2024 AWARDS

State Leadership in Clean Energy

Case Studies of Four Exemplary State Programs that Demonstrate the Benefits of Innovation, Inclusion, and Investment

WINNERS

California Energy Commission
Flexible Demand Appliance Standards for Pool Controls

Connecticut Green Bank
Green Liberty Notes

Maryland Energy Administration
Community Solar LMI-PPA Grant Program

Massachusetts Clean Energy Center
Accelerating Clean Transportation (ACT) School Bus Program

CALIFORNIA ENERGY COMMISSION

CONNECTICUT GREEN BANK

Maryland Energy Administration

MASSACHUSETTS CLEAN ENERGY CENTER®

CleanEnergy States Alliance

One of the buses featured at the 2022 kickoff for the ACT School Bus awardees in Quincy, MA. Photo: Galen Nelson, MassCEC

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About this Report

This report was prepared by Maria Blais Costello of CESA to highlight the winners of the *2024 State Leadership in Clean Energy Awards*. The winners were selected by a panel of independent judges, based on the program details provided in each state's nomination materials. This report is also based on that information. Several CESA staff members were involved with, and contributed their time and expertise to, the awards process: Warren Leon, Samantha Donalds, Todd Olinsky-Paul, Vero Bourg-Meyer, Sam Schacht, and Matt Ohloff. Their assistance is greatly appreciated. David Gerratt of DG Communications designed the report. Finally, we would like to thank all the CESA members who participated in the 2024 State Leadership awards. The nominations that were received described excellent programs that were undertaken by dedicated clean energy leaders and implemented by committed staff members. We appreciate their nominations and the innovative work they are doing to advance clean energy.

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Introduction

Photo Maria Blais Costello, CESA

Every two years, the State Leadership in Clean Energy (SLICE) awards provide a vehicle for the Clean Energy States Alliance (CESA) to highlight the outstanding impact that leading states have made in the transition to clean energy in the US. Since the SLICE awards began in 2008, CESA has recognized more than 50 effective and replicable programs that address the challenges of expanding clean energy markets and clean energy access. The SLICE awards provide not only recognition for these groundbreaking initiatives, but also a way for CESA to share innovations, best practices, and lessons learned with other states, through this report and the accompanying SLICE webinar series that will launch in August.

This year, with the increased number of federal funding opportunities, many CESA Members are on the verge of accessing millions of dollars to further their missions for clean energy and climate change mitigation. In many instances, these programs will directly support clean energy efforts in both red states and blue states, helping them to tackle decarbonization, become leaders in the clean energy economy, and ensure that the goals of energy equity and environmental justice are realized. Many CESA-member organizations have spent countless hours preparing applications and proposals for these funding opportunities.

Even though CESA members faced competing priorities and limited staff time, the nominations that were submitted for consideration this year were impressive, demonstrating the impact that state clean energy programs are making across the country. This year's SLICE awards go to four programs that tackle the challenges of clean energy expansion. The **Connecticut Green Bank** is innovating new ways for small-dollar investors to support investment in the green economy without the need for a broker. The **California Clean Energy Commission** has rolled out the first-ever flexible demand regulations for an electric appliance, to employ load shifting and time-of-use rates to avoid CO_2 emissions. **Maryland Energy Administration** is working to improve access to community solar benefits by encouraging subscriber organizations to offer below-market rates to low-income subscribers, with shorter and flexible contract terms and very little financial risk. And the **Massachusetts Clean Energy Center** is helping school districts to transition to clean transportation with electric school buses,

with grants and technical assistance to help communities seeking to decarbonize bus fleets, while leveraging federal programs.

Having managed nine SLICE award cycles, it is with renewed optimism and continued appreciation for the outstanding work of state clean energy programs that I am happy to report that this year's winners continue a long tradition of innovation and pragmatic application of state policy, regulations, and incentives. State leadership in clean energy is as robust today as it was when CESA was founded over 20 years ago, when the clean energy sector was in its infancy.

This will be my last run as the director of the biennial SLICE awards program as I move into retirement in 2025. It has been an honor and a privilege to be able to relay the stories of successful state programs that have truly revolutionized our energy system and set it on a path away from fossil fuels. I have been so fortunate to have had the chance to work over the past decades with pioneers in this field, such as Lewis Milford, the founder of Clean Energy Group and CESA; Mark Sinclair, CESA's first Executive Director; Ryan Wiser, Senior Scientist at Lawrence Berkeley National Laboratory; and Roger Clark and Rob Sanders at The Reinvestment Fund. I have also had the privilege of connecting with state leaders who have now retired from CESA-member organizations, such as Tim Tutt of the California Energy Commission and then at SMUD; Lise Dondy of Connecticut Clean Energy Fund (now CT Green Bank); Jeff Peterson, John Saintcross, and Janet Joseph at NYSERDA; Robert Pratt at the Massachusetts Technology Center (now MassCEC); Peter West at the Energy Trust of Oregon; and Mike Winka at the New Jersey BPU, among many others. This has been a 25-year education on how effective state leadership can be visionary, take risks, and drive change—and a realization of the enormous amount of time and effort that state energy program staff undertake every day to move the needle year after year. I am so grateful to have played a very small role in this transformational work during my time at CESA.

As we move forward, the combination of new state clean energy leadership with more robust federal resources will further accelerate the transformation of the energy sector to one that is more efficient, less polluting, less expensive, and constantly improving—ensuring that future generations will inherit a planet that is healthier and more resilient to the effects of climate change. This year's four SLICE award winners will have made a great contribution to that effort.

Maria Blais Costello
Director of Program Administration, CESA

Photo Maria Blais Costello, CESA

The 2024 Award Judges

State Leadership in Clean Energy

The *State Leadership in Clean Energy Awards* are made possible by the generous donation of time and expertise by our panel of judges. These individuals have an impressive wealth of knowledge and years of experience related to clean energy. We would like to express our sincere appreciation for their enthusiasm and participation in this process. It should be noted that the participation of the judges and the granting of these awards are not intended to represent the views of the judges' organizations or any of the organizations' respective members.

Michael Brower

Partner
Clean Energy Ventures

Michael Brower is a former VP of Underwriters Laboratories, the leading US safety and certification firm, and co-founder and former president of AWS Truepower, LLC, a global renewable energy consulting, software, and data company. In his early career, Michael was Research Director of the Union of Concerned Scientists. He has written or co-written several books on the environment including Cool Energy (MIT Press, 1992), Consumers Guide to Effective Environmental Choices (with Warren Leon, Harmony Books, 1999), and Wind Resource Assessment (Wiley, 2012). Now retired, Michael is a principal at Clean Energy Ventures Group and a limited partner of Clean Energy Ventures, both focused on investing in and nurturing climate technology startups. Michael received a Bachelor of Science from MIT in 1981 and a PhD in Physics from Harvard University in 1986.

