IOU Consultation**

**DRAFT MEETING MINUTES**

**November 3rd, 2021 (Wednesday)**

**10:00AM – 1:00PM**

**\*\*Meeting was held electronically and open to the Public \*\***

Meeting Recording Found [here](#)

CEAB website hosted at [energy.virginia.gov](http://energy.virginia.gov), direct link [here](#)

**Call to Order**

Chair Hannah Coman called the meeting to order at 10:06AM.

**Roll Call**

KC Bleilie, Taylor Brown, Janaka Casper, Hannah Coman, Kendyl Crawley Crawford, William Greenleaf, Susan Kruse, Will Cleveland, Katharine Bond, Sam Brumberg, and Kirk Johnson were present

Aaron Berryhill and Bettina Bergoo from Virginia Energy were present.

Grant Kronenberg from the Office of the Attorney General was present.

**Electronic Meeting Policy**

Hannah Coman provided a summary of the rules of the meeting being held electronically. Pursuant to Enactment 17 of Chapter 1 of the 2021 Special Session II Acts of Assembly, the meeting was held by electronic communication means without a quorum of the Board physically assembled at one location for purposes of receiving presentations, updates, public comment, or conducting other forms of information gathering. No votes will be taken during this meeting and is held solely for information gathering.

**Purpose of the Meeting**

Brief description of the purpose of the meeting was given. The meeting purpose is to consult with investor owned utilities about how to best lower electric bills to low income customers through access to solar energy including on site solar/net metering, power purchase agreements, shared solar, and any other incentives.

**Old Dominion Power (ODP)/Kentucky Utilities Presentation by Kendrick Riggs**

Kendrick Riggs of Stoll, Kennan, Ogden provided a presentation on behalf of ODP. Gus Thomas, Michael Horning, Tim Melton, and Lisa Keels of ODP also joined the call.

The presentation (attached in the appendix) began with a brief summary of the company and an overview of the service territory of the company in Virginia. The company has three low-income

programs which include WinterShare (customer donation program), the Virginia Energy Assistance Program, and the Low Income Late Payment Charge Waiver.

For renewable programs, the company offers net-metering, a green tariff, a multi-family shared solar program, and a third-party power purchase agreement pilot program. Overall the company cares about renewable energy as long as it is at the lowest cost. The company aims to promote renewable energy at the lowest reasonable cost. As of 9/30/21, ODP has 38 net metering customers in Virginia with a total capacity of 424 kW. ODP has not yet received any inquiries for the multi-family shared solar program. ODP currently has 14 PPA projects totaling 6.2 MWs.

### **Questions & Comments:**

*Does ODP have a marketing plan for low income solar customers?*

The company has no written document directly focused on low-income customers. But all of the available programs are detailed on the company website. The company does not do additional outreach or marketing apart from the website. The company would be open to consider other practices that other IOUs are using relative to the size of ODP.

*What was the proposed resolution in the recent rate case stemming from statute 596.2?*

There is ambiguity, but ODP proposes developing a pilot DSM program to include a stakeholder engagement process to meet proposed pricing targets. ODP is proposing the establishment of a rider to recover the costs. The proposal will consider reserving 15% for energy efficiency for low-income and elderly customers.

*How can low-income customers in the territory hear about solar programs? What about people who do not have regular access to the internet? Any thoughts on lack of access to information?*

No formal analysis on understanding the number of people who have access to the internet.

*Does the company reach out to any community organizations or non-profits to help with outreach?*

The company does reach out to organizations associated with helping low-income customers pay their utility bill. Would welcome including organizations in stakeholder processes. Appalachian Community Action provides access to Virginia Weatherization Program in the area and would be a good group to reach out to.

*Encourage ODP to meet with local and statewide organizations to help bridge the information gap between low income customers and the company. Would the company be open to meeting with any of these groups?*

The company would be open to meeting with any reputable group.

*What are the barriers to low-income solar in your area?*

Customers lack the funds to purchase or finance solar. The housing stock is prohibitive and weatherization and insulation is the biggest need.

*How does the company define a low income customer?*

Depends on participation in programs. That information is not collected from customers.

### **Appalachian Power Company Presentation by Noelle Coates**

Noelle Coates led the presentation for Appalachian Power Company (ApCo) joined by Ron Jefferson and Will Castle.

Noelle provided a brief overview of the two programs offered by ApCo in compliance with HB 2789 and the service territory. The area has a declining electric load and an inefficient housing stock. Most efforts by the company target energy efficiency. The two programs are low income multi family and low income single family. Company has budgeted \$16.6 million for the upcoming 5 years for the low income single family program. These programs target low-income customers and are being implemented with success.

ApCo is not in the shared solar program since the electric load is declining in the service territory. It doesn't make sense to create new programs that would shift additional costs to customers through shared solar.

The company has struggled getting solar projects on line in the past. Solar facility of 20 MW is now on line in the service territory and the company continues to have more projects in the pipeline. For solar, the company is experiencing supply chain issues in sourcing solar facilities. There also appears to be lots of competition in the marketplace by other off takers for solar projects.

### **Questions & Comments:**

*Since there is a large mobile home housing stock with poor energy efficiency, how are you addressing the energy costs and do you have any programs for this?*

Most customers use electricity for heating in the service territory. The company has looked into a pilot program to help retrofitting mobile homes. The low income single family program company is designed to help these types of customers. The company has been aggressive in targeting and helping these types of customers.

*Is the program information available in English and Spanish?*

Will look into that question and get back with an answer.

*Does ApCO have a marketing plan for low income solar customers?*

There is no marketing plan in place for the solar program right now, but will keep it in mind in the second phase of this process of developing the program. The company will welcome input from the board on this and will consider other outlets in addition to the website.

*Referring to the solar component of HB 2789 where in the process is the three year term of the program?*

What exactly is the timing from moving from the energy efficiency component into the solar component for the program is still being determined.

*People that get weatherization assistance should transition over to solar pretty quickly when you have a captive market.*

For the Community Solar Program, has ApCo filed any programs for community solar? No ApCo does not have many solar projects so the company has not been able to move ahead with community solar. It is difficult to have a community solar program without any solar projects. The company is more focused on solar projects developed as PPAs or ownership at this time. And then hopefully in the future there will be more flexibility in offering solar programs.

### **Dominion Power Presentation by Nathan Frost and Michael Hubbard**

Nathan Frost led the presentation for Dominion Power joined by Michael Hubbard.

The presentation focused on summarizing the company's activities related to House Bill 2789 and the timeline of the shared solar program. The first component of the programs focuses on Energy Conservation (Component 1). It is a three year program valued up to \$25 million to reduce heating/cooling costs and enhance health and safety. Program approved by SCC in 2020 and launched in Q1 of 2021. Eligibility for the program aims to cast as wide a net as possible to account for differences in market areas and housing types in the service territory.. There are 14 different upgrades/measures as part of the program to support energy conservation.

Component 2 is the solar component of HB 2789. The program was filed in December 2020 and recently approved. This program will have its own three year period separate from Component 1. This program will launch in Q1 2022. It is a three year program of up to \$25 million for installation of solar panels at no cost to customers. The eligibility is the same as from Component 1 or other existing HVAC related programs. The program will use a network of qualified solar installers to implement. The company will issue an RFP to get qualified solar installers at the end of Nov. 2021 with a 60 day open period to develop the network of solar installers. The company would like additional input from the Board on getting the message out on this program.

The timeline for Shared Solar Program rollout will aim to launch by July 2023. The November 18th hearing at the SCC on the minimum bill will shape how the program is implemented. The ruling of this hearing will come sometime in 2022.

### **Questions & Comments:**

*Is the company working with CHESSA to get out to the solar community?*

Yes the company has, but needs to reach back to them before issuing the RFP.

*To what extent do you foresee the solar supply chain impacting the rollout of the program?*

No certainty on this concern, but the company wants to figure supply chain issues out more in the RFP process. The company will do more research to understand how it impacts availability and pricing.

*Who will absorb the tax credit as a part of implementing this program?*

The company will provide at no cost, and take more of a customer approach. That means taking the most understandable approach for the customer.

*Will there be any direct marketing through existing programs/ Will the company use installers to push the program? How else will the message get out?*

The company will use the weatherization/energy conservation (Component 1) network as a baseline.

*CHESSA can assist with a list of qualified bidders and how to collect the necessary information. The RFP should consider the bandwidth of solar installers to ensure safety and that quality remains high. Help installers understand what the roadmap for this program and the rollout will look like.*

*Make sure information is available in English and Spanish. Make sure the "Why" component is clearly defined and explain why these programs exist. Minimize the concerns from customers who might consider this program.*

*Does Dominion have a marketing plan for low income solar customers?*

Yes, the company has ongoing engagement with communities directly through programs through the EnergyShare and Weatherization providers.

*How does the company currently market net-metering to customers?*

There are resources available on the website, but would welcome feedback on how to improve the information..

*Does Dominion meet with the Poverty Law Center?*

Yes, but it is hard to say when exactly since there are different levels of engagements. Interacts with them at least in DSM stakeholder meetings 4 times per year.

*Does the company have any standards to differentiate low income vs moderate income customers?*

The company relies on state agency standards for the definition of low-income customers. Data comes from DHCD and does not have any additional internal standards. The company uses an attestation form to collect income qualification.

*How is the EnergyShare program doing? How much was distributed last year?*

The program is well funded by the company. There was \$13 million per year earmarked as part of legislation to energy assistance, weatherization, and education. Each year the company has been spending that amount with relative success.

*Can you use EnergyShare for solar payments for a low income customer?*

The company has thought about it up to this point.

### **Public Comments**

*Ruth Amundson:* Think about how the programs will be successful in regions where weatherization programs have historically been less successful. Emphasize solar in regions where weatherization is not as successful. Also consider in RFP to require solar installers to hire employees from local neighborhoods

### **Additional Dialogue**

There was a reminder for the November 5th meeting of the Board on the Green Bank Assessment.

The meeting adjourned at 12:18pm.

# Clean Energy Advisory Board

November 3, 2021

**Nathan Frost**

Director—New Technology & Energy Conservation

**Michael Hubbard**

Manager—Energy Conservation



**Dominion  
Energy<sup>®</sup>**



# House Bill 2789 - Energy Conservation

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## Description

- Three-year program (up to \$25 million) for installation of measures that:
  - reduce residential heating and cooling costs
  - enhance the health and safety of low income, elderly and disabled individuals
- Program approved by the State Corporation Commission in July 2020; launched Q1 2021

## Eligibility

- Total household income <80% of local area median income per Virginia Housing Development Authority or 60% of state median income per the Department of Housing and Community Development (whichever is greater)
- Available to customer residing in single-family homes, multifamily homes, and mobile homes

## Program Measures

- Heat pump replacement / upgrades to mini-split/ductless heat pumps
- Duct sealing/insulation/repair/replacement
- Insulation repair/upgrade wall and floor
- Electric baseboard heat upgrade
- Thermostat replacement
- Comprehensive air sealing/envelope improvements
- HVAC tune-up/home ventilation improvements
- Combustion appliance safety checks/enhancements
- Fire and fall safety checks/enhancements
- Assessments of indoor air quality
- Carbon monoxide detectors and sources
- Mold/mildew removal
- Dehumidifiers
- Roof repairs

# House Bill 2789 - Solar

## Description

- Three-year program (up to another \$25 million) for the installation of solar panels, at no cost to the qualifying customer
- Installed behind the participant's meter and net-metered
- Solar panels and associated inverters and connecting equipment owned by program participant

## Eligibility

- Low-income, elderly, and disabled individuals who have participated in the HB 2789 energy conservation program **OR** have already participated in an existing program with HVAC-related measures.

## Approach

- Filed with State Corporation Commission for approval in December 2020; approved in September 2021
- Utilize the state weatherization network and Resource-Innovations (formerly Nexant) to identify jobs and perform Quality Assurance field work
- Utilize qualified installers via a Request for Proposals (RFP) / Request for Qualifications (RFQ)
- Launch in Spring 2022

### RFP/RFQ to Solar Installers

- Target release by end of November (60-day response period through end of January 2021)
- Interested solar installers contact:

[ECInfo@dominionenergy.com](mailto:ECInfo@dominionenergy.com)

# Shared Solar Program

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- July 2020 • **Legislation becomes effective**
- December 2020 • **State Corporation Commission Order Adopting Rules**
- October 2021 • **Subscriber Organization registration begins**
- November 2021 • **State Corporation Commission Hearing**
- TBD 2022 • **Final Order from State Corporation Commission**
- July 2023 • **Program launch**

# Virginia Clean Advisory Board



**PPL companies**

**Kentucky Utilities Company d/b/a  
Old Dominion Power Company  
November 4, 2021**

# WHO IS KU-ODP?

- Business operation of Kentucky Utilities Company
- KU-ODP serves about 28,000 customers in 5 counties in Virginia; most customers are located in Wise County
- KU-ODP is a small part of KU's total operations:
  - KU serves 537,000 customers in Kentucky
  - 5% of KU's total capital is invested in Virginia
  - KU has no generation assets in Virginia

# Electric Service Territories

## Electric Utilities

### Investor Owned Utilities

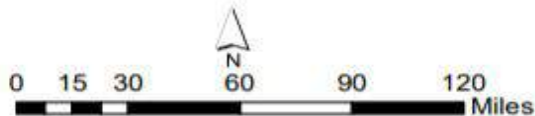
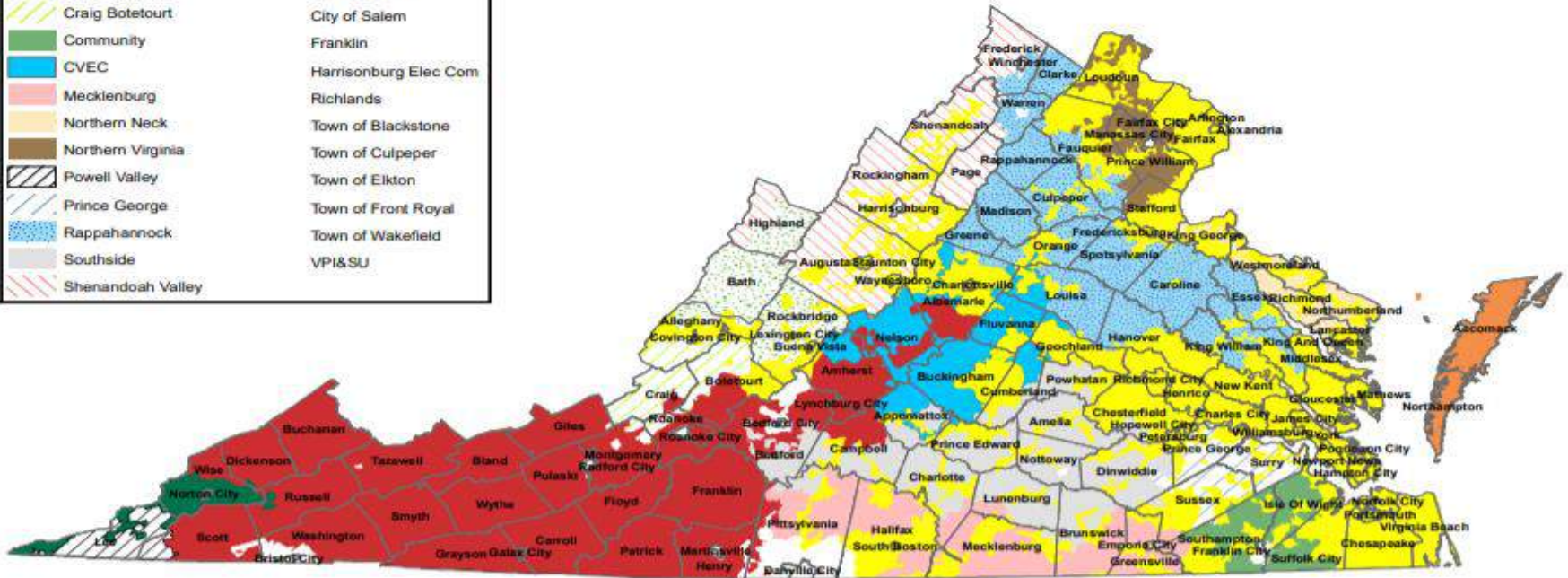
- APCo
- Kentucky Utilities
- Dominion Energy Virginia

### Electric Cooperatives

- A&N
- BARC
- Craig Botetourt
- Community
- CVEC
- Mecklenburg
- Northern Neck
- Northern Virginia
- Powell Valley
- Prince George
- Rappahannock
- Southside
- Shenandoah Valley

### Non-Jurisdictional Utilities

- Bristol Power Board
- City of Bedford
- City of Danville
- City of Manassas
- City of Martinsville
- City of Radford
- City of Salem
- Franklin
- Harrisonburg Elec Com
- Richlands
- Town of Blackstone
- Town of Culpeper
- Town of Elkton
- Town of Front Royal
- Town of Wakefield
- VPI&SU



Source: State Corporation Commission, 2020  
 Created by: Division of Public Utility Regulation, 2020

Disclaimer: This is an approximation, please contact the Division of Public Utility Regulation for official electric territory maps.

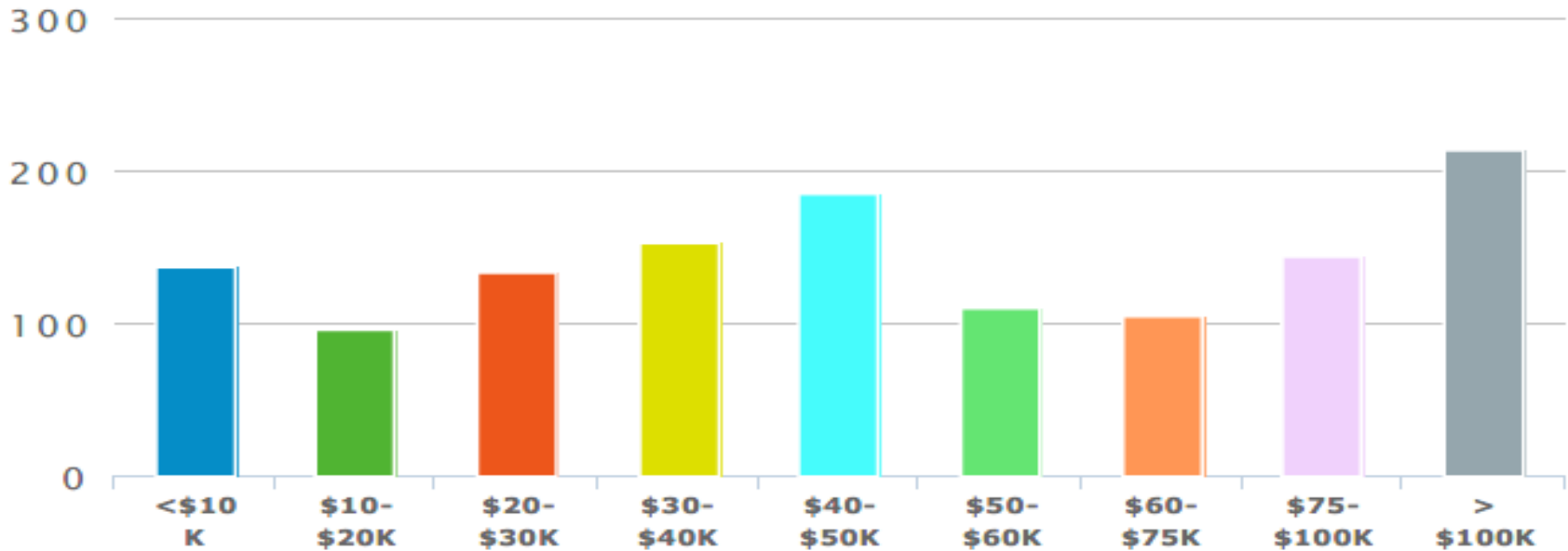
# REGULATION OF KU-ODP

- KU-ODP is regulated under Title 56 of the Code of Virginia, in particular for ratemaking Chapter 10, *Heat, Light, Power, Water and Other Utility Companies Generally*.
- KU-ODP is exempt from the *Virginia Electric Utility Regulation Act* ("VEURA") provisions
  - Limited exceptions apply

# WISE CO. DEMOGRAPHICS

- 55% of Wise County households have a household income of less than \$50,000

**Household Income Distribution (2021)**





# LOW-INCOME PROGRAMS

- WinterShare
- Virginia Energy Assistance Program
- Low Income Late Payment Charge Waiver

# WINTERSHARE

- WinterShare program permits customer donations, which KU-ODP matches 2:1
- Program administrator is Dollar Energy Fund
  - Local community-based organizations qualify customers and distribute the energy assistance funds
- WinterShare helps customers at or below 150% of Federal Poverty Level with a maximum benefit of \$250 annually

Time Period	Customers Served	Total Funds Distributed
10/2018 – 09/2019	108	\$19,962
10/2019 – 09/2020	153	\$29,746
10/2020 – 09/2021	152	\$30,860

# VIRGINIA ENERGY ASSISTANCE PROGRAM

- Program consists of three components: fuel assistance, crisis assistance, and cooling assistance
- Administered by Virginia Department of Social Services agencies
- Benefits are based on a matrix system determined by income, number in household, primary heat type, and vulnerability factors

# VIRGINIA ENERGY ASSISTANCE PROGRAM

- VEAP Fuel Assistance Program Only:

Time Period	Customers Served	Total Funds Distributed
2019	6,638	\$1,155,693
2020	6,524	\$1,127,123
2021	5,068	\$1,115,579

- Other VEAP Programs:

Time Period	Customers Served	Total Funds Distributed
2019	2,469	\$705,874
2020	1,183	\$365,850*
2021	1,150	\$488,746

\*In 2020, due to COVID, summer cooling funds were sent directly to customers using previous year eligibility and qualification criteria and data.

# LOW INCOME LATE PAYMENT CHARGE WAIVER

- Residential customers who receive a pledge for or notice of low-income energy assistance from an authorized agency will not be assessed or required to pay a late payment charge
- The waiver applies to the bill for which the pledge or notice is received and the customer will not be assessed or required to pay a late payment charge in any of the eleven months following receipt of such pledge or notice

# KU-ODP RENEWABLE PROGRAMS

- Net Metering
- Green Tariff
- Multi-Family Shared Solar Program
- Third-Party Power Purchase Agreement Pilot Program

# NET METERING

- KU-ODP is subject to Va. Code § 56-594, which establishes net metering provisions
- As of 9/30/2021, KU-ODP has 38 net metering customers with 424.385 kW of capacity

# GREEN TARIFF

- Effective April 2020, several programs became available to KU-ODP customers with approval of KU-ODP Green Tariff:
  - Renewable Energy Certificates
  - Business Solar
  - Renewable Power Agreement
- As of 10/28/2021, KU-ODP has received 4 inquiries for REC's with 1 actual enrollment for 3 blocks of Green Energy at \$5 per block



# MULTI-FAMILY SHARED SOLAR PROGRAM

- KU-ODP is subject to Va. Code § 56-585.1:12, which establishes the multi-family shared solar program
- Information about the program is included on KU-ODP's website
- KU-ODP has received no inquiries about this program

# THIRD-PARTY PPA PILOT PROGRAM

- KU-ODP is subject to Va. Code § 56-594.02, which establishes the third-party power purchase agreement pilot program
  - Low-income customers may participate in the program with no minimum capacity requirement
- KU-ODP currently has 14 projects with 6.2 MWs submitted to the Commission for consideration and approval

# UPCOMING KU-ODP PROGRAMS

- KU-ODP will deploy AMI, which provides customers the tools to manage their energy usage
- KU-ODP is proposing a process for implementing a pilot DSM program and balancing the bill impact on customers

**CLEAN ENERGY ADVISORY BOARD**  
**GREEN BANK MARKET ASSESSMENT PRESENTATION**  
**DRAFT MEETING MINUTES**

**November 5th, 2021 (Wednesday)**

**11:00AM – 12:00PM**

**\*\*Meeting was held electronically and open to the Public \*\***

Meeting Recording Found [here](#)

CEAB website hosted at [energy.virginia.gov](http://energy.virginia.gov), direct link [here](#)

**Call to Order**

Chair Hannah Coman called the meeting to order at 11:06AM.

**Roll Call**

KC Bleilie, Taylor Brown, Janaka Casper, Hannah Coman, Kendyl Crawford, Will Greenleaf, and Sarah Nerrette were present.

Quorum was not met, but counsel advised that meeting may continue as long as the meeting is for informational purposes only and no votes will be taken. Pursuant to Enactment 17 of Chapter 1 of the 2021 Special Session II Acts of Assembly, the meeting was held by electronic communication means without a quorum of the Board physically assembled at one location for purposes of receiving presentations, updates, public comment, or conducting other forms of information gathering. The electronic meeting policy was explained at the beginning of the meeting with approval from counsel to the board.

Aaron Berryhill, Al Christopher, and Bettina Bergoo from Virginia Energy were present.

Grant Kronenberg from the Office of the Attorney General was present.

**Presentation on the Green Bank Market Assessment by Bettina Bergoo of Virginia Energy**

Bettina Bergoo of Virginia Energy provided a presentation to the Clean Energy Advisory Board about an ongoing preliminary Green Bank market assessment to understand the viability of a statewide Green Bank program in Virginia. The focus of the presentation was to summarize the potential process for creating a statewide Green Bank and to obtain input from the Board on this process. The presentation considered the creation of a hypothetical Clean Energy Financing Authority (CEFA) to possibly implement a statewide Green Bank program.

The presentation reiterated that a Green Bank is an institution that helps to accelerate the deployment of clean energy using public dollars to support investment in clean energy projects that are underserved by the private financial sector. There are over 20 existing Green Banks across the country at both the state and local levels. Common market segments that Green Banks may be able to assist in additional renewable energy development include LMI

residential, small commercial and nonprofits, multifamily affordable housing, energy storage, community solar, and clean transport. Common assistance strategies include offering loan loss reserves, interest rate buydowns, extending financing to specific market segments, and standardizing financial products and contracts.

The three main questions included in gathering information from stakeholders during this market assessment are:

- What kinds of clean energy or climate resilience projects are underserved by the private financial sector in Virginia? Why?
- What existing programs might the Clean Energy Financing Authority be able to complement, and how might it do so?
- If a Clean Energy Financing Authority were to prioritize two objectives, what should they be, and what metrics should capture performance against those objectives?

The presenter requested the Board to consider and respond to the following questions listed above. The presentation concluded with an initial list of options for the Board to consider in terms of implementing a Green Bank and supporting a potential Clean Energy Financing Authority (CEFA). A report will be finalized in the coming months as an educational resource about a possible statewide green bank in Virginia.

## Questions and Comments

*Virginia does not currently have very much Community Solar. A Green Bank could have a critical role in providing credit enhancement for these types of projects since there is more risk in these types of projects since subscribers can drop from the projects at any time.*

*The DC Green Bank has worked to develop a Community Solar loan that was critical to the success of rolling out Community Solar in Washington, D.C.*

*One example of a favorable Green Bank was NY Green Bank situated within NYSERDA: is the NY green bank a fully public entity? What would be the restrictions of the funds within a fully public structure?*

It is unclear if NY Green Bank has been limited based on their fully public structure. Some restriction has had to do with the need to achieve financial returns for financial sustainability, not necessarily because the program is situated within a public body. Bettina to follow up with additional details after checking with NY Green Bank staff.

*The CEAB has found that there are many different energy focused funding resources, types, and amounts available to a variety of people and qualifications. Has there been a full audit/analysis of all the segments for funding clean energy federally and in Virginia specifically? And how would a Green Bank complement and avoid redundancy of other programs?*

An important part of the market assessment has been conducting an existing landscape analysis. The first step of starting a statewide Green Bank would be to differentiate the appropriate market segment for financing assistance to avoid duplication with other programs. There would be some overlap necessary between programs when a Green Bank could help to

supplement other funding assistance such as when energy efficiency funds but solar funds are not available (e.g., HIEE).

*In addition to gathering input from people in the field, who else are you soliciting information from on this point about other programs?*

Government agency partners have been a major focus of the market assessment. The market assessment has included discussing with other agencies about what programs they offer, how they are successful, challenges, and any market gaps that they are not addressing. Outreach has also included localities such as sustainability and economic development staff.

*Interest rate subsidies or interest rate buydowns are very valuable for solar developers and operators. It is an efficient way to funnel money through existing frameworks and groups that are already dispersing funds. It eliminates the administrative burden of a state authority or agency by using organizations to disperse the funds.*

*Is there any existing structure for Green Banks that you are looking to deploy? Or are you just assessing and understanding how others have been successful?*

This process is still in an exploratory stage of looking at what has been successful so far. We have defaulted to the idea of using an authority to manage the funds because that has been a standard governance structure for most green banks, but there are other options available.

*Reaction to the list of options for consideration to implement a Green Bank:*

- *Number 1 would be a missed opportunity without any legal connection. The Green Bank should probably be a formal connection between CEAB and CEFA. It would help to simplify and streamline for gathering funds in the future*
- *Number 3 and 4 could work and there were no issues with those considerations. CEAB can mandate the creation of this fund for LMI customers in Virginia for solar. CEAB is positioned well within the purpose of the CEFA funds.*
- *It will be very important to define metrics and objectives to prioritize the customers with the program.*

*One concern would be a possible loss of efficiency and talent by having CEFA outside of Virginia Energy. What would the role of Virginia Energy be?*

CEFA would be within the government, but in an independent authority. Bettina to explore with existing green banks what their relationships are with state energy offices and how they leverage the existing expertise/agency infrastructure.

*Is there an order of steps to continue this process?*

There are lots of open questions when a green bank is established. The legal structure and governance structure are the most important components to determine upfront. The program must also outline any limitations to how the fund can support certain market segments. Generally, funding for renewables and energy efficiency would be a priority.

*The Board asked to continue to think about how Virginia Energy would work with CEFA.*

**Public Comment**

No public comments were given.

**Meeting adjourned at 11:59 AM**

DRAFT

## CLEAN ENERGY ADVISORY BOARD

### DRAFT MEETING MINUTES

November 15th, 2021 (Monday)

3:00PM – 5:00PM

**\*\*Meeting was open to the Public \*\***

Meeting Recording Found [here](#)  
CEAB website hosted at [energy.virginia.gov](http://energy.virginia.gov), direct link [here](#)

#### Call to Order

Meeting called to order at 3:03 pm

#### Roll Call

KC Bleile - present, Taylor Brown - present, Sam Brumberg - present, Janka Casper - present, Will Cleveland - present, Hannah Coman - present, Susan Kruse - present, Kendyl Crawley Crawford - present, Kirk Johnson - present, Toni Ostrowski - present, Will Reisinger-present, Katharine Bond - present

Hannah Coman mentioned that Sam Towell has resigned from the Board.

Quorum was met with the above present. All board members participated electronically. The meeting was held with the electronic system via Webex. Pursuant to Enactment 17 of Chapter 1 of the 2021 Special Session II Acts of Assembly, the meeting was held by electronic communication means without a quorum of the Board physically assembled at one location for purposes of receiving presentations, updates, public comment, or conducting other forms of information gathering.

*Virginia Energy Staff:* Carrie Hearne, Aaron Berryhill, Bettina Bergoo  
*Office of Attorney General:* Grant Kronenberg

The purpose of the meeting was to do an update on the stakeholder outreach and update of RFP from CESA for the LMI Solar Program.

#### General Business of the Board

The chair provided a brief overview of recent business of the Board. This includes the IOU Consultation, Green Bank Market assessment presentation, stakeholder outreach for the LMI Solar Program, and the Policy and Regulatory Committee meeting.

Sam Brumberg added that the Policy and Regulatory Committee agreed to send a letter to the Governor's office regarding the work of the Board related to LMI solar and in support of a Green Bank program. The letter will be circulated to the full Board and considered for the annual report.



### **Summary of Stakeholder Outreach Performed by the Board**

A summary was given of the outreach completed to all weatherization service providers active in the top five communities being considered for the LMI Solar Pilot Program. Since 2016, the following communities have had the following number of single family households served by a weatherization service provider:

- Augusta County: 133 households
- Wise County: 44 households
- Shenandoah County: 36 households
- City of Waynesboro: 26 households
- City of Franklin: 7 households (Provided by Project Homes, data goes back only to 2019)

These numbers reported from each weatherization provider indicate the single family households that have already received weatherization services and therefore are in the pipeline for solar installations if they have suitable roofs. When including the waitlist contacts, this information indicates the level of activity in the service area and the number of potential contacts for the LMI solar program.

Next, a summary of the outreach conducted with community housing officials was given by Toni Ostrowski of Virginia Housing:

The executive director of the Wise County Housing Authority mentioned that community members are just beginning to grasp the benefits of solar. Wise County already has programs that exist in the schools that help to promote and explain the benefits of solar. Public information in Wise County is primarily shared online and through social media since newspapers are mostly nonexistent in the community. The director also mentioned that they are aware of several great local solar installers active in the local area.

The executive director of the Blue Ridge Housing Network (Shenandoah County) agreed that a LMI Solar Program would be beneficial in their community. This organization already does extensive educational outreach about home ownership and therefore has an extensive contact list to inform people about the solar program. The organization also has experience working with electric utilities on helping households with paying for electric bills.

A representative from Habitat for Humanity Virginia mentioned that the Central Valley Habitat (Augusta County and City of Waynesboro) is currently building new homes with solar panels on the roofs. They mentioned that Habitat could assist with further outreach to households.

During the Board's consultation with electric-owned utilities, each utility was asked how they reached out to their customers about various programs. ODP responded that their outreach is done entirely online but would be open to other means of outreach in the future if the Board advised them. Appalachian Power similarly does most outreach online but believes they maintain strong community relations

Next, a summary of the outreach to County/City Administrators of the five localities considered for the LMI Solar Pilot Program was given.

The Director of Community Development for the City of Waynesboro said the local government would be very supportive of the program and could help do outreach to residents through a variety of means. The director also said the City could anticipate passing local solar incentives to support the program

Email outreach to the other four communities did not receive a response.

Outreach to solar installers included AltEnergy. AltEnergy provided feedback on potential parameters of the RFP. AltEnergy encouraged the Board to think about vertical integration to be supportive of local solar installers, consider the number roofing installs expected each year, and roofing materials of houses in the program, AltEnergy said they would be interested in responding to the RFP and said their operations cover most of the areas being considered for the program.

There has not been any contact with the City of Franklin's municipal utility or Shenandoah Valley Electric Cooperative to understand how each utility supports and interacts with solar installations. Members of the Board will work to contact these organizations.

There was no successful outreach to residents in the five communities. The Board will reach out to Appalachian Voices to identify contact information for residents. The Board will continue to strategize how to best reach out to local residents.

### **LMI Solar Program RFP Progress and Status**

Carrie Hearne of Virginia Energy introduced Nate Hausman and Wafa May Elamin from the Clean Energy States Alliance (CESA) to discuss the current progress on drafting the RFP. Carrie Hearne mentioned that internal discussions within the agency's procurement staff revealed additional questions about the logistics of sharing a RFP and contract in a public forum. As a result the full Board will not have access to the full text of the RFP in a public forum. Nevertheless, the expectation is that Virginia Energy will continue to get advice from the Board in helping to launch the LMI solar program. Virginia Energy will be working to get additional advice from the Office of the Attorney General and procurement staff in the coming weeks.

Nate Hausman of CESA discussed some of the elements and intentions of the RFP. Currently there is \$500,000 that has been allocated for use for this program that will be used by Virginia

Energy. Generally, the program will be open-ended in terms of solicitation and solar financing that respondents can propose. One the main topics that has been considered in the RFP is how companies can ensure saving guarantees for LMI customers on an ongoing basis. One potential resolution would be a loan loss reserve built into the program administered by Virginia Energy. Virginia Energy has administered similar loan loss reserve funds in the past.

**Public Comment**

There were no public comments provided.

**Conclusion**

The next meeting of the Board will be December 15, 2021 at 3pm in-person in the Richmond area.

The meeting adjourned at 4:02PM

DRAFT

# Developing a Solar Pilot Program for Low-and Moderate-Income Homeowners in Virginia

Virginia Clean Energy Advisory Board Meeting

*December 15, 2021*

# CleanEnergy States Alliance



# Presentation Overview

## Virginia LMI Solar Pilot Program

- Pilot Structure
- Program Design Elements
- Next Steps
- Q&A



**Wafa May Elamin**  
Project Manager  
Clean Energy States Alliance



# Pilot Structure

- Virginia Energy to competitively select partner organization(s) by issuing Request for Proposals (RFP) in Q1 2022;
- Marketing resources and support may be provided to help reach underserved markets;
- Participating solar installation and/or financing partner will work under direct oversight through administrative controls;
- The Pilot must allow participation by any Virginia resident but will use focused, community-based marketing campaigns in Wise County, Augusta County, and Shenandoah County;
- Solar projects must be supported by contracts that are cashflow positive for participants with consumer protections, no hidden fees, and system performance guarantees in place.



# Elements of the Draft RFP

- **Timeline:** RFP will be distributed by Virginia Energy in early 2022. The selected solar financing and installation partner(s) will have 24 months from the contract start date to complete the full scope of work
- **Pilot Locations:** Allows participation by any Virginia resident, but focuses marketing campaigns and program deployment in Wise County, Augusta County, and Shenandoah County
- **Budget:** \$400,000 for direct solar investment with an additional funds reserved for Virginia Energy to support programmatic, administrative, and marketing needs
- **Financing Structure:** Open-ended financing terms for respondents to share what model they would deploy for this pilot





# Elements of the Draft RFP

- **Demonstrating Reduced Energy Consumption:** Energy efficiency measures in place prior to solar installation, utilizing Weatherization Assistance Program audits and final work scopes with a Savings to Investment Ratio (SIR) of greater than 1.0 or other means of achieving measurable energy savings
- **Energy Equity and Environmental Justice:** Demonstrate commitment to energy equity and environmental justice goals, supporting local workforce development in historically economically disadvantaged communities
- **Local Installer Requirement:** Allowance for providers who sub-contract to ensure statewide coverage while investing locally
- **Income Threshold:** 60% SMI in Virginia; Focus outreach on low income homeowners who have received WAP or LIHEAP benefits to streamline income verification. Documentation required for program auditing purposes.



Questions or Comments?



# Thank You

Wafa May Elamin  
Project Manager  
Clean Energy States Alliance  
703-867-2347  
wafamay@cleanegroup.org



[www.cesa.org](http://www.cesa.org)

January [13], 2021

# CLEAN ENERGY ADVISORY BOARD

## 2021 ANNUAL REPORT – DRAFT

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*Photo credit: GRID Alternatives Mid-Atlantic*

Hannah Coman, Chair  
William Greenleaf, Vice Chair  
c/o Virginia Energy  
Washington Building  
1100 Bank St., 8<sup>th</sup> Floor  
Richmond, Virginia 23219

*Supported by Carrie Hearne, Associate Director, Energy Equity Programs,  
Virginia Department of Energy*

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## Appendix

- A: Clean Energy Advisory Board Bylaws
- B: Clean Energy Advisory Board Statute, Code of Virginia
- C: Clean Energy Advisory Board Members and Affiliation
- D: US DOE LEAD Tool Analysis for Virginia by Census Tract
- E: Virginia Electric Service Territories
- F: Market Research for Developing a LMI Solar Pilot Program in Virginia
- G: LMI Solar Stakeholder Map

## Executive Summary

In 2019 the Virginia General Assembly passed HB 2741 establishing the Clean Energy Advisory Board (the “Board”) as an advisory board in the executive branch of the state government. The stated purpose of the Board is to establish a program (the “Program”) for disbursing loans or rebates for the installation of solar energy infrastructure that will benefit low-income and moderate-income households through the “Low-to-Moderate Income Solar Loan and Rebate Fund” (“LMI Solar Fund”). The enabling legislation requires the Board to prepare and submit to the Governor and the General Assembly an annual report for publication as a report document.

Since the passage of the Virginia Clean Economy Act, Virginia has been working to fundamentally transform the Commonwealth’s electricity generation and grid. The Board’s mission is to ensure that low-to-moderate income (“LMI”) Virginians are not left behind in this energy transition.

This year the Board has continued to explore how to create a sustainable program which will expand cost-effective solar energy opportunities to reduce energy burdens and increase access to clean electricity for LMI communities across Virginia. The Board and staff from the Virginia Department of Energy (“Virginia Energy”) conducted national and state program research, worked closely with the Clean Energy States Alliance on program design, participated in stakeholder meetings regarding low-income participation in shared solar facilitated by staff at the State Corporation Commission (the “Commission”) and Virginia Energy, and consulted with all three of the investor-owned utilities in the Commonwealth on solar programs for low and moderate income customers.

The COVID-19 pandemic has exacerbated existing inequities, leaving an unprecedented number of utility customers with arrearages, and demonstrating the need to reduce high energy burdens. Solar energy technology, paired with energy efficiency measures, has been proven to reduce electricity expenses while also supporting clean energy goals.