Greg Dierkers

State and Community Energy Programs Office
U.S. Department of Energy

Greg Dierkers has worked extensively with state and local governments on clean energy and transportation policy. He has a proven track record in building interdisciplinary teams to develop and deploy clean energy projects. Greg has experience working with states in various capacities at the nonprofit and association level, advising governors, air agencies, and state energy officials. At the US Department of Energy, he currently supports the roll out of key infrastructure programs that will benefit all communities.

Debra Perry

Program Director for Clean Energy
ICMA

Deb Perry is a planner with more than 20 years of experience working to address environmental challenges, particularly the risks associated with global climate change. As ICMA's Program Director for Clean Energy Ms. Perry works to support local governments across the U.S. to accelerate the deployment of clean energy. She currently leads U.S. Department of Energy's Solsmart Program and Solar@Scale and will soon be launching a new initiative focused on distributed wind energy. She has previously supported national programs including the National Community Solar Partnership, the Solar Market Pathways Program and U.S. Housing and Urban Development's (HUD) Sustainable Communities Network. Ms. Perry has significant experience managing complex projects and partnerships, leading stakeholder engagement processes and supporting cross-sector collaboration.

Autumn Proudlove

Associate Director of Policy and Markets
NC Clean Energy Technology Center

Autumn Proudlove is the Associate Director of Policy and Markets at the NC Clean Energy Technology Center. Autumn leads the Center's Energy Policy team and provides strategic direction on policy and market issues across the Center. Autumn oversees the policy team's portfolio of activities and directly manages its client-focused research services and publications, including the 50 States of Solar, 50 States of Grid Modernization, and 50 States of Electric Vehicles quarterly policy tracking reports. Autumn served as a member of the National Academies of Sciences, Engineering, and Medicine committee on the role of net metering in the evolving electricity system and previously served as Principal Investigator for the Center's work on the U.S. Department of Energy's SunShot Solar Outreach Partnership. Autumn received her Master's degree in Energy Regulation and Law, summa cum laude, from Vermont Law School and her Bachelor's degree from Dartmouth College.

Joan White

Director of Storage and Interconnection Policy (SEIA)

Joan White is the Director of Storage and Interconnection Policy at the Solar Energy Industries Association (SEIA). She advances the rapid deployment of storage and solar through advocacy and as an expert witness in state and federal proceedings. Prior to joining SEIA, Joan served as a Hearing Officer and Senior Analyst with the Vermont Public Utility Commission and the Vermont Department of Public Service. Ms. White holds a Master of Environmental Law and Policy and a Certificate in Energy Law from Vermont Law School, and a Master's of Science in Natural Resources from the University of Vermont. She lives in Vermont where she enjoys hiking and back-country skiing.

Key Accomplishments

- Flexible demand appliance standards for pool controls are the first of their kind in the world. They will facilitate the deployment of flexible demand technologies to avoid GHG emissions by scheduling, shifting, or curtailing appliance operations with consumer consent and ensuring the standards are cost effective.
- Beginning in September 2025, all pool control devices sold/distributed in California must meet the FDAS.
- Creating flexible demand appliance standards for pool controls has been a collaboration among the CEC staff and many stakeholder groups. During the rulemaking process, the CEC provided workshops, public hearings and public comment periods, facilitating a collaborative effort.
- The flexible demand appliance standards for pool controls will establish a foundation that can be built upon with other appliance standards.
- The flexible demand appliance standards for pool controls are replicable by other states.

California Energy Commission

FLEXIBLE DEMAND APPLIANCE STANDARDS FOR POOL CONTROLS

With over 1 million residential swimming pools in California, efficiently managing pool pumping and heating can save energy costs and avoid carbon dioxide (CO_2) emissions. In October 2023, the California Energy Commission (CEC) adopted the first-in-the-world flexible demand appliance standards (FDAS) for pool controls. They will provide 682 gigawatt-hours of peak load shift and avoid 394,000 metric tons of CO_2e emissions at complete stock turn over. These new pool control standards leverage energy price and emissions data from the major load-serving entities in order to shift customer load and avoid greenhouse gas (GHG) emissions, support system reliability, and potentially lower electricity bills for all California customers. This is the first standard adopted under California's new FDAS authority, and it establishes a foundation for the program. CEC is currently evaluating other appliances for inclusion in FDAS, such as electric storage water heaters, low-voltage thermostats, battery energy storage systems, and electric vehicle service equipment.

Flexible Demand that Sets a New Standard

The Energy Commission is the primary energy policy and planning agency leading California to a 100 percent clean energy future. Homes and businesses use nearly 70 percent of California's electricity and are responsible for a quarter of the state's GHG emissions. In 2019, Senate Bill 49 (Skinner, Chapter 697, Statutes of 2019) authorized CEC to adopt and periodically update standards

Photo: iStockphoto.com/George Clerk

CEC's FDAS for Pool Controls would shift 64 gigawatt-hours of electricity off peak during the first year the standard is in effect, and 682 gigawatt-hours of electricity during the year at full stock turnover. Consumers would save an estimated $1,131 per appliance over the life of the device by shifting the time of electricity use.

for appliances, to facilitate the deployment of flexible demand technologies that enable appliance operations to be scheduled, shifted, or curtailed to avoid emissions of GHG associated with electricity generation. On October 14, 2020, the CEC adopted an order instituting rulemaking for flexible demand technologies for appliances to consider standards, test procedures, labeling requirements, and other flexible demand measures. The order also authorizes the CEC to investigate and adopt, if appropriate, additional priority measures as determined by the lead commissioner.

Research and analysis by CEC staff identified pool controls as a candidate technology that was both impactful and technically feasible to serve as the first standard, and to create a regulatory model for the new FDAS authority. CEC engaged stakeholders through requests for information, a commissioner-led workshop, a pre-rulemaking workshop, and a public hearing. On October 18, 2023, the Pool Controls regulation was unanimously adopted during a regularly scheduled business meeting of the Energy Commission. The work on FDAS continues with CEC staff working to analyze and develop additional standards for other appliances.

Why Start with Swimming Pools?

California seeks to mobilize flexible resources to accommodate current and anticipated growth in electricity demand. Pool pumping and heating is a class of electrical load that lends itself well to this approach. Swimming pool controls manage the scheduling and operation of the pool filter pump, the pressure cleaner booster pump, the pool heater, the pool chlorinator, and other pool features like lights and fountains.

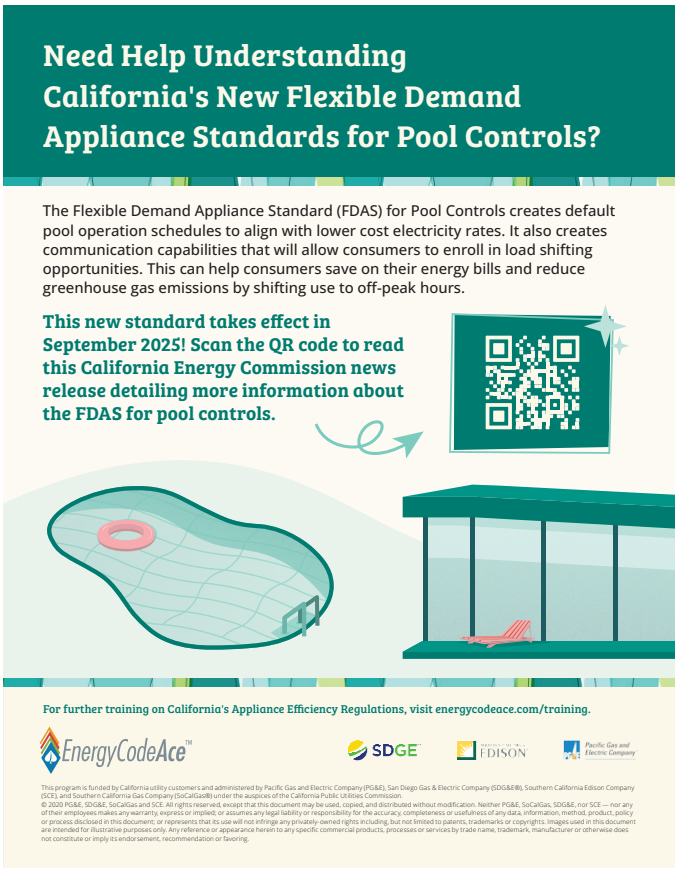
The new pool control standards establish the fundamental capabilities for flexible demand by enabling swimming pool owners to automate when to consume electricity for water pumping and heating. Many pool controllers have an electromechanical time clock that schedules the daily operation of the pool equipment. The consumer typically sets the time clock according to their preferences and pool needs.

If the pool controller experiences a power interruption, its time clock could be misaligned to the current local time; and during daylight savings time, the scheduling clock would become misaligned to the local time. Most California consumer-default electricity rate structures are time dependent, and a small misalignment can have a large impact on the consumer's electric utility bill. Additionally, many consumers are not aware of the hours when electricity generation creates the most or the least amount of GHG emissions, or when the electricity rate charged by their utility is at its highest.

The FDAS requires all pool controls manufactured on and after the effective date that are sold (or offered for sale, rented, imported, distributed, or leased for use) in California to be certified to the CEC standard. The pool controls will be required to ship with a preprogrammed default schedule, be capable of connecting to the internet, and able to meet cybersecurity and consumer consent requirements.

The FDAS sets a minimum standard for all pool controls sold or distributed for use in California, requiring consumers to have pool controller capabilities that can solve these time misalignment problems and be programmed to meet the optimal time periods for pool water pumping and heating. Three key details of California's FDAS for pool controls are the following:

1. It sets minimum requirements for communications, clock requirements, and default operating schedule, —all facilitating the deployment of improved electricity demand flexibility.
2. It sets minimum requirements for cybersecurity, including device identification, device configuration, data protection, authentication, software updates, restart settings, automatic rejoin, and an override function, ensuring flexible demand appliances contain a minimum set of cybersecurity features that protect consumers' devices and personal information.
3. It sets minimum consumer consent requirements related to the components that enable connectivity and communication, ensuring flexible demand appliances obtain consent prior to the collection of consumer data.



Expected Impacts on CO_2 Emissions Reduction and Improved Health Benefits

Full stock turnover is expected to occur in ten years based on typical product lifespan, with total avoided emissions of 2,135,000 metric tons CO_2e during the 10-year turnover period and annual avoided emissions of 394,000 metric tons CO_2e thereafter. The avoided emissions due to the FDAS regulation over the next 10 years is roughly equivalent to avoiding the average annual emissions of 85,000 passenger vehicles with internal combustion engines.

The adopted standard for pool controls is a first step by the CEC to encourage the deployment of flexible demand technologies. As the CEC continues this important work, the intent is to transform the marketplace, encouraging innovation by industry to further develop load flexibility resources. The pool control standards will help to avoid emissions associated with peak demand for electricity generation, as well as benefit society through improved air quality, improved health outcomes, and fewer lost days at work or school, especially for disadvantaged communities located near peaker power plants.

Peaker power plants generally run only when there is a high demand for electricity; and they are often located in disadvantaged communities. By lowering demand generation at peak periods, air pollutants from peaker plants can be avoided, and adverse health impacts for the local communities can be reduced. CEC staff estimates a total energy load shift potential of more than 64 gigawatt hours in the first year of the appliance standard and more than 682 gigawatt hours in the 10th year.

The load shift potential from pool controls could change the need to import electricity during the 4 pm to 9 pm time block or lessen the need to run a fossil-fueled peaker power plant. Staff estimates about 564 megawatts of power being shifted in the tenth year of the standard during the 7 pm hour of a California summer evening. To put this into perspective, 564 megawatts is about one-quarter of the power capacity of the Diablo Canyon

Nuclear Power Plant located in Central California. The avoided GHG emissions of 394,000 metric tons of CO_2e during the 10th year of the regulation is valued at $27 million.

Flexible demand can contribute to reliability of the electric grid system and resilience during heat waves and other extreme events. The FDAS for pool controls contributes to many of the following specific objectives: defer capital expansion, avoid transmission investments, avoid distribution investments, shift load to lower-cost periods, provide an operating reserve, reduce facility loading, improve voltage profile, support system restoration, support system protection, provide ramping and balancing energy, improve phase balancing, meet customer needs, enhance service innovation, meet electrical grid resource standards, and avoid greenhouse gas emissions.

Economic Benefits of Load Shifting and Curtailment

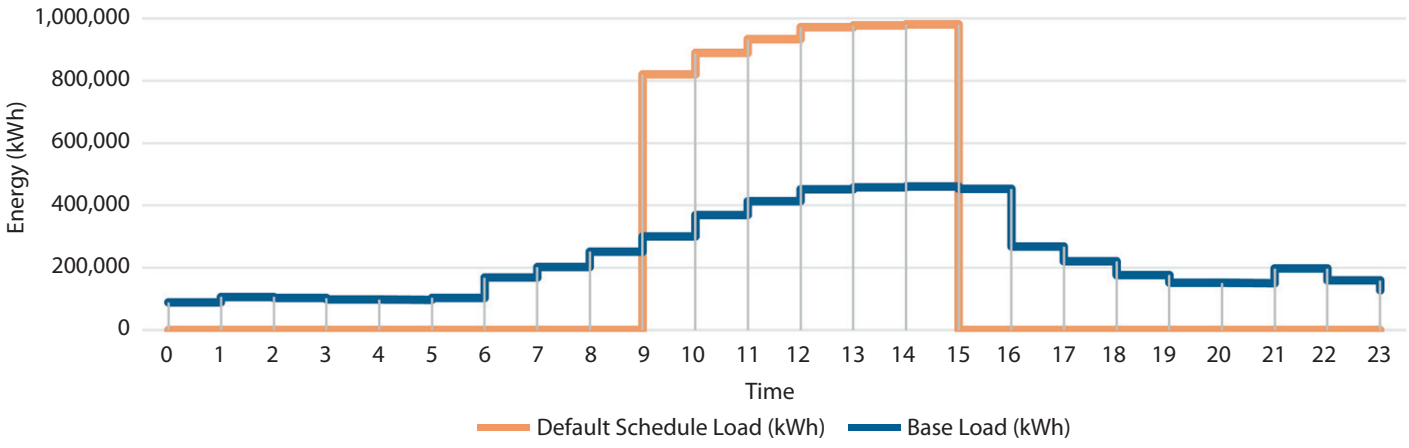
The GHG emissions from electricity generation vary by time of day and season, and the electricity grid is cleanest around mid-day due to extensive solar generation. Many appliances, including pool controls, can be programmed for time of operation to maximize the use of renewable energy resources on the grid, with few inconveniences to the consumer. The new FDAS for pool controls has the potential to transform electricity generation demand and avoid emissions by shifting the timing of electricity use.