The Board is committed to launching a sustainable LMI Solar Fund to serve those who can benefit the greatest from solar installations. Designees of the Board will work closely with Virginia Energy to issue a Request for Proposals (“RFP”) in the first quarter of 2022 in order to select a financing and solar installation partner for a pilot program. The issuance of this RFP will represent a significant milestone in the progress toward implementing the Program. The Board hopes 2022 will bring additional opportunities to continue to expand its work as it has become even more important.

## Mission Statement

The Board adopted the following mission statement in 2019 which guides the Board's work:

*The Clean Energy Advisory Board (the Board) is established as an advisory board in the executive branch of state government. The Board, with the approval of the Director of the [Virginia Department of Energy], shall develop and establish a Low-to-Moderate Income Solar Loan and Rebate Pilot Program (the Program) and rules for the loan or rebate application process. The Program shall disburse loans or rebates for the installation of solar energy infrastructure from a Low-to-Moderate Income Solar Loan and Rebate Fund (the Fund). In carrying out its duties, the Board shall consider the Energy Objectives of the Commonwealth described in § 67-101 of the Code of Virginia. All actions and recommendations of the Board shall be for the purpose of expanding access to cost-effective clean energy for low- and moderate-income Virginians throughout the Commonwealth, including citizens living in both single- and multi-family housing facilities and in rural or economically disadvantaged communities.*

See Appendix A for the Board's bylaws and Appendix B for the Section in the Virginia Code (the "Code") which established the Board and the LMI Solar Fund.

## Current Board Members

Pursuant to its enabling legislation the Board shall have a total membership of seventeen members. At the time of this report the Board has two vacancies. One vacancy is for "an expert with experience developing low-income or moderate-income incentive and loan programs for distributed renewable energy resources" who shall be appointed by the Speaker of the House. This seat has remained unappointed since July 1, 2020, when the 2020 amendments to the Code (including new board positions) went into effect. The second vacancy is reserved for an attorney with the Division of Consumer Counsel who shall be appointed by the Governor. This seat has been vacant since November 5, 2021. The Board members' term limits are reflected in Appendix C as well as additional board seat details.

The current Board Members are:

- KC Bleile
- Katharine Bond
- Taylor Brown
- Sam Brumberg
- Janaka Casper
- Will Cleveland
- Hannah Coman, Chair
- Kendyl Crawford



- William Greenleaf, Vice Chair
- Kirk Johnson
- Susan Kruse
- Sarah Nerette
- Toni Ostrowski
- William Reisinger
- John Warren (*ex officio*)

## Public Meetings

A portion of the Board's 2021 activities occurred during the Commonwealth's COVID-19 State of Emergency. Executive Order [Fifty-One](#), "Declaration of a State of Emergency Due to Novel Coronavirus (COVID-19)" was announced on March 12, 2020, and remained in place through July 1, 2021. During the State of Emergency the public meetings of the Board and Committees were conducted electronically through the Webex virtual platform in accordance with the Commonwealth's public meeting guidance. At the Board's October 20, 2021 meeting, the Board adopted two new policies: (i) the Policy on Individual Participation in Clean Energy Advisory Board Meeting by Electronic Means Pursuant to § 2.2-3708.2, and (ii) the Policy on Meetings of the Clean Energy Advisory Board Pursuant to Enactment 17 of Chapter 1 of the 2021 Special Session II Acts of Assembly. The new Policies apply to meetings in which a quorum is required to cast votes and it allows Board members to attend the greater of (y) twenty-five percent of all meetings per year virtually or (z) two meetings per year virtually, with a personal reason given in advance to the Board Chair. If the meeting is for informational purposes and no votes will be cast, then there is no limitation on the number of meetings the Board members can attend virtually.

The Board held a total of six meetings in 2021. In addition, the Program Development Committee and the Stakeholder Engagement and Marketing Committee each met once. The newly formed Policy and Regulatory Committee met twice in person. Each meeting was publicly noticed through Virginia Town Hall and meeting materials were posted or linked on Virginia Energy's public-facing website (found [here](#)). Meetings were recorded, and public meeting protocols were adhered to accordingly.

## **2021 Meeting Summary**

Minutes and Agenda are posted on Town Hall. Where available, links to the meeting recording can be found on the meeting minutes document. Most presentations (if any) are included in the Agenda. The following is a list of all Board and Committee meetings held in 2021:

Board Meeting: **3/24/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?meetingid=32270>

Board Meeting: **7/21/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=32703>

Board Meeting: **10/20/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=33231>

Board Meeting: (IOU Consultations)\*: **11/3/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=33308>

Board Meeting: (Green Bank Presentation)\*: **11/5/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=33322>

Board Meeting: (Low income solar program update)\*: **11/15/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?meetingid=33350>

Board Meeting (Year-End Annual Meeting): **12/15/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=34458>

*\*These Board meetings were held virtually for informational purposes and no votes were cast.*

Policy and Regulatory Committee Meeting: **9/13/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?meetingid=33009>

Policy and Regulatory Committee Meeting: **11/9/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=33327>

Program Development Committee: **2/24/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=32183>

Stakeholder Engagement and Marketing Committee: **2/26/21**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=32191>

Stakeholder Engagement and Marketing Committee: **8/16/21 (Meeting Cancelled)**

- <https://townhall.virginia.gov/L/ViewMeeting.cfm?MeetingID=32871>

## **Program Research**

In addition to hearing input from members of the public and working with partner state agencies, Virginia Energy and members of the Board engaged in extensive conversations on LMI solar program design and development topics with subject matter experts from across the country. This list of experts included, but is not limited to, researchers, executives and program managers at: Clean Energy States Alliance, North Carolina Clean Technology Center, Connecticut Green Bank, Sunrun, PosiGen, AltEnergy, GRID Alternatives, Solar United Neighbors and Energy Trust of Oregon. Virginia Energy staff also presented to the Board on a variety of topics for consideration, including “green banks.”

The Board and Virginia Energy will continue to look for opportunities to learn from individuals, agencies and organizations both within Virginia and from other states or regions that have information that can support the mission of the Board and the successful launch of the LMI Solar Fund.

## **Energy Burden Landscape in Virginia**

The Board’s mission to expand access to cost-effective clean energy for low- and moderate-income Virginians throughout the Commonwealth continues to be necessary and important work. The country at large faces challenging inequities in historically economically disadvantaged communities (“HEDCs”), which in Virginia include communities of color, communities in fossil fuel impacted regions such as Southwest Virginia’s coalfield region of Appalachia, veteran communities, native communities, and low-income communities.

Recent analysis of households using electric heat in Virginia showed 34,603 owner-occupied single family homes with an annual income of 80 percent or less of the area median income (AMI) and an energy burden of 11 percent or greater (See Appendix D). These LMI households are using a significant amount of their income on energy and would be eligible to participate in the Program. In 2020, Virginia Energy (then “DMME”) conducted this analysis using the U.S. Department of Energy’s Low-income Energy Affordability (LEAD) Tool (See Appendix D). The recommended percentage of energy expenditure to income ratio, or “energy burden,” that should be considered affordable caps at 10 percent if a household is using electricity for heating, or 6 percent for households using non-electric heat such as gas, propane, or other fuels. When considering all single

family households within the 0-80 percent AMI income levels, regardless of ownership or heat source, and an energy burden greater than 6 percent, Virginia has over 665,000 households, averaging \$2,375 in energy costs, or \$197 per month. Furthermore, over 1 million housing units in Virginia are at or below the 80 percent of AMI.

Electric bills are higher for LMI single-family homeowners than state averages for a variety of reasons. Again, according to Virginia Energy analysis using the LEAD tool, households under 80 percent AMI are paying a higher average electricity bill than overall averages as seen in Dominion or Appalachian Power Company (APCo) service territories. Average electric monthly bills in Dominion territory are \$115 per month, and \$110 per month in APCo. Conversely, LMI single family households see the following average electricity bills, by income:

- AMI 60-80% = \$1,625 (\$135/month)
- AMI 30-60% = \$1,538 (\$128/month)
- AMI 0-30% = \$1,530 (\$128/month)

Numerous programs in Virginia are working to reduce energy burdens for LMI customers, bringing more options to create energy equity. Virginia Energy and members of the Board will work with the Department of Housing and Community Development (DHCD), State Corporation Commission, Dominion Energy, and other agencies and utilities to set up programs that have this mission in common. In 2020, the Commonwealth of Virginia became the first southern state to join the Regional Greenhouse Gas Initiative ("RGGI"), a regional cap and trade program designed to reduce climate pollution from fossil fuel power plants. Legislation passed by the Virginia General Assembly authorizes proceeds from these auctions to be used for community flood preparedness, coastal resilience and energy efficiency programs for affordable housing. DHCD will administer approximately 50% of the auction proceeds through a new program called [Housing Innovations in Energy Efficiency](#) ("HIEE"), with technical assistance from Virginia Energy.

Other programs that help address energy burdens for select ratepayers in the Commonwealth include the Percentage of Income Payment Program ("PIPP")<sup>1</sup>; access to Shared Solar and Multi-family Shared Solar subscription programs; and investor-owned utility LMI solar and energy efficiency programs, as ordered through HB 2789 (2019).

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<sup>1</sup> This is a program established by the Virginia Clean Economy Act that will cap the monthly electric utility payment of low-income participants at six percent or, if the participant's home uses electric heat, 10 percent, of the participant's household income.

The energy burden numbers referenced in the LEAD tool will likely increase in the short term as data points get updated through the Census Bureau’s American Community Survey, capturing the harsh economic reality facing millions of American households who have felt the recent COVID-19 crisis in the form of lost jobs and other economic disparities.

## **2021 Legislative Actions and Policy Update**

The Board continues to monitor legislative amendments and regulatory proceedings that affect renewable energy development in the Commonwealth. Energy policy in Virginia is complicated as it varies greatly based on the customer’s location. The Commonwealth is divided into different utility territories, as shown in Appendix E, and depending on where a customer lives and which utility serves them, different opportunities for energy efficiency or renewable energy programs may be available.

The Commonwealth’s energy policy has undergone significant changes since 2020. The General Assembly passed several bills during the 2020 Regular Session that expanded renewable energy development in Virginia, including the Virginia Clean Economy Act (VCEA) (House Bill 1526) and the Solar Freedom Bill (House Bill 572). The General Assembly also established a Shared Solar program in Dominion Energy’s (“Dominion”) territory (House Bill 629). The Commission continues to implement the VCEA, the Solar Freedom Bill, and the Shared Solar and Multi-Family Shared Solar legislation through rulemakings and other formal proceedings at the Commission.

### **VCEA**

The VCEA, among other things, established a mandatory renewable portfolio standard (“RPS”) for Virginia’s two largest electric utilities. The RPS requires Dominion and APCo to obtain an increasing percentage of their electricity sales from renewable energy sources. The VCEA also requires Dominion to procure a certain percentage of its RPS energy from low-income qualifying projects. The law provides that 1% of Dominion’s annual RPS compliance must be satisfied with renewable energy credits (“RECs”) from distributed generation facilities like rooftop solar and, moreover, that 25% of such distributed generation RECs should be obtained from “low-income qualifying projects.” The Code defines a low-income qualifying project as one that “provides a minimum of 50 percent of the respective electric output to low-income utility customers.” Code Section 56-576 defines “low-income utility customers” as “any person or household whose income is no more than 80 percent of the median income of the locality in which the customer resides.”

After an evidentiary hearing process, the Commission approved the initial VCEA RPS development plans filed by Dominion (SCC Case No. PUR-2020-00145) and APCo (PUR-2020-00135). As part of its final order in the Dominion proceeding, the Commission directed Dominion to convene a stakeholder group to evaluate the low-income project qualifying carveout in the RPS. The stakeholder group convened in August of 2021 and continued to work through November. In particular, the stakeholders agreed that at least two categories of projects would qualify. First, the stakeholders agreed that behind-the-meter solar facilities that provide power directly to low-income customers would qualify. This scenario could be a solar facility located on the premises of a low-income multifamily housing complex. Second, the group agreed that facilities may qualify as “low-income qualifying projects” if they supply a minimum of 50% of their output to “low income utility customers” who have subscribed to the facilities. The Commission will evaluate the recommendations of the stakeholder group in Dominion’s pending RPS proceeding (SCC Case No. PUR-2021-00146).

The Commission will hold an evidentiary hearing regarding Dominion’s second VCEA RPS development plan in SCC Case No. PUR-2021-00146. As of December 1, 2021, APCo’s second VCEA RPS development plan has not yet been filed.

### **Net Metering Amendments**

Virginia’s net energy metering law was also amended in 2020. In particular, the Solar Freedom Bill expanded Virginia’s cap on net energy metering from 1% to 6% of each utility’s Virginia peak load. 1% of the available net metering capacity is reserved for “low-income utility customers.” In March of 2021, the Commission adopted regulations to implement the revised net metering program, including the low-income carveout. (See SCC Case No. PUR-2020-00195). The updated net metering regulations are found in Section 20VAC5-315-20, et seq, of the Virginia Administrative Code.

### **Shared Solar**

Many residential and non-residential electricity customers face significant challenges to installing rooftop solar including: up-front and maintenance costs of the system; suboptimal roof orientation or structural constraints; and shading from trees or other buildings. For renters, residents of multifamily buildings, homeowners with roofing or shade issues, and low-to-moderate income customers, shared solar programs address these obstacles and offer customers the opportunity to invest in solar in a way that fits their budgets, and derive some of the benefits (such as lowering monthly electric bills and energy burdens), while a third-party is responsible for building and

maintaining the solar facility and ensuring the benefits are attributed to participating customers. As a result, the Board has been closely following developments in shared solar and community solar throughout the Commonwealth.

The 2020 General Assembly passed House Bill 629, allowing Dominion customers of all classes to subscribe for a specific amount of electricity generated by a solar facility to offset their energy usage from their utility (the “Shared Solar Program”). Pursuant to the legislation, the Commission must establish a minimum bill for all subscribers to pay, except for low-income customers; thereby providing important access to solar for low-income customers. The Board provided comments in 2020 to the Commission regarding the proposed regulations for the Shared Solar Program. (SCC Case No. PUR-2020-00125 (the “Shared Solar Docket”).

The Commission held an evidentiary hearing on November 18, 2021, regarding Dominion’s minimum bill for the Dominion’s Shared Solar program. The Commission heard testimony and argument from Dominion, the Commission Staff, solar advocates, and other parties, regarding the appropriate level at which to set the minimum bill. The Commission has not yet finalized the regulations that will govern the Shared Solar Program.

Finally, the Solar Freedom Bill also established a program for Dominion and Old Dominion Power (“ODP”) customers living in multi-family housing to subscribe for a specific amount of electricity generated by a solar facility to offset their energy usage from their utility (“Multi-Family Shared Solar Program”). In 2020 the Board provided comments to the Commission regarding the proposed regulations for the Multi-Family Shared Solar Program. (SCC Case No. PUR-2020-00124). The Commission has not yet finalized the regulations that will govern the Multi-Family Shared Solar Program.

### **Low Income Stakeholder Working Group for Shared Solar and Multi-Family Shared Solar**

In accordance with the Commission’s December 23, 2020<sup>2</sup> order in the Shared Solar Docket, the Commission Staff and Virginia Energy facilitated stakeholder meetings in 2021 to address certain components of the shared solar program and the multi-family shared solar program for low-income subscribers, specifically, the low-income subscription plans, methods for low-income verification, and methods for measuring low-income participation. Chair Coman participated in these stakeholder

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<sup>2</sup> Order Adopting Rules, Dec. 23, 2020, State Corporation Commission, Case No. PUR-2020-00125, available at: [4qxr01!.PDF \(virginia.gov\)](#).

meetings in her role as Chair of the Board. The stakeholder meetings resulted in two reports both entitled Low Income Stakeholder Working Group Reports on the Virginia Shared Solar and Multi-Family Shared Solar Programs (2020 - 2021) dated April 22, 2021<sup>3</sup> and September 30, 2021<sup>4</sup> (each a “WG Report” and together, the “WG Reports”). In its July 23, 2021 order,<sup>5</sup> the Commission accepted, with minor clarifications, the standardized consumer disclosure form and the form addressing components of the low-income subscription plan from the WG Report dated April 22, 2021. Both WG Reports reflect valuable input from low-income stakeholders and the Board hopes that the recommendations set forth in the WG Reports, specifically the income verification recommendations for low-income programs, can be used to inform other low-income programs.

## **Technical Assistance from Clean Energy States Alliance**

### **Clean Energy States Alliance**

The Clean Energy States Alliance (CESA) has provided technical assistance to both Virginia Energy, as a member organization, and the Board.

CESA is a national, nonprofit coalition of public agencies and organizations working together to advance clean energy. CESA members—mostly state agencies—include many of the most innovative, successful, and influential public funders of clean energy initiatives in the country.

CESA works with state leaders, federal agencies, industry representatives, and other stakeholders to develop and promote clean energy technologies and markets. It supports effective state and local policies, programs, and innovation in the clean energy sector, with emphasis on renewable energy, power generation, financing strategies, and economic development. CESA facilitates information sharing, provides technical assistance, coordinates multi-state collaborative projects, and communicates the positions and achievements of its members.

CESA received anonymous funding to assist Virginia Energy and the Board in the development of a pilot program (the “Pilot Program”) to test the viability of the Program established by the enabling legislation. The Pilot Program will assist single-family, low-income homeowners in the financing and installation of solar energy infrastructure. The Pilot Program will be limited by budgetary constraints

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<sup>3</sup> Staff Update and Shared Solar Working Group Report, April 22, 2021, State Corporation Commission, Case No. PUR-2020-00125, *available at:* [4t5\\_01!.PDF \(virginia.gov\)](#).

<sup>4</sup> Staff Update and Shared Solar Working Group Report, September 30, 2021, State Corporation Commission, Case No. PUR-2020-00125, *available at:* [5pk201!.PDF \(virginia.gov\)](#).

<sup>5</sup> Order for Notice and Hearing, July 23, 2021, State Corporation Commission, Case No. PUR-2020-00125, *available at:* [59tb01!.PDF \(virginia.gov\)](#).



and certain statutory constraints set forth in HB 2741 (2019). The aim is to develop a Pilot Program within these limitations that can be scaled and will demonstrate the case for long-term program investment and expansion.

### **Pilot Program Design**

Based primarily on the work of the Program Development Committee in 2020, the Board provided the following initial information to CESA.

#### **Funding**

Through CESA, the North Carolina Clean Technology Center modeled small PV system costs and outputs in three distinct locations and different utility service territories in Virginia. This data will also be helpful in determining how the program can best be structured to be advantageous to LMI customers.

#### ***Loans***

There are several advantages to loan programs from a program administration standpoint (such as: bank provides the capital; is responsible for income verification and loan servicing), however there are a number of challenges that limit their effectiveness. The conclusion, which was confirmed through providers, is that even if the interest rate is subsidized to 0%, it is unlikely to generate much uptake because low-to-moderate income customers may not wish to take on more debt, particularly during the COVID-19 associated economic downturn, and the system does not become cash flow positive for the customer until the loan is fully paid off (in other words, the energy generated by the PV system will not necessarily offset the loan payments from day one).

#### ***Rebates and Incentives***

From the Board's research and conversations with several low-to-moderate income solar program implementers, it is clear that a potential drawback to a direct incentive to the customer is adverse tax implication. For example, if the program provided a \$12,000 incentive directly to the customer this would have to be reported as income for purposes of federal and state income taxes, and could lead to increased income tax liability. A rebate program would require the customer to purchase the system first, then apply for a rebate. The general understanding is that low-to-moderate income customers would not likely have cash on hand to purchase a system in the first place, which limits feasibility of this option. There is potential that a "voucher" type incentive could overcome these issues, similar to electric vehicle "on the hood" incentives that immediately reduce the cost burden.

### *Solar Leases*

Based on the Board's research, solar leases are not currently offered by solar companies in Virginia though they are prevalent in other states. The Board flagged this issue for CESA's consideration.

Another potential model could be to have the program provide funds through contracts with solar installers, who would agree to install the systems on behalf of the customers. There would be some administrative costs for the installers, so not all costs would go directly to the cost of the system, but this avoids the potential tax implications to the customer.

### Customer Eligibility

There are several provisions regarding eligibility for the Program in the Board's enabling legislation.

#### *Income eligibility*

The enabling statute requires eligibility for all Virginians with incomes up to 80% area median income ("AMI") or state median income ("SMI"), whichever is greater. Relying on other income-qualified programs as a proxy qualification process generally makes sense and avoids unneeded duplication of efforts on income verification, however, many of the affiliated programs in this space cap at the 60% of AMI (or SMI) and therefore would not cover the 60-80% range that is included in this program. For example, Weatherization Assistance Program (WAP) income guidelines follow the state Low-Income Heating Assistance Program (LIHEAP) limit of at or below 60% of SMI for households of seven or less; 200% of Federal Poverty Level (FPL) if the household is larger than seven. A menu of options should be considered to verify income eligibility, similar to recommendations made by the Board to the Commission for verifying shared solar eligibility.