In addition to the avoidance of GHG emissions, utility bill savings are a benefit for consumers who shift the timing of their electricity load to times of lower demand. Most consumers in California have access to time-of-use (TOU) rates, which are electricity rates that vary by the time of day. Consumers who shift load can lower their electric utility bills by shifting their use of electricity from when the rate is high to when it is low. It is estimated that the FDAS will save pool owners around $100 per year. The consumer will receive a full return on the investment within one year of operation.

CEC staff analyzed the cost effectiveness, technical feasibility, and statewide GHG emission reductions for the pool control standard. Staff developed a proposal to align the pool control operation schedule to the average daily period of low GHG emissions—between 9 am and 3 pm local time—and to avoid operation from 4 pm to 9 pm local time, providing permanent load shift away from periods when the electric grid is the most stressed. See Figure 1. The FDAS maximizes avoided GHG emissions and cost-effectiveness for consumers of pool controls. To determine cost-effectiveness, staff determined the value of the energy shifted, the effect of the standard on the usefulness of the device, and the life-cycle cost to the consumer of the flexible device.

FIGURE 1

How FDAS for Pool Controls Default Load Shift by Time of Day



CEC's Flexible Demand Appliances Standard (FDAS) for Pool Controls would shift default load to the average period of low GHG emissions between 9 a.m. to 3 p.m. local time and avoid operation from 4 p.m. to 9 p.m. local time to provide permanent load shift away from periods when the electric grid is the most stressed. Source: California Energy Commission

A compliant pool control is estimated to cost $70 more than a noncompliant pool control, and the consumer on TOU rates will save a total of $1,131 over the 10-year estimated lifetime of the product through lower electricity bills.

The FDAS for pool controls represents a pioneering effort to establish a foundation for future applications. These standards are integral to the state's emerging load flexibility ecosystem, interfacing effectively with Load Management Systems (LMS), load flexibility incentives, and various state regulatory programs. The framework established in California is designed to be adaptable and replicable. The regulation and its supporting documentation are publicly available, allowing other states to modify and apply them as needed. This proactive dissemination ensures that the standards can be adapted, adopted, or replicated beyond California's borders, potentially informing nationwide policy on flexible demand standards.

JUDGES' QUOTE

"Flexible demand standards are a cost-effective and straightforward way to reduce CO_2 because time of use is directly related to emissions. Starting with pool controls allows the CEC to roll out the program and demonstrate its benefits, not just for pool owners but to the general public, with the cost savings, resilience, and pollution-reduction benefits felt by all ratepayers. It will serve as a model for FDAS for other appliances and technologies."

About the California Energy Commission

The California Energy Commission (CEC) is the state's primary energy policy and planning agency leading California to a 100 percent clean energy future. The CEC is home to roughly 800 employees across seven divisions and a broad range of energy-focused regulatory, funding, and analytical programs. The CEC's programs cover building and appliance efficiency, electric vehicles and charging infrastructure, renewable energy and zero-carbon resources, forecasts and analysis of all aspects of energy supply and demand, siting and environmental review of large power plants and energy infrastructure projects, and an extensive research and development portfolio. CEC's new Load Flexibility Branch is tasked to develop and maintain standards that facilitate the ability to shift customer load throughout the day to support greenhouse gas emissions reduction and energy reliability objectives.

Link to the Program

https://www.energy.ca.gov/proceeding/pool-controls

Contact for More Information

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Key Accomplishments

- The Green Liberty Notes reach small investors, with over 60% of original investments being made for $1,000 or less.
- Through nine offerings, Green Liberty Notes have raised more than $2 million, with investors residing in 35 states across the country and more than half of the investments coming from Connecticut residents.
- Investments support the Small Business Energy Advantage program, which provides zero percent interest loans to commercial, nonprofit and municipal properties for energy efficiency improvements.
- Due to high demand, the maximum raise amount per quarter was increased from $250,000 to $350,000. Seven consecutive offerings have exceeded the maximum limit with the ninth offering January–February 2024 reaching 125% of its target.
- The Notes are offered quarterly with a rate comparable to similar term certificates of deposit.

CONNECTICUT GREEN BANK

Connecticut Green Bank

GREEN LIBERTY NOTES

To democratize investment opportunities in the clean energy economy, the Connecticut Green Bank launched Green Liberty Notes, the first one-year maturity designated green bond offered via a crowdfunding campaign. This program was developed following the Green Bank's highly successful Green Liberty Bonds program. Now in its third year, the Notes program provides small-denomination retail investors with the opportunity to support and benefit from clean energy development. Investments start at $100 and are capped at $25,000, with priority given to smaller investments. The transaction does not involve a broker and is conducted through an online platform. This innovation makes it possible for nearly everyone to invest in Connecticut's clean energy transition. Like other savings instruments, such as certificates of deposit, a competitive market rate of interest is paid at maturity (the previous offering was between 5 to 5.5 percent). To date, more than $2 million in investment has been raised through the Green Liberty Notes to support energy efficiency retrofits for small businesses in Connecticut.

New Financial Tools and Investment Innovation

The Connecticut Green Bank's mission is to confront climate change by accelerating investment into the state's green economy to create more resilient, healthier, and equitable communities. In 2020, the Green Bank created Green Liberty Bonds, a new type of green bond from which the proceeds are invested in projects that confront climate change in Connecticut. Modelled after the Series-E War Bonds of the 1940s, the bonds are structured to be purchased by everyday citizens, through lower-dollar denominations (with minimums at $1,000), allowing more people to directly participate in the green economy and earn a return on their investment. Two issuances of longer-term green bonds highlighted both the market demand, as well as the barriers to green investments faced by average households.

While Green Liberty Bonds were innovative and successful, the Green Bank continued to think about ways to further democratize investment in the green energy economy by making investments more accessible to more citizens and easier to obtain than going through a broker.