#### *Reduction in energy consumption*

The Board's enabling legislation also requires a 12% reduction in energy consumption due to energy efficiency as a prerequisite for eligibility. This could be an obstacle for program development due to the difficulty in ascertaining whether the 12% reduction has been achieved.

For low-income customers who qualify for WAP, Virginia Energy recommends using WAP program audits and final work scopes with a Savings to Investment Ratio (SIR) of greater than 1.0 for energy efficiency measures as a proxy for the 12% reduction in energy consumption required in the Virginia Code to qualify WAP customers for eligibility under the LMI Solar Fund. A reasonable interpretation of the Code allows for a reduction to be measured in terms of dollar cost savings, so that both electric and fuel savings can be included and stated as a single metric. Coordination would need to occur

between Virginia Energy, WAP providers and solar installers to ensure customer qualifications and home or building meets SIR minimum requirement.

For moderate-income customers with new construction and substantial renovations, the Home Energy Rating System (HERS) index (as determined by a credentialed HERS Rater) provides a straightforward pathway to determine if the home will meet the 12 percent energy consumption reduction, as required in § 45.1-399 of the code. The Board recommends using the Home Energy Rating System (HERS) index, pre- and post-retrofit, as conducted by a qualified HERS Rater to determine eligibility. Similar to the WAP audit, the Rater will conduct a pre-retrofit evaluation. This will include evaluation of the existing energy components (HVAC, insulation, lighting, appliances, etc.) may include performance testing, such as using a blower door test to determine the envelope air-leakage rate in the home. After renovation, the Rater will conduct a final inspection and test to determine how much energy efficiency improvement is expected based on energy modeling. For example, if the home's HERS index is 150 pre-renovation and 100 post-renovation, this shows a 50% reduction in projected annual energy cost and would qualify the customer for participation in the LMI Solar program.

### **CESA Pilot Program Recommendations**

Based on this initial research from the Board and CESA's own research, CESA delivered a presentation and accompanying report entitled Market Research for Developing a LMI Solar Pilot Program in Virginia, attached hereto as Appendix F, at the March Board meeting. The report contains findings about promising Pilot Program structures; the level of public subsidy necessary to ensure meaningful financial benefits for participating LMI homeowners derived by the North Carolina Clean Energy Technology Center market assessment research; the scope of the Pilot Program; variables for selecting potential Pilot Program locations; and statutory considerations relating to program design.

In July, CESA presented recommendations to the Board for the design of a Pilot Program in Virginia — including a list of potential locations to focus marketing and program design specifications for the Board's consideration. Although the Pilot Program will be open to all eligible Virginians in accordance with the enabling legislation, CESA recommended focusing the marketing campaigns in a few underserved communities. In addition, CESA recommended not dictating the program structure yet since there were several potential program structures, including solar leases, which could be cash-flow positive for customers based on CESA's analysis.

CESA's presentation to the Board included key program design recommendations including:

1. Focus on low income single-family homeowners who have already qualified for weatherization assistance (at 60% AMI or SMI in Virginia) to streamline eligibility verification;
2. Issue a competitive, open-source solicitation to select solar companies and financing partners to participate in the Pilot Program;
3. Use focused, community-based marketing campaigns to reach 2-3 selected underserved Virginia communities; and
4. Guarantee that solar projects are structured with cash flow positive contracts for participating low income households that demonstrate bills savings and system performance guarantees.

At the July meeting the Board voted unanimously for CESA, in collaboration with Virginia Energy, to proceed with preparing a draft solicitation to select solar companies and financing partners to deliver low-cost, long-term solar financing and installation services to qualifying LMI households.

In October CESA presented the top 5 potential pilot locations for the community-based marketing campaigns: Wise County, Augusta County, the City of Waynesboro, Shenandoah County, and the City of Franklin. To assist the Board and Virginia Energy in refining the list to two or three communities, CESA helped develop questions to assist the Board in its stakeholder outreach.

With input and guidance from Virginia Energy, CESA has prepared a draft solicitation for the Pilot Program. The solicitation will take the form of an open-ended request for proposals (RFP). CESA's draft RFP is currently under review by Virginia Energy and is not yet publicly available. Virginia Energy expects to release it in early 2022.

## **Pilot Program Funding**

While the LMI Solar Fund does not yet have a sustainable source of revenue to allocate toward low-to-moderate income solar financing projects, the Board and Virginia Energy have identified numerous opportunities for funding and technical assistance. As a member of CESA, Virginia Energy has regular opportunities to learn how similar programs in other states have structured the financing process. Virginia Energy and CESA are engaged in multiple projects to source seed funding and technical assistance to build out a proof of concept for how the LMI Solar Fund structure could work in Virginia.

In addition, Virginia Energy has approval to access approximately \$500,000 of legacy ARRA funding

in the form of revolving loan funds that have cycled back to Virginia Energy following the American Reinvestment and Recovery Act (federal stimulus dollars from the 2009 administration). Virginia Energy plans to use this ARRA funding as the initial funding source for the Pilot Program. Virginia Energy hopes that the success of the Pilot Program will serve as a “proof of concept” and will attract additional funding to the LMI Solar Fund for the Program.

For the Board and Virginia Energy to be successful in carrying out its mission and scaling up the LMI Solar Fund, the Board needs to adopt an expansive view of potential funding sources, including state budget appropriations, grants, gifts, donations, bequests, and other funds received on its behalf. The Board has confirmed that the LMI Solar Fund can accept funds from all of these sources.

## **Program Development Committee**

### **Activities**

Members of the Program Development Committee (“Program Committee” or “PDC”) include KC Bleile of Viridian, Taylor Brown of Sun Tribe Solar, Janaka Casper of Community Housing Partners (CHP), Toni Ostrowski of Virginia Housing, and Bill Greenleaf of Virginia Community Capital. Bill Greenleaf continues to serve as chair of the Program Committee.

In keeping with the COVID-19 State of Emergency, the Program Committee held a virtual public meeting on February 24, 2021. Minutes and recording is available on Virginia Town Hall, linked from the website for the Board ([here](#)). Additional research, analysis and outreach was conducted with individual committee members working with Virginia Energy staff and other subject matter experts.

### **Outcomes**

In 2021, the Program Development Committee, the Chair, and individual members of the Committee advised Virginia Energy on the development of a low-to-moderate income solar financing program. Committee members worked with CESA to conduct analysis and research to best understand the Virginia policy, regulatory, and financial environment to create a feasible program in accordance with the statutory requirements. Topics of discussion and research included:

- CESA Technical Assistance, scope and plan;
- State Treasury Fund setup and status;
- Power Purchase Agreements (PPAs) in the Commonwealth; and
- Solar Lease feasibility and market readiness.

From initial discussions within the Committee, staff of Virginia Energy, CESA advisors, PDC Committee Chair Greenleaf, Board Chair Coman, and Office of Attorney General representative Kronenberg together conducted a series of interviews with a variety of national solar lease companies to better understand their business model and perception of the Virginia market. These conversations informed further discussions and research in Virginia's regulatory environment, ultimately leading to the formation of the Policy and Regulatory Committee to continue research and activities in this area.

### **Related program developments**

The Board, Program Committee members, and Virginia Energy staff continue to monitor Dominion Energy's progress on developing a low-income solar program as required by HB 2789. Dominion will invest up to \$25 million in a low-income solar program for customers in its service territory. Dominion refers to the solar program as Component 2, which will be rolled out after Component 1, which is focused on HVAC and other health and safety repairs. Dominion filed Component 2 solar program with the Commission in December 2020 and it was recently approved. Dominion plans to launch Component 2 in the first quarter of 2022.

Due to this large investment in low-income solar in Dominion's territory (and presumably forthcoming in APCo territory in the near future), the Board and Program Committee recommended focusing the Pilot Program in co-op and municipal utility territories instead of in Dominion and APCo's respective territories.

## **Stakeholder Engagement and Marketing Committee**

### **Activities**

Members of the Stakeholder Engagement and Marketing Committee ("Stakeholder Committee") include Hannah Coman of Apex Clean Energy, Susan Kruse of Community Climate Collaborative, Katherine Bond of Dominion Energy, and Kendyl Crawford of Virginia Interfaith Power and Light and the Council on Environmental Justice. Hannah Coman is the chair of the Stakeholder Committee.

In keeping with the COVID-19 State of Emergency, the Stakeholder Committee held virtual public meetings once during 2021, on February 26. Minutes and recordings are available on Virginia Town Hall and linked to from the Board [website](#), hosted by Virginia Energy.

## Outcomes

The Stakeholder Committee worked closely with CESA and Virginia Energy to gather information to inform the draft RFP and continue its stakeholder engagement efforts from the previous year. Based on CESA's analysis and evaluation of locational variables, statutory considerations and program design elements, CESA recommended limiting the marketing aspect of the Pilot Program. This geographic focus for marketing does not limit the customer eligibility, but instead provides a focus that will be valuable in gathering data to improve marketing efforts in the future.

Through October and November of this year members of the Stakeholder Committee as well as other well-positioned members of the Board were asked to perform targeted stakeholder outreach to stakeholders in the following five localities as potential locations for a focused marketing campaign:

1. Wise County
2. Augusta County
3. City of Waynesboro
4. Shenandoah County
5. City of Franklin

Board members were asked to reach out to the following stakeholders: weatherization providers, solar providers, local government, community-based organizations, utilities, and any additional categories the Board member found appropriate.

### Weatherization Providers

The Board received the following statistics from weatherization providers serving the five localities.

Total Single Family Served since 2016:

1. Augusta County - 133
2. Wise County - 44
3. Shenandoah County - 36
4. City of Waynesboro - 26
5. City of Franklin - 7 (served since 2019)

Current Single Family Wait List:

1. City of Franklin - 31 (estimate)
2. Wise County - 24
3. Augusta County - 7

4. City of Waynesboro - 2
5. Shenandoah County – 0

Since participation in weatherization services is a mandatory precursor for eligibility, the Stakeholder Committee found the data relating to weatherization in each of these communities especially informative.

### Solar Installers

Outreach to solar installers included AltEnergy. AltEnergy encouraged the Stakeholder Committee to think about vertical integration to support local solar installers, to consider the number roofing installs expected each year, and roofing materials of houses in the program.

### Local Government

The Stakeholder Committee also received helpful feedback from local government. For example, the Director of Community Development for the City of Waynesboro said the local government in Waynesboro would be very supportive of the program, could help perform outreach to residents through a variety of means, and would be open to considering local solar incentives to support the Pilot Program.

### Community-Based Organizations.

Members of the Stakeholder Committee also asked community-based organizations about the best ways to market the Pilot Program and engage with potential participants. Wise County RHA suggested that the best way to reach potential participants is via Facebook or TV ads. Blue Ridge Housing Network suggested engaging with first time homebuyers and requesting information to be included with utility bills. Central Valley Habitat suggested marketing with churches, flyers in laundry mats, employers that have low to moderate income workers, social service agencies and sending notices home to parents via students (i.e. “backpack express”). In addition, all three community based organizations voiced support for the Pilot Program.

### Utilities

As part of the consultations with investor-owned utilities, the Board discussed marketing and outreach to low-income Virginians. In response to questions regarding a marketing plan for low income solar customers, ODP stated that all of their available programs are detailed on the company website and the company does not do additional outreach or marketing apart from the website. ODP stated it would consider additional outreach if similar outreach is also performed by other Investor-Owned Utilities of the same relative size. APCo also informed the Board that it does not have a solar



marketing plan for low-income customers. Information regarding APCo's programs are available online for customers, but information is not included in the utility's mailings to customers. The Board encouraged ODP and APCo to meet with local and statewide organizations to help bridge the information gap between low income customers and the utilities. Additional information on this topic is addressed in the "Investor Owned Utility Consultation" section.

The Stakeholder Committee is eager to continue its stakeholder engagement work in the next year. The Stakeholder Committee's current stakeholder engagement map is attached hereto as Appendix G. The Stakeholder Committee plans to reach out to residents in the selected localities in the Spring once the Board has more certainty on the structure of the Pilot Program.

## **Policy and Regulatory Committee**

### **Activities**

Members of the Policy and Regulatory Committee (in this subsection, the "Regulatory Committee" or "PRC") include KC Bleile of Viridiant, Sarah Nerette of Sigora Solar, Will Reisinger of ReisingerGooch, Will Cleveland of the Southern Environmental Law Center, and Sam Brumberg of the Virginia, Maryland and Delaware Association of Electric Cooperatives. Sam Brumberg is the Chair of the PRC.

The Regulatory Committee was established by the Board on July 21, 2021, and was broadly tasked with consideration of regulatory and policy questions and issues on behalf of the Board. The core of PRC's work in 2021 consisted of (i) evaluating funding opportunities to support the LMI Solar Fund, and (ii) opening discussions and dialogue on policy questions regarding the availability of solar leases in Virginia. In addition to those two core items, policy discussions were also held on potential amendments to the Board's governing statute, including the need for a proxy measurement to be used for a required 12% energy efficiency reduction in Virginia Energy's low-income leasing program.

The Regulatory Committee held two in-person meetings in 2021, one on September 13, and one on November 9. As the Regulatory Committee was just established this year, time was dedicated to formalities, including the adoption of an electronic meeting policy and ensuring all committee members were up to speed on background information. Minutes and recordings are available on Virginia Town Hall and linked to from the Board [website](#), hosted by Virginia Energy.

## **Outcomes**

Followers of the Board's activities will recall that the Board's 2020 Annual Report mentioned the policy issue related to the legality/availability of solar leases for net metering. That issue has been under consideration by the Board almost since its inception, and one of the Board's initial discussions with CESA involved this particular issue. At the Regulatory Committee's September 13 meeting, various approaches were considered to get certainty on this issue. After much deliberation, the Regulatory Committee proposed that the most effective and efficient way to address this issue was to enter into a memorandum of understanding with the Commonwealth's three investor-owned utilities and twelve rate-regulated electric cooperatives, documenting their assent to the propositions (stated simply in layperson's terms) that (i) leases used in net energy metering are legal, and (ii) no certificate of public convenience and necessity (CPCN) is needed for net energy metering activities under the Code of Virginia.<sup>6</sup> The Regulatory Committee reported on its plan to engage with the utilities at the Board's meeting on October 20. The Board had no questions for the Regulatory Committee. At the Regulatory Committee's meeting on November 9, the Regulatory Committee simplified its approach even further. It resolved to send letters of inquiry to the utilities on the propositions above and see if the utilities were in agreement with the Regulatory Committee's position on the two propositions, namely, that solar leases were, indeed, legal, and that no CPCN is required for net metering. Those letters will go out in 2021 and the Regulatory Committee will await responses to them in early 2022.

Regarding the issue of the 12% energy efficiency reduction requirement, the Regulatory Committee recommends that the Board endorse a legislative change to the energy efficiency threshold in the form of a more effective measure.

## **Investor Owned Utility Consultation**

Section 4 of the VCEA states: "That each investor-owned utility shall consult with the Clean Energy Advisory Board established by Chapter 554 of the acts of Assembly of 2019 in how best to inform low-income customers of opportunities to lower electric bills through access to solar energy." This requirement from the VCEA provides the Board with a unique opportunity to engage with all of the investor-owned utilities. To this end, on November 3, 2021, the Board conducted consultations with

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<sup>6</sup> A CPCN is a legal authorization from the State Corporation Commission ordinarily required to construct any electric generating facility. For renewable energy facilities and electric storage under 150 MW in size, an alternative is a permit-by-rule issued by the Department of Environmental Quality. However, for net metering facilities installed behind retail electric meters, pursuant to Va. Code § 56-594 and 56-594.01, such permits, to the knowledge of the Committee, have never been required.

all three investor-owned utilities in the Commonwealth to discuss how best to inform low-income households about solar energy programs that reduce energy bills.

The Board invited each investor-owned utility (“IOU”), Dominion, APCo and ODP, to present to the Board on each utility’s current offerings and discuss solar energy programs for low-income households. The Board and IOUs agreed to an agenda for the consultation that included updates on energy efficiency and grid transformation, including the impact on and outreach to low-to-moderate income customers. Each IOU answered many questions from the Board on outreach, engagement and eligibility of low-to-moderate income customers in the Energy Share program and related programs. Details of the consultation including questions and answers may be found in the minutes of the November 3rd meeting at Virginia Town Hall, linked [here](#) as well as in the [YouTube recording from the consultation](#).

The Board’s consultation with all three IOUs was very productive and informative. The Board looks forward to engaging with Dominion, Old Dominion Power, and APCo on their future programs that enable low-income customers opportunities to lower electric bills through access to solar energy.

## Key Outcomes in 2021

The following is an overview of the general activities of the Board and Virginia Energy relating to operations and activities of the Board:

- Expanded Board committee structure;
- Amended Bylaws and electronic meeting policy;
- Completed Virginia-specific research on state agency programs (WAP, LIHEAP, etc) and state regulatory framework/policies to inform the Board’s work;
- Completed National research on similar LMI solar program design and best practices:
  - income verification options and cautions,
  - engagement with community based organizations and LMI Communities,
  - financing options: solar leases; power purchase agreements; low-interest loans; grants; rebates; shared solar (“community solar”) subscriptions;
- Reviewed CESA Technical Assistance Report and recommendations;
- Participated in Virginia Shared Solar Low Income Stakeholder Workgroup facilitated by the State Corporation Commission and Virginia Energy via Chair Coman;
- Participated in the development of a Request for Proposals (“RFP”) for the Pilot Program,

- with Chair Coman participating in advisory meetings with CESA and Virginia Energy staff;
- Analyzed the solar lease market nationally and in the Commonwealth and discussed with stakeholders the regulatory framework related to the solar lease structure;
  - Sent letters of inquiry from the Policy and Regulatory Committee to the utilities to determine if the utilities were in agreement that (i) solar leases are legal, and (ii) no CPCN is required for net metering;
  - Worked in collaboration with Virginia Energy to inform a Pilot Program that will utilize ARRA federal funding through the state energy office up to \$500,000 for program, marketing and administration;
  - Conducted stakeholder outreach with local, community-based organizations, low income service providers, and other related entities to receive feedback on marketing for the Pilot Program; and
  - Consulted with all three investor-owned utilities in the Commonwealth, including Dominion Energy, Appalachian Power Company and Old Dominion Power (Kentucky Utilities), as required in the VCEA.

## **Current Challenges and Barriers**

The Board and Virginia Energy have identified the following specific challenges and barriers to launching the LMI Solar Fund:

- Lack of sustainable funding for the LMI Solar Fund to sufficiently scale up and meet the need;
- Tax incentives such as the Federal Investment Tax Credit (ITC) do not apply to low income households that do not have a tax burden so would need to be monetized in another way, such as through a solar developer (with potential for federal legislation to create “direct pay” to offer this incentive to those who don’t have a tax burden);
- Nascent market for residential Power Purchase Agreements for LMI customers in Virginia;
- LIHEAP funds are not able to be allocated to solar without a state requesting an exemption from the US DOE and having such request granted (e.g., Colorado);
- Eligibility for existing energy efficiency programs, such as the Weatherization Assistance Program (WAP), is limited to customers with a household income less than 60% of AMI, and as a result it is uncertain how to fund the required energy efficiency reduction for customers with a household income between 60-80% of AMI;
- On-site construction conditions on customer’s homes may not be sufficient to withstand solar, e.g. roof structure, electric service; however, the Department of Housing and

Community Development has new funding from the regional carbon market auction proceeds from the Regional Greenhouse Gas Initiative (“RGGI”) which is a key component to address deferred maintenance (e.g. roof structure), as well as reaching additional forms of housing stock (e.g. affordable and special needs housing);

- While auction proceeds from RGGI can support weatherization and energy efficiency measures, these funds are not authorized to be allocated to solar energy system investments;
- Lack of certainty regarding legality of solar leases in Virginia; and
- Two of the Board’s seats are currently vacant, which results in a knowledge gap on the Board.