To counteract these investing barriers, the Green Bank designed the Green Liberty Note (a "note" is a common designation in capital markets for short-term fixed income investments). The Notes are offered every three months with a $100 minimum (much lower than the $1,000 required for bonds), through an easy online process that eliminates a complex, time consuming, and intimidating brokerage process required for bonds. This innovation makes it possible for more people to participate in Connecticut's clean energy transition.

Creating Opportunities for Broader Access

In December 2021, CGB Green Liberty Notes LLC, a subsidiary of the Connecticut Green Bank, launched Green Liberty Notes via a crowdfunding campaign in partnership with Raise Green, a regulated climate tech marketplace for local and green impact investing. The Green Liberty Notes allow individuals to invest at a much lower entry point.

Source: Connecticut Green Bank

The one-year note has a minimum investment of just $100 and can be easily purchased online without a broker. The offering periods are about a month—much longer than typical one-day offerings—and are available quarterly, to maximize access. Like other savings instruments, such as certificates of deposit, a competitive market rate of interest is paid at maturity (currently between 5% and 5-½%).

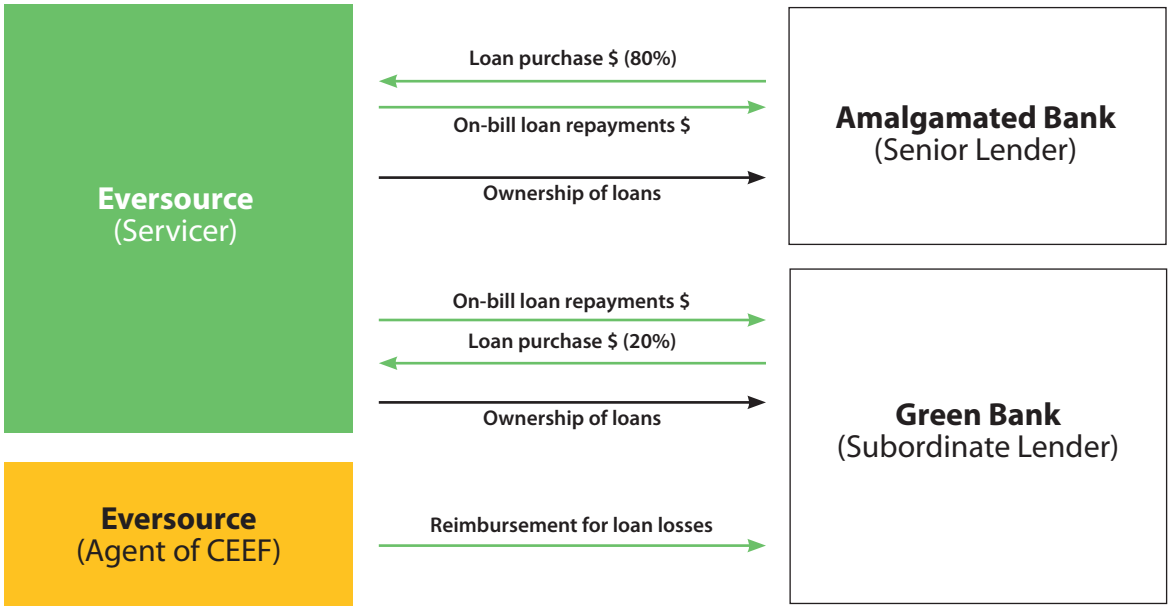
To attract as many people as possible, investments are capped at $25,000 and smaller investments receive priority over larger ones when an issuance exceeds the maximum offering amount (now $350,000). Funds to repay the Notes come from the proceeds of the energy efficiency loans made through the Small Business Energy Advantage (SBEA) program, with a minimum debt service coverage ratio commitment of twice the funds needed to repay the Notes, which provides security and peace of mind for investors.

Goals and Results

The Green Bank, through its subsidiaries and partnerships, aims to achieve the following four goals:

1. To leverage limited public resources to scale-up and mobilize private capital investment in the green economy of Connecticut
2. To strengthen Connecticut's communities, especially vulnerable communities, by making the benefits of the green economy inclusive and accessible to all individuals, families, and businesses
3. To pursue investment strategies that advance market transformation in green investing while supporting the organization's pursuit of financial sustainability
4. To enable everyday citizen investors to participate in the benefits of the green economy by offering an easy platform for low-dollar investments in its programs and projects.

FIGURE 1
Master Purchase & Servicing Agreement



Source: Connecticut Green Bank

The Green Liberty Notes achieve each of these four goals. First, the innovative recapitalization of the SBEA program, which backs the Green Liberty Notes, has allowed the Green Bank to attract more than $90 million of private capital with a Green Bank investment of just $12.21 million as of June 30, 2024. (The Green Bank is using proceeds from the Green Liberty Notes to fund a portion (about 20%) of its investment in SBEA loans.)

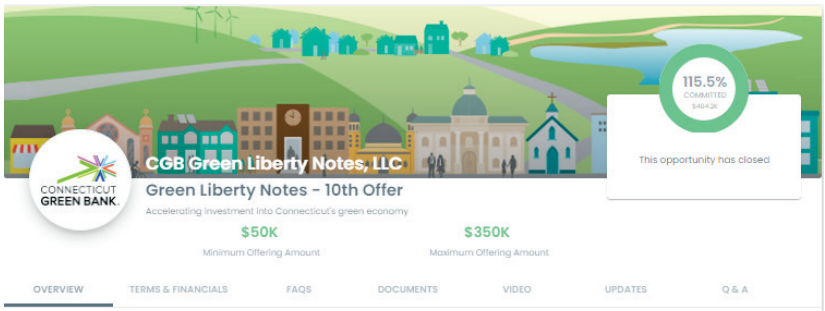
Second, the SBEA program directly strengthens Connecticut communities providing affordable capital for small businesses to make their businesses more energy efficient. (See Figure 1.) Examples of typical energy-efficient upgrades include technology and system upgrades for lighting, heating, ventilation, air conditioning, refrigeration, reducing natural gas consumption, and some other types of improvements.

Third, the Notes advance market transformation by creating a new asset class: a regularly issued one-year, designated "Green Bond." And fourth, by using an innovative crowdfunding platform managed by its strategic partner, Raise Green, the Green Bank makes it easy for everyday investors to participate in the financial returns of Green Bank programs and projects with as little as $100—and makes these offerings available every three months so everyone can participate when they are ready to invest.

The Green Bank Board of Directors initially approved a pilot of the Green Liberty Note program consisting of eight issuances over two years to raise no more than $2 million. That approval has since been expanded twice to cover issuances through June 30, 2025, and up to a total amount raised of $4.11 million. Due to high demand, the maximum raise amount per quarter was increased from $250,000 to $350,000. Seven consecutive offerings have exceeded the maximum limit with the ninth offering January–February 2024 reaching 125 percent of its target. In early July 2024, the Green Bank initiated its 11th offering for the Notes.