## **Next Steps and 2022 Goals**

The Board is committed to launching a sustainable, scalable LMI Solar Fund to serve those who can benefit the greatest. Over the next year we plan to make substantial progress to achieving this goal. In the next year the Board aims to accomplish the following:

- Advise Virginia Energy on the release of the RFP and launch of the Pilot Program.
- Conduct annual consultations with the investor-owned utilities as required by the VCEA and follow up with documenting best practices and guidance for marketing solar and energy efficiency to LMI customers.
- Participate in Commission (and Virginia Energy) stakeholder engagement meetings, specifically the low income stakeholder working group for the Shared Solar Program and multi-family shared solar.
- Consider all forms of fundraising, such as: state budget allocations, grants, private philanthropy, bequeaths or other permissible forms of funding to the LMI Solar Fund.
- Work to clarify that solar leases are a viable option in Virginia.
- Engage in direct stakeholder outreach to community-based organizations and LMI program beneficiaries and find new other ways to engage with beneficiary communities the LMI Solar Fund will serve.
- Ensure the Code reflects operable Program requirements, such as a measurable energy efficiency prerequisite.

We hope 2022 will bring additional opportunities to continue and expand our work as it has become even more important.

## Recommendations for the House, Senate and Governor's Office

Solar energy technology, paired with energy efficiency measures, is a proven solution to reduce energy expenses while supporting clean economy goals including investment in the local economy. The COVID-19 pandemic has exposed and amplified the inequities in our society, leaving an unprecedented number of utility customers with arrearages, and demonstrating the need to reduce high energy burdens. The Board's mission to ensure that low-to-moderate income Virginians are included in Virginia's energy transition is now more important than ever.

In order for the Board to be successful and accomplish the task set forth in the Board's enabling legislation, the Board will need the cooperation and support of the General Assembly and the Governor's Office. The Board respectfully makes the following recommendations:

- To ensure that the Board has all the expertise as envisioned for the membership, the Board recommends that the House, Senate and Governor finalize their appointments to the Board and act expeditiously when vacancies or term expirations occur.
- To ensure that the Board can accomplish its duties set forth in the Board's enabling legislation, the Board requests the General Assembly and Governor to authorize a general fund appropriation to Virginia Energy to support the launch of the LMI Solar Fund.
- The Board requests the General Assembly and Governor to address policy barriers to solar expansion, such as by expanding shared and multi-family shared solar to Appalachian Power Company territory, and amending sections of the code to ensure an operable LMI Solar Fund.

# Appendix A: Virginia Clean Energy Advisory Board Bylaws

## ARTICLE I. APPLICABILITY

### Section 1. General.

The provisions of these Bylaws are applicable to all proceedings of the Virginia Clean Energy Advisory Board (the Board) to the extent that the same are not inconsistent with the Code of Virginia or Executive Orders applicable to these proceedings. Whenever the provisions of these Bylaws are in conflict with the provisions of the Code of Virginia or an applicable Executive Order, the latter shall control.

### Section 2. Board and Limitations.

The Board is constituted under § 45.1-395 of the Code of Virginia as an advisory board in the executive branch of the Commonwealth of Virginia. The Board is specifically charged with the duties and responsibilities set forth in Title 45.1, Chapter 27, of the Code of Virginia, primarily for the purpose of establishing, with the approval of the Director of [the Department of Mines, Minerals and Energy (DMME)], a pilot program for disbursing loans or rebates for the installation of solar energy infrastructure in low-income and moderate-income households.

## ARTICLE II. MEMBERS AND STAFF

### Section 1. Appointment of Members; Terms; Vacancies.

All appointments shall be in accordance with § 45.1-396 of the Code of Virginia. Any ex officio members of the Board shall serve a term coincident with his or her term of office. Nonlegislative citizen members of the Board shall be appointed for a term of three years. Appointments to fill vacancies, other than by expiration of a term, shall be for the unexpired terms. Any appointment to fill a vacancy shall be made in the same manner as the original appointment. All members may be reappointed.

### Section 2. Election of Chair and Vice-Chair.

The Board shall elect from its membership a Chair and Vice-Chair, both of whom shall serve in such capacities at the pleasure of the Board.

Vacancies in the position of Chair or Vice-Chair shall be filled for the remainder of the term by voice vote or roll call vote of the Board at the next meeting following the occurrence of the vacancy.

### **Section 3. Board Requests for Staff Assistance.**

**[DMME]** staff shall serve as staff to the Board.

Any Board member may request assistance from staff provided the request has been coordinated through the Chair or Vice-Chair of the Board.

## **ARTICLE III. MEETINGS**

### **Section 1. Regular Meetings.**

Meetings of the Board shall be held at the call of the Chair or whenever a majority of the members so request, at such time and place as the Board may determine. No business requiring a vote or final decision of the Board may be conducted in the absence of a quorum, as defined below.

### **Section 2. Annual Meetings.**

The last regular meeting of the calendar year shall be designated as an annual meeting. Elections of officers shall be held at the Annual Meeting.

### **Section 3. Committee Meetings.**

The Board may establish standing committees consisting of at least five members of the Board from time to time as needed to carry out the work of the Board.

### **Section 4. Compliance with FOIA.**

All meetings of the Board or a Committee of the Board shall be noticed and conducted in conformance with The Virginia Freedom of Information Act, Title 2.2, Ch. 37 of the Code of Virginia.

### **Section 5. Quorum.**



For any meeting of the Board, a majority of the members of the Board shall constitute a quorum. If a quorum has not been achieved, the meeting of the Board may proceed; provided, however, that voting on matters before the Board shall be postponed until a meeting of the Board at which a quorum is present.

### **Section 6. Conduct of Meetings.**

The Chair of the Board shall conduct the meetings of the Board and shall rule on the interpretation and application of the Virginia Code and these by-laws.

The Vice-Chair of the Board shall preside over meetings of the Board in the absence of the Chair. In the event that neither the Chair nor the Vice-Chair of the Board shall be in attendance at a meeting where a quorum is nonetheless present, any member of the Board may call the meeting to order, and the members present shall elect a Chair *pro tempore* to preside over the meeting. Where a quorum is not present, a vote of the majority of those members present shall determine the Chair *pro tempore*.

All actions and decisions of the Board shall be made upon the motion of a member, duly seconded by another member and approved by a majority of the members who are present and voting.

The Chair shall put the question submitted to the Board for a voice vote and shall call for a vote only after determining that there are no more Board members who wish to speak or upon approval of a motion to close debate.

Any member who may not participate in the Board's consideration of a matter under the State and Local Government Conflict of Interests Act, § 2.2-3100 *et seq.* of the Code of Virginia, must comply with the disclosure requirements of the Act and not participate in the discussion or vote on the matter.

If it appears to the Chair, upon the voice vote being taken, that the members of the Board are divided on any question, the Chair shall determine the vote of the members by roll call. A tie vote on any matter defeats the motion or issue upon which the vote is taken. At the conclusion of the vote on the motion, the Chair shall announce whether the motion has been adopted or defeated.

### **Section 7. Agenda.**

The proposed agenda for any meeting shall be determined by the Chair in consultation with staff. In addition, any members of the Board may suggest items to be included on the agenda.

The agenda for regular meetings of the Board will normally include the following: (1) review and approval of the last minutes of the Board; (2) a status report on the work plan and action items agreed to by the Board; and (3) other information of interest to the Board.

An opportunity shall be provided at each meeting of the Board for public comment. Any person who desires to speak will be asked to provide his or her name and the matter to be addressed prior to each meeting at which the public is able to comment.

### **Section 8. Amendments.**

The bylaws of the Board may be amended at any regular meeting of the Board at which a quorum is present by a majority vote.

### **Section 9. Rules of Order.**

Informal rules of order shall govern all matters of procedure unless objected to by any Board member. If such an objection occurs, then “Robert’s Rules of Order, Newly Revised” shall be the parliamentary authority for all matters of procedure not specifically covered by these bylaws.

Adopted by the Board on June 23, 2020.

## Appendix B: Clean Energy Advisory Board Statute, Code of Virginia

Code of Virginia Title 45.1. Mines and Mining. Chapter 27. Clean Energy Advisory Board.<sup>7</sup>

§ 45.1-395. Clean Energy Advisory Board; purpose.

The Clean Energy Advisory Board (the Board) is established as an advisory board in the executive branch of state government. The purpose of the Board is to establish a pilot program for disbursing loans or rebates for the installation of solar energy infrastructure in low-income and moderate-income households.

2019, c. 554.

§ 45.1-396. Membership; terms; quorum; meetings.

The Board shall have a total membership of 17 members that shall consist of 16 nonlegislative citizen members and one ex officio member. Members may reside within or without the Commonwealth. Nonlegislative citizen members shall be appointed as follows:

1. Six nonlegislative citizen members to be appointed by the Speaker of the House of Delegates upon consideration of the recommendations of the Board of Directors of the Maryland-DC-Delaware-Virginia Solar Energy Industries Association (the MDV-SEIA Board) and the Governor's Advisory Council on Environmental Justice (the Council), one of whom shall be a designee of the Virginia Housing Development Authority, created pursuant to the provisions of Chapter 1.2 (§ 36-55.24 et seq.) of Title 36; one of whom shall be a rooftop solar energy professional or employer or representative of rooftop solar energy professionals; one of whom shall be a current or former member of the Council; one of whom shall be a member or representative of the Virginia, Maryland and Delaware Association of Electric Cooperatives (VMDAEC); one of whom shall be an expert with experience developing low-income or moderate-income incentive and loan programs for distributed renewable energy resources; and one of whom shall be an attorney who is licensed to practice in the Commonwealth and maintains a legal practice dedicated to rural development, rural electrification, and energy policy;

2. Three nonlegislative citizen members to be appointed by the Senate Committee on Rules upon consideration of the recommendations of the MDV-SEIA Board, one of whom shall be a solar energy professional or employer or representative of solar energy professionals, one of

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<sup>7</sup> <https://law.lis.virginia.gov/vacodefull/title45.1/chapter27/>

whom shall work for or with a Virginia-based investor-owned electric utility company, and one of whom shall be a member or representative of VMDAEC; and

3. Seven nonlegislative citizen members to be appointed by the Governor upon consideration of the recommendations of the MDV-SEIA Board and the Council and subject to confirmation by the General Assembly, one of whom shall be an attorney who is licensed to practice in the Commonwealth and maintains a legal practice in renewable energy law and transactions, one of whom shall be an attorney who is licensed to practice in the Commonwealth and specializes in tax law and energy transactions, one of whom shall be an attorney with the Division of Consumer Counsel created pursuant to the provisions of § 2.2-517, one of whom shall be an employee of a community development financial institution who specializes in impact investing, one of whom shall be a member of a Virginia environmental organization, and two of whom shall be designees of the Department of Housing and Community Development, created pursuant to the provisions of Chapter 8 (§ 36-131 et seq.) of Title 36.

The Director or his designee shall serve ex officio with voting privileges and shall assist in convening the meetings of the Board.

Nonlegislative citizen members of the Board shall be citizens of the Commonwealth. The ex officio member of the Board shall serve a term coincident with his term of office. Nonlegislative citizen members shall be appointed for a term of three years. Appointments to fill vacancies, other than by expiration of a term, shall be for the unexpired terms. Vacancies shall be filled in the same manner as the original appointments. All members may be reappointed.

The Board shall elect a chairman and vice-chairman from among its membership. A majority of the members shall constitute a quorum. The meetings of the Board shall be held at the call of the chairman or whenever the majority of the members so request.

2019, c. 554; 2020, c. 803.

§ 45.1-397. Powers and duties of the Board; report. The

Board shall have the following powers and duties:

1. To advise the Director on the management of the Low-to-Moderate Income Solar Loan and Rebate Fund (the Fund) pursuant to the provisions of § 45.1-398;

2. To develop, establish, and operate, with the approval of the Director, a Low-to-Moderate Income Solar Loan and Rebate Pilot Program (the Program) pursuant to the provisions of § 45.1-399;

3. To advise the Director on the possibility of working with a community development financial institution or other financial institutions to further the purposes of the Program;

4. To advise the Director on the distribution of moneys in the Fund in the form of loans or rebates pursuant to the provisions of § 45.1-399; and

5. To submit to the Governor and the General Assembly an annual report for publication as a report document as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports. The chairman shall submit to the Governor and the General Assembly an annual executive summary of the interim activity and work of the Board no later than the first day of each regular session of the General Assembly. The executive summary shall be submitted for publication as a report document as provided in the procedures of the Division of Legislative Automated Systems for the processing of legislative documents and reports and shall be posted on the General Assembly's website.

2019, c. 554.

§ 45.1-398. Low-to-Moderate Income Solar Loan and Rebate Fund.

There is hereby created in the state treasury a special nonreverting fund to be known as the Low-to-Moderate Income Solar Loan and Rebate Fund (the Fund). The Fund shall be established on the books of the Comptroller. All funds appropriated for such purpose and any gifts, donations, grants, bequests, and other funds received on its behalf shall be paid into the state treasury and credited to the Fund. Interest earned on moneys in the Fund shall remain in the Fund and be credited to it. Any moneys remaining in the Fund, including interest thereon, at the end of each fiscal year shall not revert to the general fund but shall remain in the Fund.

Moneys in the Fund shall be used solely for the purposes of extending loans or paying rebates to electric customers who complete solar installations or energy efficiency improvements pursuant to the provisions of § 45.1-399. Expenditures and disbursements from the Fund shall be made by the State Treasurer on warrants issued by the Comptroller upon written request signed by the Director.

2019, c. 554.

§ 45.1-399. Low-to-Moderate Income Solar Loan and Rebate Pilot Program.

A. The Board, with the approval of the Director, shall develop and establish a Low-to-Moderate Income Solar Loan and Rebate Pilot Program (the Program) and rules for the loan or rebate application process. The Program shall be open to any Virginia resident whose household income is at or below 80 percent of the state median income or regional median income, whichever is greater. The Program shall allow only one loan per residence, irrespective of the ownership of the solar energy system that is installed. Such loan shall be available only for a solar installation or energy efficiency improvements pursuant to the provisions of Chapter 1.2 (§ 36-55.24 et seq.) of Title 36.

B. The Board shall accept an application only from the installer of the solar installation or the agent of the customer.

Each application shall include (i) 12 months of the customer's utility bills prior to installation of the solar energy system and an agreement to provide 12 months of utility bills to the Board following the installation; (ii) the customer's permission for the Director to (a) create a customer profile for the customer if he becomes an eligible loan or rebate customer, (b) aggregate the data provided by such eligible loan or rebate customers, and (c) use such aggregate data for the purpose of lowering energy costs and implementing effective programs; (iii) evidence of the completion of a home performance audit, conducted by a qualified local weatherization service provider, before and after installation of energy efficiency services such as lighting or insulation improvements, attic tents, weatherization, air sealing of openings in the building envelope, sealing of ducts, or thermostat upgrades, to demonstrate that such energy efficiency services were completed and resulted in a reduction in consumption of at least 12 percent; and (iv) an affidavit attesting to the receipt of a public benefit at the time the solar energy system is to be installed.

C. The Board shall review each application submitted to it on a first-come, first-served basis and shall recommend to the Director the approval or denial of each such application within 30 days of receipt. If the Director approves an application, he shall hold a reservation of funds for as long as 180 days for final loan or rebate claim and disbursement.

D. A customer whose application is approved may install an energy system that is interconnected pursuant to the provisions of § 56-594 or any section in Title 56 that addresses net energy metering provisions for electric cooperative service territories.

E. All of the work of installing the energy system shall be completed by a licensed contractor that (i) possesses an Alternative Energy System (AES) Contracting specialty as defined by the Board for Contractors pursuant to the provisions of Chapter 11 (§ 54.1-1100 et seq.) of Title 54.1; (ii) possesses certification for solar installation from the North American Board of Certified Energy Practitioners, Solar Energy International, Roof Integrated Solar Energy, or a similar installer certification program; (iii) possesses a rating of "A" or higher from the local Better Business Bureau; and (iv) has installed a minimum of 150 net-metered residential solar systems in Virginia. If the work of installing the solar energy system requires electrical work, it shall be completed by an electrical contractor licensed by the Virginia Department of Professional and Occupational Regulation. All photovoltaic panels, inverters, and other electrical apparatus used in the solar energy system shall be tested and certified by a federal Occupational Safety and Health Administration Nationally Recognized Testing Laboratory such as UL LLC and installed in compliance with manufacturer specifications and all applicable building and electrical codes.

F. The customer or the installer, acting on behalf of the customer, shall submit any loan or rebate claim within 90 days of completion of the installation of the solar energy system, with completion deemed to have occurred once the solar energy system's bi-directional meter or net meter, or the respective utility's revenue grade meter, has been installed and the system has been electrified. Each rebate claim shall include, at a minimum, a date of system electrification and a time-stamped and date-stamped verification of (i) bi-directional net meter delivery or (ii) the operation of a compatible programmed smart meter capable of tracking net metering activity.

G. The Director shall review and approve or deny a loan or rebate claim within 60 days of receipt and shall provide a written explanation of each denial to the respective claimant. The Director shall disburse from the Low-to-Moderate Income Solar Loan and Rebate Fund created pursuant to § 45.1-398 the loan or rebate for each approved claim within 60 days of its receipt of the claim and according to the order in which its respective application was approved. Any rebate or grant shall be in the amount of no more than \$2 per DC watt for up to six kilowatts of solar capacity installed. The customer may use a rebate in addition to any federal tax credits or state incentives or enhancements earned for the same solar installation.

2019, c. 554.

§ 45.1-400. Repealed.

Repealed by Acts 2020, c. 803, cl. 2.

## Appendix C: Clean Energy Advisory Board Members, as of 12-15-2021

First Name	Last Name	Affiliation	Title	Appointment	Term Expires
Katharine	Bond	Dominion Energy	Vice President, Public Policy and State Affairs	Senate Committee on Rules	6/30/22
Kirk	Johnson	Old Dominion Electric Cooperative (ODEC)	Senior Vice President, Member Engagement	Senate Committee on Rules	6/30/22
Taylor	Brown	Sun Tribe Solar	Chief Technical Office	Senate Committee on Rules	6/30/23
Toni	Ostrowski	Virginia Housing Development Authority	Managing Director of Homeownership	Speaker of the House	6/30/22
Kendyl	Crawford	Virginia Interfaith Power & Light; Virginia Council on Environmental Justice	Co-Director	Speaker of the House	6/30/24
Sam	Brumberg	Virginia, Maryland & Delaware Association of Electric Cooperatives (VMD-AEC)	Vice President of Regulatory Affairs & Counsel	Speaker of the House	6/30/24
Sarah	Nerette	Sigora Solar	Energy Efficiency and Sustainability Director	Speaker of the House	6/30/24
<i>Vacant</i>		<i>Reserved for LMI Incentive Program Expert</i>		<i>Speaker of the House</i>	--
Will	Cleveland	Southern Environmental Law Center	Senior Attorney	Speaker of the House	6/30/24



First Name	Last Name	Affiliation	Title	Appointment	Term Expires
KC	Bleile	Viridiant <i>*Designee of the Department of Housing and Community Development</i>	Executive Director	Governor	6/30/22
Vacant		Office of the Attorney General, Division of Consumer Counsel		Governor's Office	--
Janaka	Casper	Community Housing Partners <i>*Designee of the Department of Housing and Community Development</i>	Chief Executive Officer	Governor's Office	6/30/22
William	Greenleaf* <i>*Vice Chair</i>	Virginia Community Capital <i>*Employee of a Community Development Financial Institution - Impact Investing</i>	Clean Energy Loan Officer	Governor's Office	6/30/22
Hannah	Coman* <i>*Chair</i>	Apex Clean Energy	Associate General Counsel	Governor's Office	6/30/22
William	Reisinger	ReisingerGooch, PLC <i>*Licensed Attorney - Renewable Energy Law and Transactions</i>	Attorney	Governor's Office	6/30/22

First Name	Last Name	Affiliation	Title	Appointment	Term Expires
Susan	Kruse	The Community Climate Collaborative (C3)	Executive Director	Governor's Office	6/30/22
John	Warren	Virginia Department of Energy (Virginia Energy)	Director	<i>Ex-officio with voting privileges</i>	<i>n/a</i>

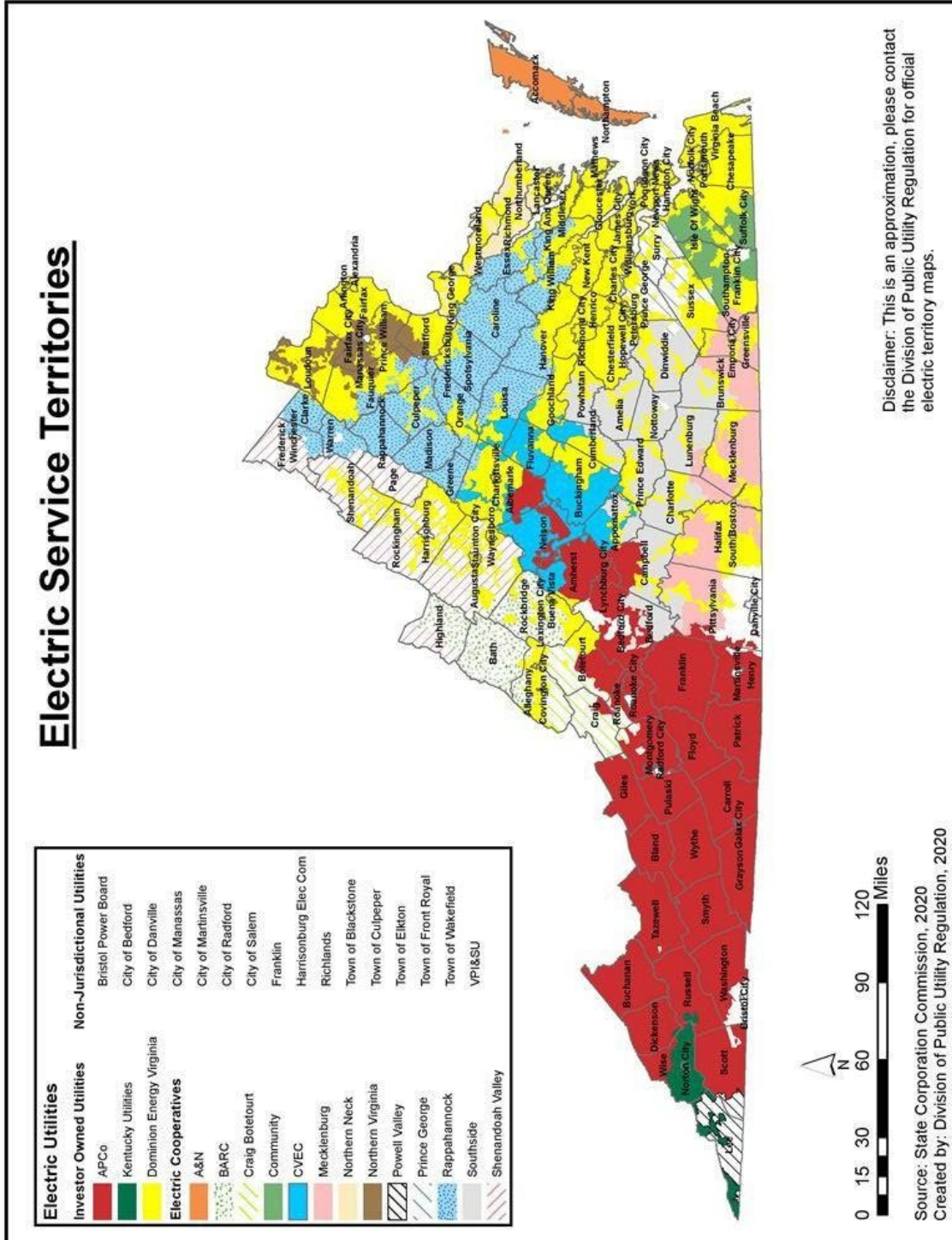
# Appendix D: U.S. DOE LEAD Analysis by Virginia Census Tract (excerpt)

Low-Income Energy Affordability Data Tool Map Export (<https://www.energy.gov/eere/slsc/maps/lead-tool>)  
 Compiled by: Carrie Hearne, Virginia Department of Mines, Minerals and Energy  
 Exported On: 9/11/2020  
 AMI: 0% - 30%; 30% - 60%; 60% - 80%  
 Building Age: Before 1940; 1940 - 59; 1960 - 79; 1980 - 99; 2000 - 09; 2010+  
 Heating Fuel Type: Electricity  
 Building Type: 1 unit detached  
 Rent/Own: Owner-occupied

Geography ID	County	Name	Avg. Energy Burden (% income)	Avg. Annual Energy Cost	Housing Counts
1 51003010903	Albemarle County	Census Tract 109.03	51	\$ 950	17
2 51590000600	Danville city	Census Tract 6	27	\$ 5,298	20
3 51760040400	Richmond city	Census Tract 404	27	\$ 2,497	8
4 51590000300	Danville city	Census Tract 3	24	\$ 5,137	105
5 51590000400	Danville city	Census Tract 4	24	\$ 5,109	89
6 51001090100	Accomack County	Census Tract 901	24	\$ 4,847	127
7 51590001000	Danville city	Census Tract 10	21	\$ 5,553	92
8 51590000200	Danville city	Census Tract 2	21	\$ 5,401	89
9 51590001100	Danville city	Census Tract 11	21	\$ 4,902	31
10 51590000700	Danville city	Census Tract 7	21	\$ 4,776	69
11 51590001200	Danville city	Census Tract 12	21	\$ 4,553	48
12 51590000800	Danville city	Census Tract 8	21	\$ 4,539	97
13 51119951200	Middlesex County	Census Tract 9512	21	\$ 4,218	212
14 51830370200	Williamsburg city	Census Tract 3702	21	\$ 2,138	14
15 51143011200	Pittsylvania County	Census Tract 112	20	\$ 4,171	93
16 51590000900	Danville city	Census Tract 9	19	\$ 4,908	170
17 51117930102	Mecklenburg County	Census Tract 9301.02	19	\$ 4,677	79
18 51013101702	Arlington County	Census Tract 1017.02	18	\$ 6,616	1
19 51590000100	Danville city	Census Tract 1	18	\$ 4,663	129
20 51171040201	Shenandoah County	Census Tract 402.01	18	\$ 4,646	45
21 51590000500	Danville city	Census Tract 5	18	\$ 4,495	16
22 51117930700	Mecklenburg County	Census Tract 9307	18	\$ 3,782	69
23 51117930500	Mecklenburg County	Census Tract 9305	18	\$ 3,118	75
24 51163930200	Rockbridge County	Census Tract 9302	18	\$ 3,081	245
25 51710004900	Norfolk city	Census Tract 49	18	\$ 2,061	4
26 51810045412	Virginia Beach city	Census Tract 454.12	17	\$ 5,020	76
27 51067020101	Franklin County	Census Tract 201.01	17	\$ 3,356	298
28 51111930300	Lunenburg County	Census Tract 9303	17	\$ 3,061	24
29 51059482100	Fairfax County	Census Tract 4821	17	\$ 2,565	8
30 51067020102	Franklin County	Census Tract 201.02	16	\$ 3,734	93
31 51133020200	Northumberland County	Census Tract 202	16	\$ 3,705	204
32 51083930100	Halifax County	Census Tract 9301	16	\$ 2,962	89
33 51660000207	Harrisonburg city	Census Tract 2.07	16	\$ 2,409	17
34 51700032127	Newport News city	Census Tract 321.27	16	\$ 2,227	14
35 51193010100	Westmoreland County	Census Tract 101	15	\$ 3,896	301
36 51019030503	Bedford County	Census Tract 305.03	15	\$ 3,752	150
37 51133020100	Northumberland County	Census Tract 201	15	\$ 3,489	248
38 51057950800	Essex County	Census Tract 9508	15	\$ 3,310	104
39 51740210900	Portsmouth city	Census Tract 2109	15	\$ 3,262	8
40 51117930600	Mecklenburg County	Census Tract 9306	15	\$ 3,137	75
41 51169030300	Scott County	Census Tract 303	15	\$ 2,961	143
42 51117930800	Mecklenburg County	Census Tract 9308	15	\$ 2,911	158
43 51135000200	Nottoway County	Census Tract 2	15	\$ 2,903	106
44 51029930202	Buckingham County	Census Tract 9302.02	15	\$ 2,902	137
45 51595890200	Emporia city	Census Tract 8902	15	\$ 2,414	59
46 51133020300	Northumberland County	Census Tract 203	14	\$ 3,616	352
47 51001090200	Accomack County	Census Tract 902	14	\$ 3,469	172
48 51119950900	Middlesex County	Census Tract 9509	14	\$ 3,244	77
49 51131930300	Northampton County	Census Tract 9303	14	\$ 3,097	160
50 51119951100	Middlesex County	Census Tract 9511	14	\$ 3,021	249

Full analysis available via US Department of Energy, Low-income Energy Affordability Data ("LEAD") Tool

# Appendix E: Virginia Electric Service Territories, courtesy of the Commission



# Appendix F: Market Research for Developing a LMI Solar Pilot Program in Virginia



# Market Research for Developing an LMI Solar Pilot Program in Virginia

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## **CESA's Role**

In early 2021, Clean Energy States Alliance (CESA), a coalition of state energy organizations working together to advance clean energy and bring the benefits of clean energy to all, received an anonymous grant to help Virginia develop a solar pilot program for low- and moderate-income (LMI) homes. Under the grant, CESA has been funded to work with the Virginia Department of Mines, Minerals and Energy (DMME) and the Clean Energy Advisory Board (CEAB) over the course of 12 months to support the design and implementation of a solar pilot program for LMI homeowners. In collaboration with DMME and the CEAB, CESA will work to advance a pilot program that reaches its intended audience, provides maximum impact without excessive administrative burdens, meets program benchmarks, and delivers meaningful benefits to participating LMI households.

Under the grant, CESA is prepared to provide assistance to DMME and the CEAB in several areas, including:

1. LMI Solar Program Design: CESA will prepare a written pilot program design and implementation plan.
2. Stakeholder Engagement and Program Refinement: CESA will help find meaningful ways to engage underserved communities and community-based organizations in the program design process.
3. Preparation of a Program Solicitation: CESA is prepared to help draft an RFP for DMME to issue to attract solar providers to participate in the program.
4. Advising on Program Implementation and Marketing: CESA is prepared to provide advice to DMME to ensure that the pilot program reaches its intended audience.
5. Production of Educational and Promotional Materials: CESA is prepared to help develop and design accessible materials and program information.

CESA's primary aim for its engagement with DMME and the CEAB is to help get a successful solar pilot for LMI homeowners up and running. After 12 months, CESA will continue to assist DMME on the operation of its program through DMME's membership in CESA, but to a much lesser degree.

As a starting point for the development of a LMI solar pilot program, CESA began focused, market research on Virginia's solar policy and regulatory landscape, residential solar project economics, income and energy burden demographics, and barriers and opportunities for launching solar program for LMI homeowners in the Commonwealth. This is the basis for this report. CESA research is intended to build off, not to supplant, prior research completed by DMME and the CEAB in these areas. We plan to use this research to inform an LMI solar program design proposal for the Commonwealth.

## **Virginia's Residential Solar Policy Solar Landscape**

Virginia ranks 11<sup>th</sup> among US states in overall solar installed capacity. The number of residential solar installations has grown sharply in the last few years, driven by a range of solar friendly policy developments. Some policy developments have helped expand the solar market in the Commonwealth while others hold particular promise for enabling low- and moderate-income (LMI) Virginians to access solar energy.

### Renewable Energy Targets

In 2007, the Virginia General Assembly passed legislation establishing a framework for a voluntary Renewable Portfolio Standard (RPS) program for the Commonwealth. Recently, the state's RPS targets have increased in ambition and enforceability. In 2018, the Virginia Grid Transformation and Security Act (SB 966) deemed 5,500 megawatts of solar and wind resources to be in Virginia's public interest. Then, in September 2019, Governor Ralph Northam issued an executive order (EO 43) calling for the development of an action plan to produce 100 percent of Virginia's electricity from carbon-free sources by 2050. In 2020, the Virginia General Assembly codified Governor Northam's goal, requiring the Commonwealth's two major investor-owned utilities to become carbon free by 2050 at the latest.

### Virginia Clean Economy Act

In addition to establishing zero-carbon emissions goals for the Commonwealth's major utilities, the 2020 Virginia Clean Economy Act (SB 851/HB1526) requires Dominion Energy to procure at least one percent of its annual electricity for Renewable Portfolio Standard compliance from distributed generation facilities. It also requires that at least one quarter of such distributed generation be obtained from low-income qualifying projects. The law defines a low-income qualifying project as "a project that provides a minimum of 50 percent of the respective electric output to low-income utility customers." The State Corporation Commission is assessing Dominion Energy's proposal to comply with its Renewable Portfolio Standard obligations, including the utility's low-income obligations, in a pending case (SCC Case No. PUR-2020-00134).

The Virginia Clean Economy Act allows the use of power purchase agreements (PPAs) for solar projects sized between 50 kW and 3 MW through pilot programs conducted by Dominion Energy, Appalachian Power, and Old Dominion Power. LMI customers and tax-exempt organizations are exempted from the 50-kw size minimum for PPAs for solar projects, effectively making them eligible for small-scale solar PPAs under these pilot programs.

The Virginia Clean Economy Act directed the Commonwealth to join the Regional Greenhouse Initiative (RGGI), a voluntary, market-based, cap-and-invest program that has been joined by other Northeast and mid-Atlantic states. RGGI imposes limits on greenhouse gas emissions from electric plants, which has created a market for emissions allowances. Through an auction process, these RGGI allowances generate proceeds. The Virginia Department of Housing and Community Development (DHCD) Housing Innovations in Energy Efficiency Program is funded through RGGI proceeds. HIEE will make energy efficiency upgrades to new and existing residence to reduce energy bills for low-income Virginians. DHCD has embarked on a stakeholder process for HIEE program development. Currently, solar PV is not an eligible technology under this program, but roof repairs, which can help enable rooftop solar adoption for homeowners, is.

### Virginia Solar Freedom Act (HB 572)

In 2020, the Virginia General Assembly enacted the Virginia Solar Freedom Act (HB 572). It established a program for Dominion and Old Dominion Power customers living in multifamily housing to offset their electricity usage through a subscription to a solar facility. The legislation also increased the state's cap on net energy metering from 1% to 6% of each Virginia utility's



peak load and set aside one percent of the available net energy metering capacity for low-income customers. The State Corporation Commission has proposed regulations to implement the amended net metering cap under the Act (SCC Case No. PUR-2020-00195).

### Shared Solar (SB 629) and Multifamily Shared Solar (HB 1647 / SB 710) Legislation

In 2020, the Virginia General Assembly passed SB 629, which ordered the State Corporation Commission to establish a shared solar program for Dominion Energy customers in Virginia. The statute allows Dominion Energy customers to subscribe to a shared solar facility for the amount of electricity generated by it. Under SB 629, the State Corporation Commission must establish a minimum bill for all shared solar subscribers, except for low-income customers.

In December 2020, the State Corporation Commission issued shared solar program rules (SCC Case No. PUR-2020-00125). Under the rules, the maximum size of the shared solar program must not exceed 150 megawatts, at least 30% of which must be apportioned to low-income customers. Each entity operating or owning a shared solar facility must demonstrate that it meets the low-income customer requirement. After the program's 30% low-income requirement is satisfied, the program will be expanded to a cumulative total of 200 megawatts. Generally, Dominion Energy customers will be subject to a minimum bill requirement to subscribe to a shared solar facility, but low-income customers are exempt from this provision. Dominion Energy is to begin accepting applications for registration by July 1, 2021.

In 2020, the Virginia General Assembly also passed HB 572, HB 1184, HB 1647, and SB 710, which together require the State Corporation Commission to establish a program to enable in multifamily housing residents in Dominion Energy and Old Dominion Power service territory the opportunity to participate in shared solar projects. Unlike the shared solar program under SB 629, the shared solar program for multifamily Dominion and Old Dominion Power Company customers does not include a minimum bill requirement and does not contain an exception for low-income customers.

### Enabling Statute for the Virginia Clean Energy Advisory Board

In 2019, Virginia General Assembly passed HB 2741, which created the CEAB and directed it to work with the DMME to “establish a pilot program for disbursing loans or rebates for the installation of solar energy infrastructure in low-income and moderate-income households” (HB 2741). Through this legislation, the Virginia General Assembly designated a special non-reverting fund in the state treasury for LMI solar program financing. The CEAB was convened in 2020 and is working to advance an LMI solar pilot program in the Commonwealth. In 2020, the General Assembly passed HB 1707, which repealed a 2022 sunset provision for the CEAB, and added additional Board members to its composition.

### Requirement for Energy Efficiency and Solar Programs for Vulnerable Dominion Energy and Appalachian Power Customers

Enacted in 2019, HB 2789 ordered Dominion Energy and Appalachian Power to develop new pilot programs to offer solar and energy efficiency incentives to low-income, elderly, and disabled customers. In December 2020, Dominion petitioned the State Corporation Commission to offer a solar program under HB 2789 for a three-year period from January 2021 through the end of 2023 with a total proposed budget of \$31 million. Dominion Energy's solar program

proposal under HB 2789 is currently pending before the State Corporation Commission (SCC Case No. PUR-2020-00274).

### **Authorization for On-Bill Financing Programs for Coops**

During the 2020 legislative session, Governor Northam signed SB 754 into law. The statute allows electric cooperatives in Virginia to create an on-bill tariff program on or after January 1, 2021. On-bill financing programs enable electric cooperative customers to pay the costs of energy efficiency and clean energy upgrades over time through a line-item charge on their monthly electric bills. This on-bill line-item charge is assigned to the electric meter rather than to a customer personally. Virginia's law allows electric cooperatives to create programs without State Corporation Commission approval, but program development requires a stakeholder process that "include[s] an opportunity to participate for low-income and middle-income advocates, energy efficiency advocates, affordable housing advocates, and the staff of the [State Corporation] Commission."

### **Authorization for the Establishment of Local Green Banks**

Passed in 2021, HB 1919 allows Virginia localities to establish green banks to promote clean energy investment. HB 1919 requires such local green banks to be public, quasi-public, or nonprofit entities. No local green banks have been created in Virginia under HB 1919 yet.

### **Funding for a Solar Pilot Program for LMI Homeowners**

DMME has received approval to re-purpose approximately \$200,000 in federal American Recovery and Reinvestment Act (ARRA) funds to support an LMI solar pilot program. This funding is being placed in Virginia's statutorily created Low-to-Moderate Income Solar Loan and Rebate Fund. It represents the entire corpus of Virginia's Low-to-Moderate Income Solar Loan and Rebate Fund and is the only dedicated, direct, public program funding available for an LMI solar pilot under HB 2741 to date.

In future years, DMME staff may petition for a program funding allocation from Virginia's General Funds as part of the state's annual budget process. (DMME has requested funding through these channels to support an LMI solar pilot before, but with other pressing budgetary spending priorities, these have been denied.) A successful pilot program might help demonstrate the case for long-term program investment and expansion by the Virginia General Assembly. DMME and the CEAB have also explored the possibility of leveraging private investment to support solar for LMI residents with organizations such as the Coalition for Green Capital and the Climate Access Fund. Through CESA's US Department of Energy-supported *Scaling Up Solar for Under-Resourced Communities* project, Virginia may apply for up to \$50,000 to support the launch of a solar program for LMI homeowners.

### **Residential Solar System Cost Analysis**

We conducted a residential solar installation financial analysis for Virginia under different financing parameters to get an indication of the costs of a typical rooftop system and to help identify the level of subsidy necessary for cash-flow positive solar transactions for LMI

Virginians. The methodology we used was developed by the North Carolina Clean Energy Technology Center, and they calculated the results.

### Methodology and Assumptions

We costed out a typical residential solar system in three Virginia locations—Accomack County, Roanoke, and Virginia Beach—served by three different utilities—A&N Cooperative, Appalachian Power, and Dominion Energy, respectively. We examined three different scenarios for financing such a system in these locations without any new special incentives for LMI solar. The three scenarios involved 15-year market-rate loans at 4.74 percent, described below:

1. A homeowner who takes out a loan and then claims the federal investment tax credit and any applicable state credit at the end of the year.
2. A homeowner who takes out a smaller loan that does not include the value of the tax credits. For example, the homeowner has savings or another way to pay for part of the system upfront and then receives the tax credits at the end of the year.
3. A homeowner who is unable to take advantage of the federal tax credit or any applicable state tax credit.

To begin to understand the level of special state incentives that might be needed for cash-flow positive solar transactions for LMI homeowners, we modeled two alternative possible special incentives for each of the loan scenarios:

- 1) A buy-down of the interest rate from 4.74 percent to 2 percent. If this interest rate-buy-down was subsidized by the state, it would cost Virginia between \$1,800 to \$4,000 per installation.
- 2) An upfront cash payment that reduces the system cost by \$5,000.

For the Virginia Beach (Dominion Energy), we also looked at the amount required for an upfront cash payment to enable a cash-flow positive transaction in Year 1.

Because residential solar leases are not currently being offered in the Virginia marketplace, there is no existing data for lease prices for Virginia. However, the numbers for loan products with monetization of the federal tax credit gives a rough sense of the economics of a residential solar system under a lease model. We also modeled a solar lease based on the structure used in some other states. This is not to say that solar companies in Virginia would offer leases with these terms, but it provides an estimate of what a residential solar lease could look like in the Commonwealth.