The estimated environmental and financial benefits of the SBEA program include:

- 1,348,109 lifetime tons of CO_2 equivalent emissions avoided
- 480 direct, and 609 indirect, job years created
- $10.45 million of tax revenue generated
- Lifetime Public Health savings between $7.8 million and $17.7 million



Expanding Engagement and the Investor Pool

Similar to the Green Bank's Green Liberty Bonds, the Green Liberty Note is a way to expand the organization's stakeholder engagement while leveraging private investment, in this case small-denomination retail investors. Building upon the success of the Green Liberty Bonds, Green Liberty Notes further lowered the barriers of entry for citizen investment into the green economy. Knowing that massive amounts of capital investment are needed to support the Green Bank's work against the existential threat of climatechange, support from everyday people in Connecticut and across the country is required.

There are repeat and new investors each quarter that the Green Notes are offered, with representation from 35 states across the United States, all investing directly in Connecticut's green economy. Sixty percent of the over 350 investments have come from Connecticut residents, and approximately 200 of the investments have come in original increments of $1,000 or less, with the average Connecticut investment of roughly $2,800. Investors live across the state in rural, suburban, and urban areas.

Green Liberty Notes have served the public by expanding access to green investment opportunities for retail investors and inspiring other companies and green banks to do the same. As a result of the climate benefits associated with this program, the offering has been reviewed and verified for its environmental attributes by Kestrel. Kestrel has determined that the Green Liberty Notes are in conformance with the four core components for alignment with the Green Bond Principles of the International Capital Market Association, which are: 1) Use of Proceeds, 2) Process for Project Evaluation and Selection, 3) Management of Proceeds, and 4) Reporting.

Innovation in Green Investing

The Green Liberty Notes are a new asset class: the first one-year, designated Green Bond, crowdfunded debt offering in the United States. It was created to fill a market gap by providing a lower-entry point into climate investment. Nearly anyone can invest $100 to support the green economy while earning a rate of return comparable or better than certificates of deposit. Attracting investment is a key element required to combat climate change and allowing people to invest directly can mobilize large amounts of money.

Green Liberty Notes are an example of the Connecticut Green Bank's role as an industry leader and innovator. As the country's first state green bank, the Connecticut Green Bank's programs and investments have served as models that have been replicated across the country. Through leadership positions in industry groups, like the Coalition for Green Capital and others, Green Bank's leadership team has shared program successes and challenges with others Green Banks and lenders. The partnership with Raise Green has been beneficial to both organizations. Raise Green has allowed the Green Bank to reach new investors by offering investment opportunities in increments below $1,000. In turn the Green Bank, as the most active issuer on the Raise Green platform, has helped Raise Green improve the crowdfunding process for both investors and issuers.

The Green Liberty Notes program can be replicated by other states or jurisdictions. The Green Bank has encouraged other similar entities to connect with Raise Green to discuss ways to use their platform to raise funds and at least two green bank are in active discussions to issue their own "notes." Green Bank staff continues to present the success and approach of the Green Liberty Note program to the staff and boards of other Green Banks. The Green Bank is an "open source" organization and continues to share methods and approaches for sourcing capital that it has found promising, so that other green banks do not need to reinvent the wheel to achieve scale in raising capital more quickly.

JUDGES' QUOTE

"The Connecticut Green Bank's Green Liberty Notes Program is innovative and opens the rewards of the clean energy economy to a new community, extending the benefits so everyone can participate. The threshold to entry is low and the return on investment is good. Other states could adopt this highly replicable and cost-effective program."

CONNECTICUT GREEN BANK

About Connecticut Green Bank

The Connecticut Green Bank is the nation's first green bank. Established in a bipartisan fashion by the Connecticut General Assembly and the Governor on July 1, 2011 as a part of Public Act 11-80, as a quasi-public agency and the nation's first green bank. Connecticut Green Bank supports the Governor's and Legislature's energy strategy to achieve cleaner, affordable, and reliable sources of energy while creating jobs and supporting local economic development. Our vision is a planet protected by the love of humanity. The Green Bank's mission is to confront climate change by increasing and accelerating investment into Connecticut's green economy to create more resilient, healthier, and equitable communities. We facilitate clean energy deployment by leveraging a public-private financing model that uses limited public dollars to attract private capital investments. By partnering with the private sector, we create solutions that result in long-term, affordable financing to increase the number of clean energy projects for homes, buildings, and communities statewide. Our staff of approximately 40 people is dedicated to making the benefits of the green economy inclusive and accessible to all.

Link to the Program

https://www.ctgreenbankbonds.com/connecticut-green-bank-ct/i6126

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Key Accomplishments

- Since 2022, the ACT School Bus Program has elevated awareness of school bus electrification, with over 65% of all Massachusetts Priority Districts applying to EPA CSB funding opportunities, and all CSB awardees applying to ACT School Bus for funding leverage and program success.
- The Program provides early-stage technical planning services and financial support to Massachusetts public school districts and/or third-party school bus fleet providers to complete successful electric school bus deployment projects.
- The Program prioritizes underserved and overburdened school districts, encouraging capacity building so they can continue to electrify their school bus fleet independently or with scaled-back assistance.
- School districts can use the Program's flexible funding to fully fund or offset the cost of activities that need additional funding to successfully achieve their school bus decarbonization goals.

MASSACHUSETTS CLEAN ENERGY CENTER®

Massachusetts Clean Energy Center

ACCELERATING CLEAN TRANSPORTATION (ACT) SCHOOL BUS PROGRAM

The ACT School Bus Program is a comprehensive approach to electrify school buses in Massachusetts, with the goal of supporting school districts and private transportation providers and creating momentum towards decarbonizing a high-polluting sector. ACT School Bus provides financial and technical support tailored to program applicants' needs, demonstrates a variety of successful ownership models to leverage lessons learned from project champions, and provides educational tools to schools and transportation providers to help them proceed with reduced support. This nation-leading program goes beyond predecessor programs, ensuring that key opportunities, such as funding from the US EPA's Clean School Bus (CSB) Program, are leveraged to their maximum potential. ACT School Bus has elevated awareness of school bus electrification, with over 65 percent of all Massachusetts Priority Districts applying for CSB funding, and 100 percent of EPA CSB awardees applying to ACT School Bus. All ACT School Bus projects have met funding requirements and key deadlines, made decisions based upon full-fleet electrification, and leveraged MassCEC's funding contribution by 500 percent.

Clean Transportation for Students

Medium and Heavy-Duty vehicles (MD-HDVs) are some of the highest emitting vehicles in the entire transportation sector. The vast majority of MD-HDVs, including school buses, are diesel-fueled, emitting high particulate matter (PM_2) on local streets. There are clearer paths to electrifying school buses than for other MD-HDVs, and doing so would be most beneficial for young children who ride school buses, because diesel exhaust exposes students to harmful tailpipe emissions. With EPA's CSB Program, electric school buses are more affordable for school districts. That said, even with this federal incentive program, electric school buses are not financially feasible or technologically accessible for many of Massachusetts' lower income districts.