We modeled a 6.4-kilowatt system because that was the median size for all residential systems installed in the US in 2018, according to Lawrence Berkeley National Laboratory's *Tracking the Sun* report, and is coincidentally also the median size for the systems installed on LMI single-family homes through the Connecticut Green Bank's Solar for All Program. We assumed an annual electricity price escalation rate of 2.5% and an annual degradation rate of 0.5% and a discount rate of 0%. We modeled a typical solar loan term—in this case, a 15-year loan with no payments due in years 16-25. We assumed a monetizable federal investment tax credit of 26% would be monetizable. (Currently, the investment tax credit for solar installations is set at 26%

and is scheduled to step down to 22% in 2023. Thereafter, no investment tax credit is available for resident-owned solar installations.) Our analysis assumed a per kilowatt system cost of \$3.05 for a 6.4-kW installation. Different rate tariffs—fixed bill charges and energy rates—as well as sale tax and property tax rates, apply depending upon the system location modeled.

## Results

### Accomack 6.4-kW Installation

Scenario	Monthly Loan Payment	Net Monthly Savings		Payback Period
<b>Market Rate Loan (4.74%) without Special State Incentives</b>				
Loan for homeowner who qualifies for federal tax credit	\$158.22	Year One	(\$83.84)	22 Years
		25-Year Average	\$20.11	
Loan with federal tax credit received and excluded from upfront cost	\$116.20	Year One	(\$41.82)	20 Years
		25-Year Average	\$27.93	
Loan with no federal or state tax credit	\$158.22	Year One	(\$83.84)	25 Years
		25-Year Average	\$2.92	
<b>State Incentive: 2% Interest Rate</b>				
Loan for homeowner who qualifies for federal tax credit	\$130.09	Year One	(\$55.71)	18 Years
		25-Year Average	\$36.99	
Loan with federal tax credit received and excluded from upfront cost	\$95.54	Year One	(\$11.16)	17 Years
		25-Year Average	\$40.33	
Loan with no federal or state tax credit	\$130.09	Year One	(\$55.71)	22 Years
		25-Year Average	\$19.60	
<b>State Incentive: \$5,000 Rebate</b>				
Loan for homeowner who qualifies for federal tax credit	\$118.78	Year One	(\$44.40)	17 Years
		25-Year Average	\$43.77	
Loan with federal tax credit received and excluded from upfront cost	\$76.76	Year One	(\$2.38)	15 Years
		25-Year Average	\$51.60	
Loan with no federal or state tax credit	\$118.78	Year One	(\$44.40)	20 Years
		25-Year Average	\$26.39	

Roanoke 6.4-kW Installation

Scenario	Monthly Loan Payment	Net Monthly Savings		Payback Period
<b>Market Rate Loan (4.74%) without Special State Incentives</b>				
Loan for homeowner who qualifies for federal tax credit	\$158.22	Year One	(\$88.56)	>25 Years
		25-Year Average	(\$2.37)	
Loan with federal tax credit received and excluded from upfront cost	\$116.20	Year One	(\$46.54)	24 Years
		25-Year Average	\$5.46	
Loan with no federal or state tax credit	\$158.22	Year One	(\$88.56)	>25 Years
		25-Year Average	(\$19.75)	
<b>State Incentive: 2% Interest Rate</b>				
Loan for homeowner who qualifies for federal tax credit	\$130.09	Year One	(\$60.43)	22 Years
		25-Year Average	\$14.51	
Loan with federal tax credit received and excluded from upfront cost	\$95.54	Year One	(\$25.88)	21 Years
		25-Year Average	\$17.86	
Loan with no federal or state tax credit	\$130.09	Year One	(\$60.43)	>25 Years
		25-Year Average	(\$2.87)	
<b>State Incentive: \$5,000 Rebate</b>				
Loan for homeowner who qualifies for federal tax credit	\$118.78	Year One	(\$49.12)	20 Years
		25-Year Average	\$21.29	
Loan with federal tax credit received and excluded from upfront cost	\$76.76	Year One	(\$7.10)	18 Years
		25-Year Average	\$29.12	
Loan with no federal or state tax credit	\$118.78	Year One	(\$49.12)	24 Years
		25-Year Average	\$3.91	

Virginia Beach 6.4-kW Installation

Scenario	Monthly Loan Payment	Net Monthly Savings	Payback Period
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<b>Market Rate Loan (4.74%) without Special State Incentives</b>				
Loan for homeowner who qualifies for federal tax credit	\$158.78	Year One	(\$89.62)	23 Years
		25-Year Average	\$14.60	
Loan with federal tax credit received and excluded from upfront cost	\$116.09	Year One	(\$59.22)	21 Years
		25-Year Average	\$22.76	
Loan with no federal or state tax credit	\$158.78	Year One	(\$89.62)	>25 Years
		25-Year Average	(\$2.85)	
<b>State Incentive: 2% Interest Rate</b>				
Loan for homeowner who qualifies for federal tax credit	\$130.55	Year One	(\$61.39)	19 Years
		25-Year Average	\$31.54	
Loan with federal tax credit received and excluded from upfront cost	\$95.45	Year One	(\$36.47)	19 Years
		25-Year Average	\$35.15	
Loan with no federal or state tax credit	\$130.55	Year One	(\$61.39)	23 Years
		25-Year Average	\$14.09	
<b>State Incentive: \$5,000 Rebate</b>				
Loan for homeowner who qualifies for federal tax credit	\$119.34	Year One	(\$50.18)	18 Years
		25-Year Average	\$32.55	
Loan with federal tax credit received and excluded from upfront cost	\$76.65	Year One	(\$7.49)	16 Years
		25-Year Average	\$46.43	
Loan with no federal or state tax credit	\$119.34	Year One	(\$50.18)	22 Years
		25-Year Average	\$20.81	
<b>State Incentive: \$12,000 Rebate</b>				
Loan for homeowner who qualifies for federal tax credit	\$64.12	Year One	\$5.04	11 Years
		25-Year Average	\$71.39	
<b>State Incentive: \$6,500 Rebate</b>				
Loan with federal tax credit received and excluded from upfront cost	\$64.82	Year One	\$4.35	15 Years
		25-Year Average	\$53.52	

## Findings and Conclusions

A number of key findings emerged from this analysis:

1. The overall costs for typical residential installation did not yield dramatically different results between the three Virginia locations we modeled.
2. None of the basic loan financing scenarios in any of the modeled locations yielded a positive cash flow in Year One. Initial negative cash flow from taking out a loan to finance a solar system is a large hurdle for LMI customers in Virginia.
3. Being able to take advantage of the federal investment tax credit makes a significant difference in Year One monthly loan costs. If a customer is able to deduct the value of the federal tax credit from the upfront cost of the system, Year One loan costs are roughly half of what they would otherwise be under a “no federal or state tax credit” scenario.
4. Neither a buy-down of the interest rate of the loan to 2 percent, nor adding an upfront cash payment to reduce the system cost by \$5,000 was sufficient by itself to generate a cash-flow positive solar loan transaction. A significant incentive—greater than an interest rate buydown to 2 percent or a \$5,000 rebate—is necessary for a customer to have a cash-flow positive solar loan transaction from Year One through the life of the system.
5. The hypothetical lease structure we modeled, which would enable monetization of the federal tax credit, provides first-year savings of around \$16 to \$20. No solar leases are being offered in Virginia and the lease terms we modeled are theoretical, but our analysis suggests cash-flow positive leases could be achieved in Virginia, especially with an additional solar rebate folded in.
6. Under our model, the rebate necessary to achieve a first-year savings of about \$4 to \$5 for a 6.4-kw system in Virginia Beach is \$6,500, assuming that federal tax credit can be monetized and is used to offset the upfront system cost. If the federal tax credit is not monetized and deducted from the system cost, a \$12,000 rebate would be necessary to achieve nominal savings in Year One.

Based on this analysis, we reached the following conclusions:

1. A 25-year lease offers a preferable financing product for LMI homeowners compared to a loan:
  - A 25-year lease spreads out the financing over a longer period than a typical 15-year loan. That makes it easier to ensure immediate savings in Year One, even if the average annual savings over 25 years may be less.
  - Because the leasing company, rather than the homeowner, owns the solar system, it can take advantage of a federal tax credit even if the customer cannot. Low-income customers often do not have sufficient tax liability to take advantage of the federal tax credit.
  - Low-income customers may not be able to qualify for market rate loans due to insufficient income, credit score, or debt-to-income ratios. LMI customers may

also be reluctant to take on additional debt. Solar leases offer an alternative. Some solar lease companies offer alternative underwriting criteria.

- A solar lease offers LMI customers fixed monthly expense predictability. Leases may also avoid the need for LMI customers to carefully manage their solar systems since insurance, maintenance, repairs, and inverter replacement are often included as part of a solar lease package. Under a lease model, the homeowner can usually transfer the solar lease to the next homeowner for the remainder of the contract term, provided the new owner meets the qualifying criteria to take over the third-party lending agreement obligations.
2. Since we did not have access to real-world lease data from Virginia, to better understand the market conditions necessary to create a cash-flow positive solar lease transaction, we looked at California, where we had access to real-world loan and solar lease data. In California, a solar loan for a homeowner who qualifies for the federal tax credit produces Year One savings of about four dollars. In the same California market, a real-world 25-year solar lease product yields savings of about \$50 per year. To analogize to the Virginia market, to make a solar loan yield four dollars of Year One savings for a customer requires an upfront cash incentive of \$6,500-\$12,000.
  3. Virginia allows local jurisdictions to exempt residential solar from property taxes. This can have a substantial impact on solar project economics. With a property tax exemption, the rebate necessary to achieve a first-year savings of about \$5 for a 6.4-kw system is \$4,750, assuming the federal tax credit could be used to offset the upfront cost of the system. Without a property tax exemption, the rebate necessary to achieve a first-year savings of \$4-\$5 is \$6,500 under the same parameters.
  4. Analyzing the financial models, we think it is reasonable to assume that approximately \$6,500 in public subsidy per project is necessary to ensure participating LMI households benefit from their solar transaction.
  5. Assuming approximately \$6,500 in direct public subsidy is necessary for each system installed and an initial pilot program financing budget capped at \$200,000, about 30 cash-flow positive projects could be completed under the pilot.

### **Virginia Income and Energy Burden Demographics**

Virginia ranks 12<sup>th</sup> among US states in population and 14<sup>th</sup> in population density. The most populous areas of the Commonwealth are in the northeast part of the state (in the broader metropolitan area outside the District of Columbia), in and around metropolitan areas of Charlottesville, Richmond, and Roanoke, and in the southeastern part of the state (in the greater Virginia Beach metropolitan area).

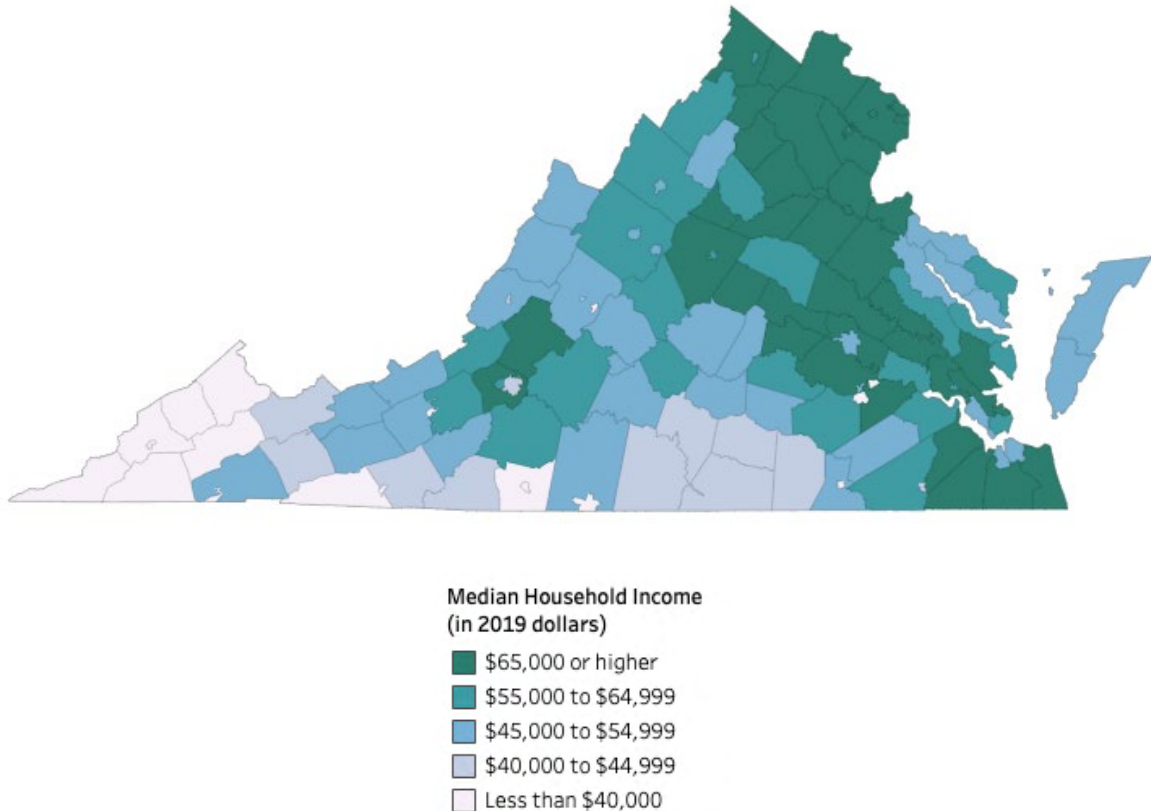
Based on US Census Bureau data, the median household income in Virginia between 2015 and 2019 was \$74,222, considerably above the 2019 US median household income of \$65,712. The owner-occupied housing rate between 2015 and 2019 was 66.3%. Virginia's poverty rate (the percentage of a population whose income falls below the poverty line) in 2018 was 10.7%, which is below the national poverty rate of 13.1%. But despite Virginia's higher-than-national



median household income and lower-than-national poverty rate, poverty and high energy burdens remain prevalent, especially in rural parts of the Commonwealth.

The figure below shows median household income ranges by county between 2015-2019 in Virginia.

Figure 1. Median Household Income by County (2015-2019)

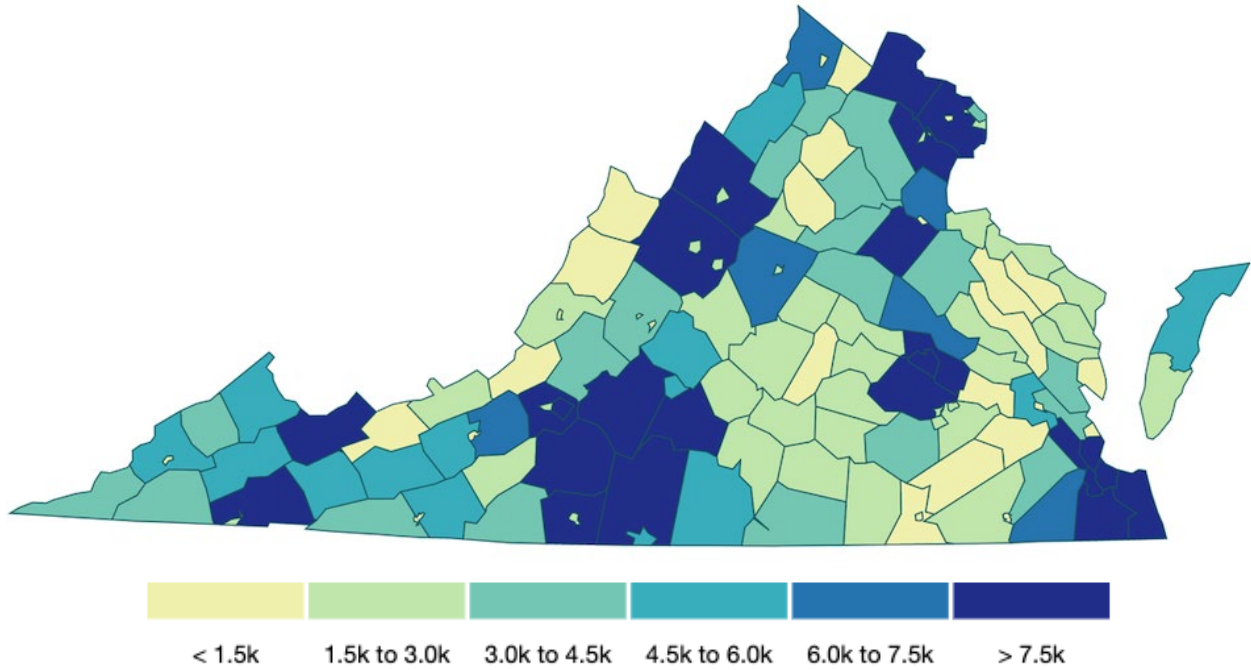


Source: US Census Bureau, <https://www.census.gov/library/visualizations/interactive/acs-median-household-income-2015-2019.html>

Unsurprisingly, median household incomes in more rural counties tend to be lower than in their population-dense counterparts.

The figure below shows low-income (80% or below the area median income), owner-occupied housing counts by county.

Figure 2. Low-Income, Owner-Occupied Housing Counts by County

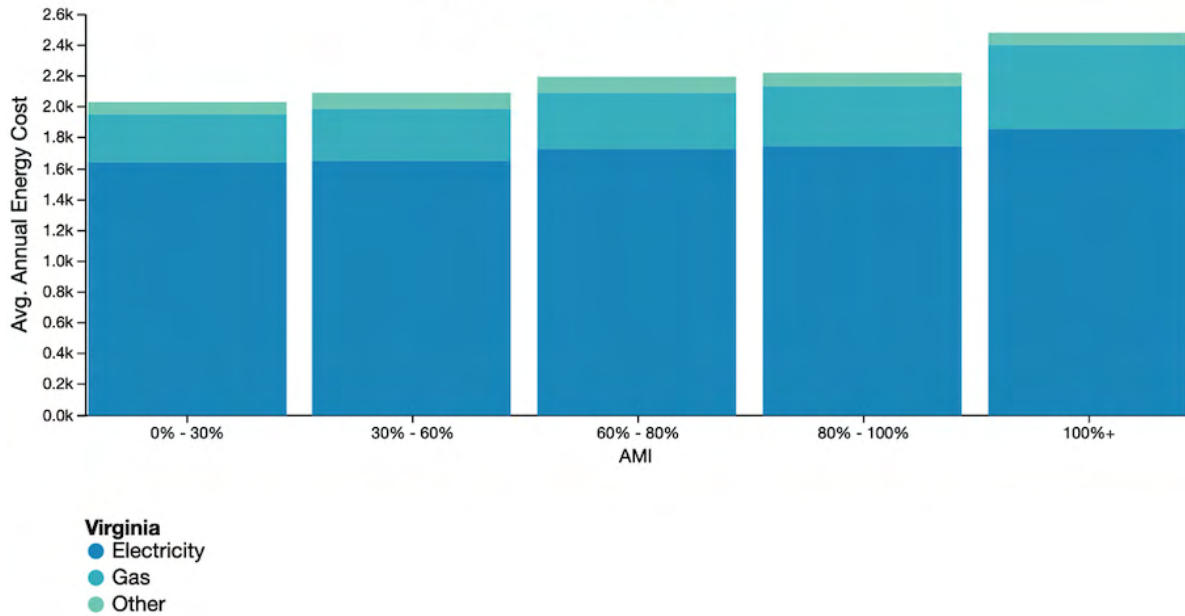


Source: US Department of Energy Low Income Energy Affordability Data (LEAD) Tool, <https://www.energy.gov/eere/slsc/maps/lead-tool#>

Low-income households living in owner-occupied homes are widespread in more densely populated counties, but the figure also indicates some concentrations in a handful of less population-dense counties (for example, Tazewell County in the southwestern region and Henry County in the southside region of the state).

The figure below shows the average annual energy cost for Virginia broken out by area median income stratification and by energy source (electricity, gas, and other).