The ACT School Bus Program was developed on the heels of three school bus electrification pilots under the Accelerating Clean Transportation Now (ACTNow) Program.[1] Through these pilot projects, each participating school district was partnered with an entity that provides electrification-as-a-service or has extensive background in energy procurement. Even with this electrification expertise and MassCEC funding, these projects proved to be technically complex, requiring hands-on assistance. Based on experiences with these projects, MassCEC recognized that access to technical services is a key element to ensuring successful electric school bus fleet deployments.

The ACT School Bus Program was started in 2022 and provides technical planning services and financial support to Massachusetts public school districts and/or private transportation providers (in partnership with school districts) to complete successful electric school bus deployment projects. It prioritizes underserved and overburdened school districts that are interested in developing electric school bus fleets with hands-on technical assistance during an initial planning and pilot phase that will enable school districts to continue to electrify future portions of their fleet independently or with

1 To read more about the ACTNow projects, please view the 2020 press release.

scaled-back assistance. As such, ACT School Bus is divided into two program opportunities to support fleets at various stages of the electrification process and with varying needs for financial and technical support: the Advisory Services Program and the Fleet Deployment Program.

Two Opportunities to Assist School Districts Decarbonize Buses

The Advisory Services Program offers free consultant services for up to 25 public school districts and/or private transportation providers to establish a long-term path for full-fleet electrification. This program addresses gaps in technical knowledge by providing consultant teams to assist with analysis, feasibility designs, financial modeling, funding opportunities, vehicle and charging infrastructure procurement plans, and educational materials.[2] School districts that complete the Advisory Services Program will have gained internal capacity to leverage funding for electric school bus deployment, with a well-rounded understanding of what a full-scale deployment project would entail. The participating school districts receive a comprehensive Final Fleet Electrification Plan based on their needs. Through Advisory Services, MassCEC is ensuring that school districts that would otherwise not apply to the EPA Clean School Bus funding opportunities are able to complete competitive applications for future rounds of the federal program. The Advisory Services Program spans approximately six months from the Project Kickoff to the finalized Electrification Plan. Additional information can be found here: www.masscec.com/program/accelerating-clean-transportation-act-school-bus-advisory-services-program.

The Fleet Deployment Program is designed for public school districts and/or private transportation providers that have received EPA CSB funding or leveraged other federal funding, and that are prepared to deploy electric school buses. It provides additional funding support and technical assistance to complement other funding and

The 2023 Arlington ribbon-cutting ceremony commemorating the town's electric school bus deployment". Photo credit: Orly Strobel, MassCEC.

2 See Clean School Bus Program Overview

to ensure deployment success. This program offers school bus fleets flexible funding for depot upgrades and to purchase electric school buses and associated charging infrastructure. Participating fleets also have the opportunity to work with MassCEC's consultant team to address gaps in technical knowledge in areas such as coordination with stakeholders, equipment selection, procurement, and project implementation. The Fleet Deployment Program supports grantees from electric school bus procurement through the first six months of bus deployment and operations. More details can be found here: www.masscec.com/program/accelerating-clean-transportation-act-school-bus-fleet-deployment.

The ACT School Bus Program has had great success in meeting its goals to 1) ensure that every Massachusetts school district that has received EPA CSB funding has been able to retain its award and remain successfully on track to complete its deployment projects, 2) provide assistance to school districts in the fleet electrification process by providing a wide range of technical assistance between the Advisory Services Program and the Fleet Deployment Program, and 3) ensure that needed funding is not a barrier by providing flexible funding awards to school districts and/or school transportation providers.

Overall, ACT School Bus projects have so far leveraged $90 million in cost share, which accounts for five times the amount of funding that MassCEC offers under this program. These leveraged funds are a combination of federal funding, utility incentive programs, and cost share from the school districts.

An Equity-Focused Approach

Under the ACT School Bus Program, MassCEC prioritizes funding school districts and/or enrolling school districts in the Advisory Services Program that are 1) EPA CSB priority districts, 2) meet at least two of the three Massachusetts-designated Environmental Justice criteria, and 3) meet the goals for ownership-model and geographic diversity.

Through the ACT School Bus Advisory Services Program, MassCEC is currently preparing nine school districts, including some of the largest school districts in the state, to fully electrify their fleets. If all of the districts move forward with their fleet electrification plans, this would amount to a gain of nearly 2,000 electric school buses out of the 8,000 school buses operating in Massachusetts. MassCEC still has 13 spots remaining in the Advisory Services Program and is actively recruiting public school districts to enroll in the program.

Since 2022, the ACT School Bus Fleet Deployment Program has either fully or partially funded nearly 180 electric school buses and associated charging infrastructure across the cohort of awarded districts. By transitioning these 180 predominantly diesel-fueled vehicles to electric, the ACT School Bus Program has eliminated 3,069,900 kilograms of carbon emissions. If all participating school districts use lessons learned from ACT School Bus to electrify their full fleets, this figure has the potential to be amplified at least ten-fold.

The ACT School Bus Program has allowed MassCEC to take part in statewide conversations about how to make the electric school bus transition more equitable and straightforward for public school districts. In particular, MassCEC Program staff have been in Massachusetts state interagency meetings with key players to inform decision-making on topics related to electric school bus and associated charging infrastructure procurement processes.

Flexible Funding for What's Needed Most

The ACT School Bus Program is deploying $33.3 million to advance school bus fleet electrification by providing planning, technical support, and gap funding to leverage other funding sources. MassCEC has already awarded $16.5 million of the program budget, of which approximately $14 million has been awarded to school districts and third-party school bus fleet providers, and the remaining $2.5 million has been awarded to Advisory Services and Fleet Deployment Program consultant teams to carry out the technical and planning services for the school districts.

Photo: iStockphoto/monkeybusinessimages

Deployment funding not only enabled schools to successfully complete their EPA CSB projects, but also provided school districts with the confidence and internal capacity to pursue future rounds of funding. School districts can use flexible funding to fully fund or offset the costs of the following:

- Electric school buses, chargers, and other related infrastructure
- Depot upgrades and other construction and labor
- Staff time for relevant school district personnel involved in the program

MassCEC is flexible in allowing school districts to request budget reallocations to ensure that the ACT School Bus funding is truly supporting the aspects of these deployment projects that need the most funding support. Without Fleet Deployment funding, many school districts would not have been able to cover the remaining costs of EPA-funded buses and infrastructure and would have had to return the federal rebate funding that they received.

Collaboration and Replicability

The ACT School Bus Program is the very first to enable MassCEC to engage in wide-scale clean energy work with school districts. Through the Program, MassCEC has formed connections to other state agencies and school networks. With consistent and ongoing engagement with Program staff, the ACT School Bus Program has effectively enabled these agencies to have a voice in the clean energy space.