Figure 3. Average Annual Energy Cost by Area Median Income Band  
**Avg. Annual Energy Cost for Virginia**

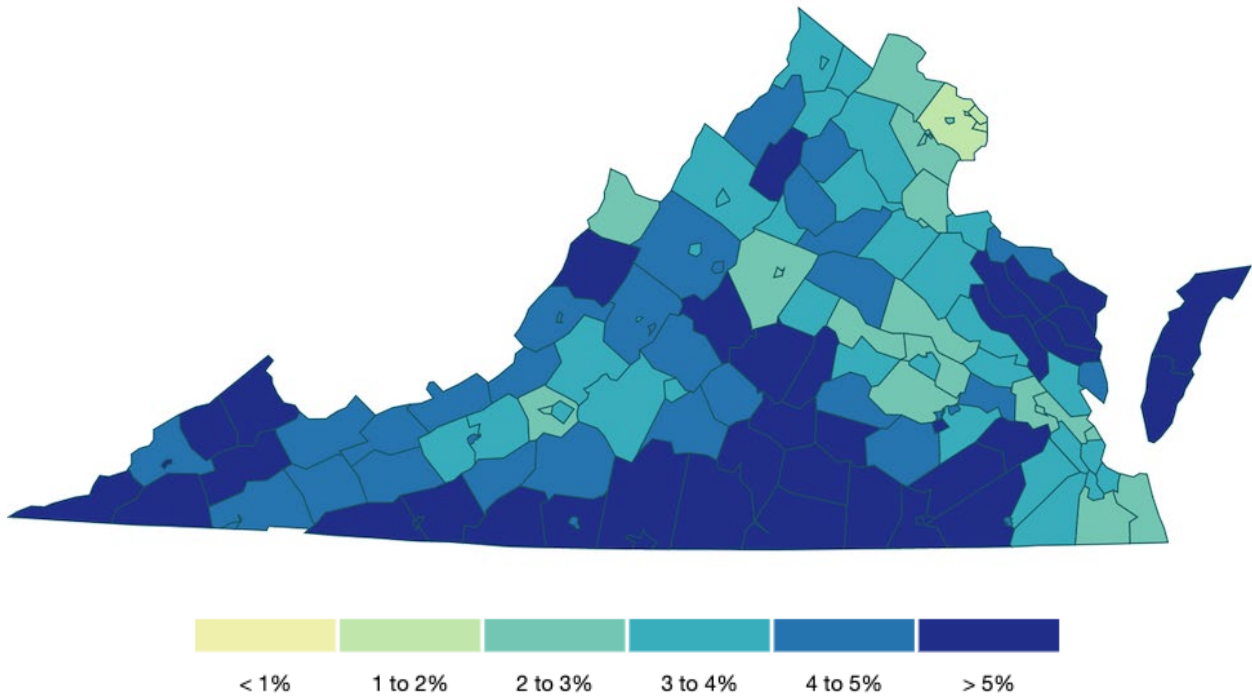


Source: US Department of Energy Low Income Energy Affordability Data (LEAD) Tool, <https://www.energy.gov/eere/slsc/maps/lead-tool#>

Virginia households in lower area median income stratifications tend to spend slightly less in gross on electricity annually, but as a percentage of income, this picture changes dramatically. Across the Commonwealth, the average energy burden for low-income, owner-occupied households is 8% according to the US Department of Energy LEAD Tool. An energy burden above 6% is typically considered a high energy burden.

The figure below shows the average energy burden (the percentage of gross household income spent on energy costs) by county.

Figure 3. Average Energy Burden by County



Source: US Department of Energy Low Income Energy Affordability Data (LEAD) Tool, <https://www.energy.gov/eere/slsc/maps/lead-tool#>

Darker blue counties—those with higher energy burdens—tend to be concentrated in the more rural parts of the state in the southwestern, southside, and eastern counties of Virginia.

Overall, Virginia’s income and energy burden demographics demonstrate ample opportunity to deliver bill savings and reduce energy burdens for LMI owner-occupied homes in Virginia through a solar program targeted for this population.

### Locational Variables

Knowing that a pilot with an initial budget of \$200,000 can only reach a relatively small number of households (30, based on our rough approximation), we have begun to zero in on potential jurisdictions. Our basic assumption for zeroing in on potential target jurisdictions for a LMI solar pilot was that a program at the scale being contemplated would be focused in a few select communities so it could take advantage of focused marketing and community engagement and leverage economies of scale using a competitively selected installer model. Under a competitively selected installer model, DMME would be able to retain direct oversight controls over participating solar companies. Selected solar installers could offer cost-competitive pricing with increased installation volumes and targeted customer acquisition support.

Using analysis generated by DMME staff through the US Department of Energy’s Low Income Energy Affordability Data (LEAD) Tool as our starting point, we assessed the following variables at the county and city level in Virginia:

### Electric Utility Service Territory

Dominion Energy and Appalachian Power are in the process of developing LMI solar and efficiency programs per HB 2789. To avoid potential program redundancy, we gave preference to jurisdictions outside of the Dominion Energy and Appalachian Power service territory.

### Energy Burden

We gave preference to jurisdictions with higher energy burdens—average annual energy expenditures as a percentage of annual household income. The 21 potential target locations all displayed high energy burdens (between 9 and 24 percent).

### Single-Family Owner-Occupied Housing Count

Because the LMI renter population will be eligible to participate in Virginia’s forthcoming shared solar program, we assumed that this LMI solar pilot program would target single-family homeowners. We gave a slight preference to those cities and counties with higher single-family owner-occupied housing counts.

### LMI Housing Count

We gave significant preference to jurisdictions with higher LMI housing counts. Since § 45.1-399 of the Code of Virginia dictates pilot program eligibility as “open to any Virginia resident whose household income is at or below 80 percent of the state median income or regional median income, whichever is greater,” we used 80% area median income as our LMI thresholds for the purpose of our housing count.

### Percentage of LMI Single-Family Housing

In addition to looking at LMI and single-family owner-occupied housing counts, we also explored the LMI single-family housing count as a percentage of the total housing count for Virginia. This gave us a sense of the density of LMI single-family homes within each jurisdiction.

### Population

We assessed the overall population of the potential target jurisdictions we zeroed in on to ensure that there would be an adequate population base in selected jurisdictions to enable a pilot to generate sufficient program enrollment. Overall jurisdictional population numbers also helped us diversify our potential pilot locations between urban and rural geographies. Hopewell has a significantly higher population than the other cities we identified as potential targets.

### Solar Property Tax Exemption Status

Virginia law allows cities and counties to exempt or partially exempt solar equipment from local property taxes. Solar property tax exemption reduces the amount of public subsidy necessary to ensure cashflow positive solar transactions for LMI customers and can have a substantial impact on residential solar project economics. Thus, we gave preference to those jurisdictions that provided solar property tax exemptions.

## Potential Target Jurisdictions

Weighing all these factors, we arrived at a list of 21 potential target jurisdictions for consideration. Below is a table of the potential jurisdictions we derived in our assessment.

Table 1. Table of Potential Jurisdictions with Data on Locational Variables

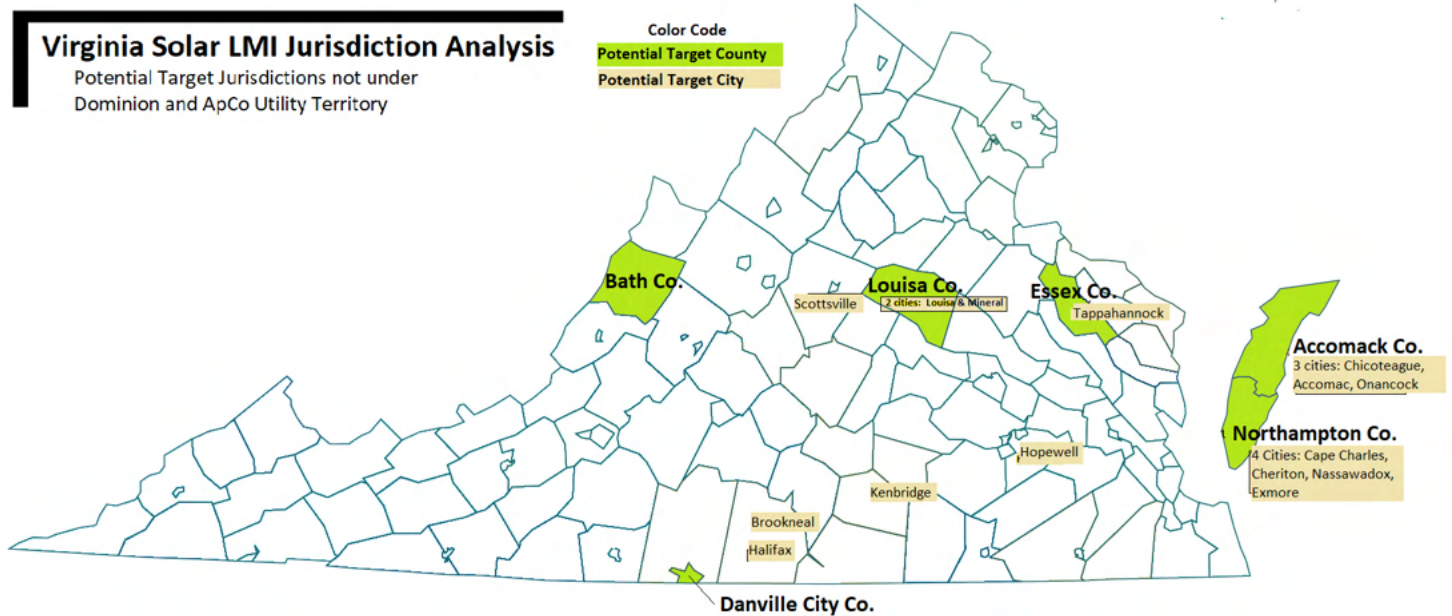
Jurisdiction Type	Jurisdiction	Solary Property Tax Exemption	Avg. Energy Burden (% income)	Avg. Annual Energy Cost	% LMI Housing Counts (All/LMI)	LMI Housing Counts	All Housing Count	Population	Primary Utility Service Territory
County	Danville city County	Y	19	4566	37%	1105	2979	38,834	Danville Utilites
County	Accomack County	N	14	3119	26%	1025	4018	31,786	A&N Electric Cooperative
City	Chincoteague	N	24	4847	23%	127	557	2,913	A&N Electric Cooperative
City	Tappahannock	N	14	2701	31%	105	337	2,380	Rappahannock Electric Cooperative
City	Cape Charles	N	14	3097	28%	56	199	990	A&N Electric Cooperative
County	Northampton County	N	14	2932	23%	351	1549	11,608	A&N Electric Cooperative
County	Essex County	N	14	2846	22%	398	1849	11,067	Rappahannock Electric Cooperative
City	Louisa	N	10	2638	34%	74	217	1,610	Rappahannock Electric Cooperative
County	Louisa County	N	10	2799	26%	1592	6123	39,205	Rappahannock Electric Cooperative
City	Scottsville	Y	9	3060	44%	61	138	597	Central Virginia Electric Cooperative
City	Accomac	N	14	2739	29%	15	51	496	A&N Electric Cooperative
County	Bath County	N	12	2878	35%	160	457	3,935	BARC Electric Cooperative
City	Hopewell	N	8	2514	51%	1386	2734	22,196	Prince George Electric Cooperative
City	Cheriton	N	14	3097	28%	14	50	477	A&N Electric Cooperative
City	Onancock	N	14	2678	24%	49	203	1,262	A&N Electric Cooperative
City	Nassawadox	N	13	2823	21%	10	48	495	A&N Electric Cooperative
City	Exmore	N	13	2823	21%	32	154	1,445	A&N Electric Cooperative
City	Brookneal	N	13	2908	21%	26	126	1,115	Southside Electirc Cooperative
City	Halifax	N	12	2698	34%	52	151	1,252	Mecklenburg Electrtric Cooperative
City	Kenbridge	N	12	2828	32%	37	116	1,241	Southisde Electric Cooperative
City	Mineral	N	11	2965	26%	21	80	510	Rappahannock Electric Cooperative

Table 2. Potential Target Jurisdictions and Their Primary Electric Utilities

21 Target Jurisdictions		8 Electric Cooperatives
Potential Target	Potential Target Cities	Primary Utility Service Territory
Accomack County	(3) Chincoteague, Accomac, Onancock	A&N Electric Cooperative
Louisa County	(2) Louisa, Mineral	Rappahannock Electric Cooperative
Northampton County	(4) Cape Charles, Cheriton, Nassawadox, Exmore	A&N Electric Cooperative
Bath County		BARC Electric Cooperative
Essex County		Rappahannock Electric Cooperative
Danville city County		Danville Utilities
	Brookneal, Halifax	Mecklenburg Electric Cooperative
	Tappahannock	Rappahannock Electric Cooperative

Hopewell	Prince George Electric Cooperative
Kenbridge	Southside Electric Cooperative
Scottsville	Central Virginia Electric Cooperative

Figure 4. Map of Potential Target Jurisdictions



### Next Steps

With input from DMME, the CEAB, and stakeholders on the ground in these jurisdictions, we plan to narrow down our list of potential target jurisdictions to two or three, which we will put forward as proposed locations for a pilot. Key stakeholders to solicit input from within the potential target jurisdictions include community-based organizations, Weatherization Assistance Program providers, local electric utility representatives, municipal officials, local solar installers, and single-family affordable housing providers.

### Statutory Considerations

Various considerations emerged as we began to outline LMI solar pilot design possibilities and more deeply delve into the program’s authorizing legislation:

#### Third-Party Solar System Ownership

As noted above, third-party residential solar system ownership structures hold promise for solar programs for LMI homeowners because they enable monetization of the federal solar tax credit and reduce capital investment burdens on participating LMI households, but their legality is somewhat uncertain in Virginia. Attorneys for the Commonwealth are exploring this issue further. Resolving this issue will be helpful for LMI solar pilot program development.

### Income Threshold

The enabling statute for Virginia’s LMI solar pilot calls for the program to “be open to any Virginia resident whose household income is at or below 80 percent of the state median income or regional median income, whichever is greater.” Virginia’s Weatherization Assistance Program (WAP) income guidelines follow the state Low-Income Heating Assistance Program (LIHEAP) limit of 60% state median income (SMI) or below for households of seven or less. Independently verifying LMI solar pilot program eligibility at a different threshold than is used by other social service programs in Virginia could present a heavy administrative burden. Since WAP and LIHEAP eligibility currently cap at 60% SMI in Virginia, we suggest focusing the solar pilot for LMI homeowners on those who have already qualified for WAP or LIHEAP. Leveraging existing programs’ income verification will make intake and customer qualification much less burdensome for an LMI solar pilot. If the pilot program is expanded at a later date, the target income band could be enlarged at that time.

### Requirement to Demonstrate Reduced Energy Consumption through Prior Efficiency Upgrades

Section 45.1-399(B)(iii) of the enabling statute for Virginia’s LMI solar pilot requires that program applicants demonstrate prior energy efficiency upgrades resulting in a reduction of energy consumption at least 12 percent. The CEAB 2020 Annual Report suggests “using WAP program audits and final work scopes with a Savings to Investment Ratio (SIR) of greater than 1.0 for energy efficiency measures as a proxy for the 12% reduction in energy consumption required in the Virginia Code to qualify WAP customers for eligibility under the LMI Solar Loan and Rebate program.” We are strongly inclined to follow the CEAB’s recommendation here. The CEAB’s Annual Report notes, “A reasonable interpretation of the Virginia Code allows for a reduction to be measured in terms of dollar cost savings, so that both electric and fuel savings can be included and stated as a single metric.” We agree. Further exploration and coordination with WAP providers will be necessary for demonstrating SIR scores of greater than 1.0 for pilot program eligibility.

### Incentive Payment

The enabling statute for the LMI solar pilot requires any loans or rebates issued under the program to be remitted within 60 days of the receipt of the claim. This suggests that the structure of the LMI incentive under the program will be issued as a lump-sum payment. We think a lump-sum incentive is workable if it can be effectively factored into the system cost so it reduces LMI customers’ monthly loan, solar lease, or solar power purchase agreement payments.

### Incentive Cap

Section 45.1-399(G) of the enabling statute for Virginia’s LMI solar pilot states that “[a]ny rebate or grant shall be in the amount of no more than \$2 per DC watt for up to six kilowatts of solar capacity installed.” We interpret this provision to be a cap on the incentive amount, not on the allowable system size under the pilot program. We think that it is likely that system sizes could exceed six kilowatts under the pilot since the median residential solar system size is over six kilowatts in the US.



## **Conclusion**

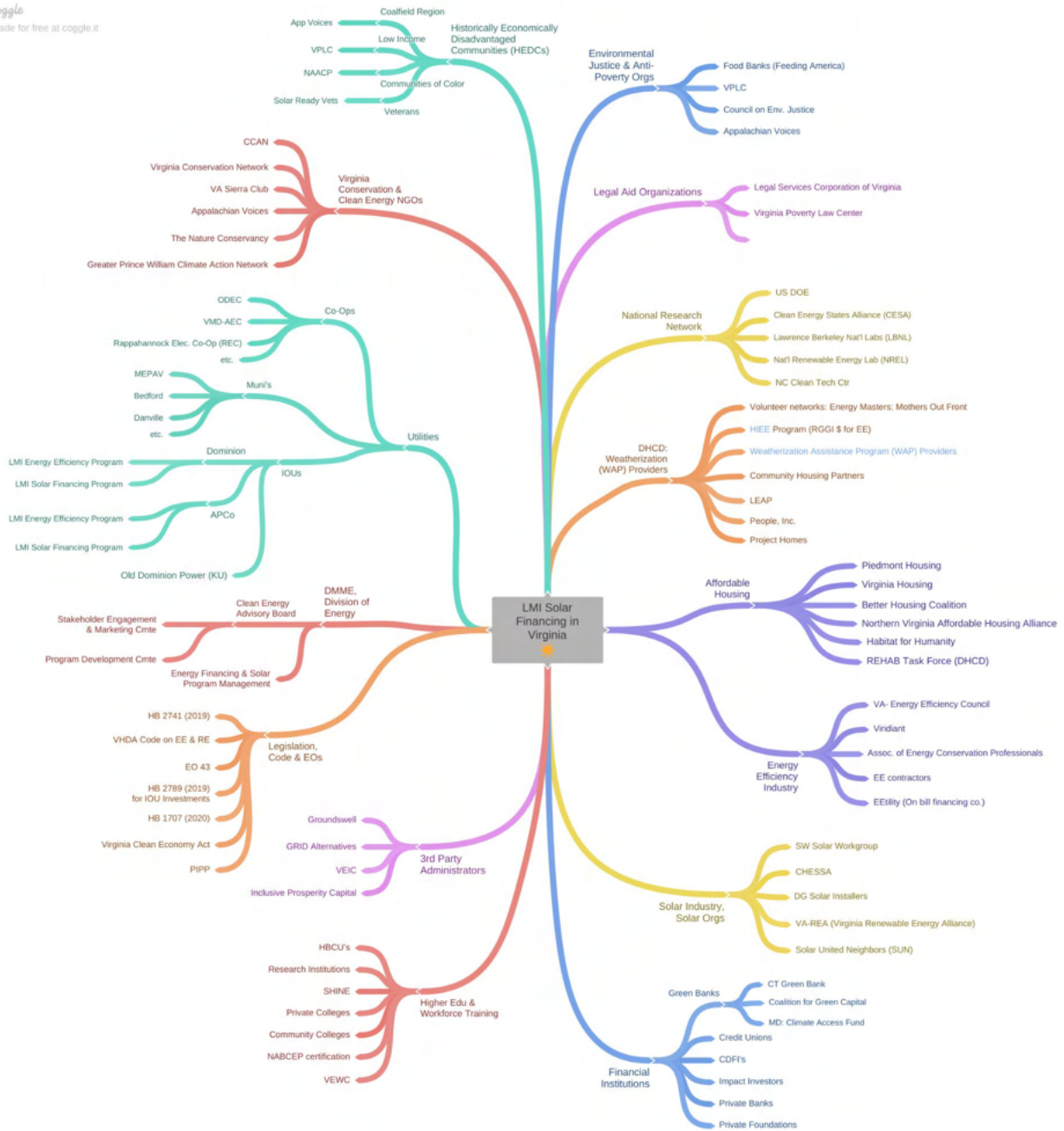
Overall, Virginia is well-primed for the launch of a solar program for LMI homeowners. The Commonwealth has a statutory directive to launch a LMI solar pilot program, and a surge of solar-friendly policies have opened up the residential solar market in Virginia considerably in recent years. But considerable work lies ahead to get a pilot off the ground under existing resource and statutory constraints.

A significant part of the challenge for LMI solar pilot program development comes down to project economics. Virginia's relatively low cost of electricity makes it difficult to pencil out residential solar projects for LMI households.

We welcome feedback from DMME and the CEAB on our research and initial program design considerations.

# Appendix G: LMI Solar Stakeholder Map

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A high resolution version of this stakeholder map can be found online [here via Coggle.it](https://coggle.it)