Through MassCEC's commitment to sharing program outcomes within the state and with other national electric school bus leaders, lessons learned can be used to replicate its successful fleet transitions to electric buses. MassCEC Program staff have presented the program at national and regional events and have shared program materials and key findings with other state and federal agencies, including the National Renewable Energy

Laboratory (NREL), the New Jersey Department of Environmental Protection (NJDEP), and the New York State Energy Research and Development Authority (NYSERDA). Though MassCEC designed the ACT School Bus Program specifically for Massachusetts school districts, the program can be easily replicated by other states. The ACT School Bus Program has already influenced program design at the New Jersey DEP and the NREL Clean Bus Planning Awards Program.

ACT School Bus Program staff hold office hours each month and welcome other state and federal agencies to attend those office hours to learn more and share feedback. MassCEC has had the opportunity to share outreach strategies, incentive structures, and insights on technical assistance offerings that have helped to inform both EPA and other states interested in supporting electric school bus fleets.

JUDGES' QUOTE

"Diesel-fueled school bus emissions are especially harmful to vulnerable children in low-income communities. The program leverages and complements federal programs. It is a thoughtful approach to equity, creating tangible public health benefits, while decarbonizing transportation. By working with school districts to increase a wide range of capacities needed to roll out a successful conversion to EV buses, this program stands out."

MASSACHUSETTS CLEAN ENERGY CENTER®

About Mass Clean Energy Center

The Massachusetts Clean Energy Center (MassCEC) is a state economic development agency dedicated to accelerating the growth of the clean energy sector across the Commonwealth to spur job creation, deliver statewide environmental benefits, and to secure long-term economic growth for the people of Massachusetts. MassCEC is committed to incorporating principles of diversity, equity, inclusion, and environmental justice in all aspects of its work to promote the equitable distribution of the health and economic benefits of clean energy and support a diverse and inclusive clean energy industry. MassCEC strives to lead and innovate in equitable clean energy and climate solutions.

Link to the Program

https://www.masscec.com/accelerating-clean-transportation-act-school-bus-overview

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Key Accomplishments

- This program provides funding to offset costs associated with providing a lower-cost, more equitable PPA, enabling clean energy to be offered to Low-to-Moderate Income (LMI), overburdened, and underserved communities at lower cost.
- The $16.4 million invested by the MEA Community Solar LMI-PPA Grant Program encouraged the development of over 120 MW of new community solar in the state. Estimated direct benefits to these subscribers, so far, are at least $27.9 million.
- The program decouples construction costs from the cost of services by offering a direct, efficient subsidy to Maryland community solar subscriber organizations to designa community solar subscription—that is affordable for a subscriber who experiences LMI.
- The average LMI customer subscribes for about 8 kW from the community solar array, so when all projects funded to date are completed, about 7,000 LMI households will benefit from 20 years of low-cost energy, helping them improve their lives.

Maryland Energy Administration

Maryland Energy Administration

COMMUNITY SOLAR LMI-PPA GRANT PROGRAM

To expand access to community solar and energy cost savings, the Maryland Energy Administration's (MEA) Community Solar Low-to-Moderate Income (LMI) Power Purchase Agreement (PPA) Grant Program provides incentives to help deliver the benefits of clean, affordable community solar energy to Maryland's LMI, overburdened, and underserved communities. Specifically, MEA provides funding to partially reimburse Community Solar Subscriber Organizations for the added costs of developing more affordable and less risky PPAs for low-income customers. The program offers capacity-based incentives to Maryland-registered community solar subscriber organizations that use those funds to provide below-market-rate electricity to LMI households. With these low-cost community solar subscriptions, the program ensures that LMI customers receive substantial savings and no upfront costs to subscribe. Subscribers can end their contract with little to no notice or penalty, reducing economic risks. The Community Solar LMI-PPA Program also encourages siting of community solar installations so that land use value is maximized, especially on landfill and other brownfield locations.

Project/Program Summary

Solar ownership often requires significant upfront costs that can be a barrier for low-income households, preventing many people from receiving the economic benefits of solar. Community solar has been an option for many who do not own their own homes or roofs but want access to those benefits. It allows customers to enter into a contract (a power purchase agreement, or "PPA") to buy a share of electrical output from a community solar energy generating system.

In 2015, the Maryland General Assembly passed the State's first community solar law and assigned program management responsibility of the newly authorized Community Solar Pilot Program (CSPP) to the Maryland Public Service Commission. The CSPP was designed to award incentives for community solar capacity under three categories based on use case and project type: 1) Low and Moderate Income (LMI), 2) Small/Brownfield/Other (S/B/O), and 3) Open (no restrictions).

Maryland Energy Administration (MEA) wanted to ensure that community solar development would not be disproportionately focused on the categories with the fewest restrictions—Open and S/B/O—and that the funding would benefit ratepayers in the LMI category as well. As a result in 2017, MEA developed the Community Solar LMI-PPA Grant Program to address LMI access to community solar and ensure benefits. The MEA Community Solar LMI-PPA Grant Program is a standalone program, separate from the CSPP, that offers incentives for residential and commercial community solar subscriptions offered by a registered subscriber organization. Projects incentivized by the MEA Community Solar LMI-PPA Grant Program bring solar benefits to Maryland's LMI, overburdened, and underserved (LMIOU) communities, and help to ensure that community solar adoption across Maryland is equitable. Community solar is important because it allows LMIOU communities to benefit from the sustainability and cost savings that solar energy provides.

There are a considerable and growing number of community solar developers that focus on projects for Maryland LMI communities in large part due to the incentives from the MEA Community Solar LMI-PPA Grant Program.

Solving Access Challenges and Lowering Barriers to Participation

Many Maryland households cannot take advantage of residential-sited solar systems due to roofing issues, shading issues, or due to the fact they lease or rent their homes. Community solar provides the opportunity for these households to gain the benefits of solar energy using virtual net energy metering. All Maryland ratepayers have the option to subscribe to receive a share of the energy from a community solar array. These energy subscriptions tend to provide a standard discount of 5-10 percent on the utility rate, with contracts that last up to 20 years.

Because many LMI households do not own their own homes and tend to move to new residences more frequently than homeowners, installing a solar PV system is impossible. This circumstance also dissuades renters from subscribing to long-term, standard community solar contracts that would impose a hefty early termination fee if the household needed to move and is no longer located in the participating utility service territory.

The Community Solar LMI-PPA Grant Program was designed to address these challenges by encouraging the community solar industry to provide a product that meets the needs of Maryland's LMI communities. The resulting PPA product would provide higher discounts and shorter minimum contract periods, and also offer little notice/little penalty clauses. The grant program has helped developers with the costs associated with providing an accessible PPA and obtaining subscriber income verification.

The Community Solar LMI-PPA Grant Program has enjoyed considerable success since its inception. Most subscriber organizations can offer a 20-25 percent discount below the utility standard offer service rate with shorter contracts, or under contracts that are easy to end with little to no notice required, or without a penalty fee assessed to the subscriber. These results were market-driven and achieved without government setting the

MEA Community Solar LMI-PPA-funded Oaks Landfill Community Solar Array's aerial view. Photo: Maryland Energy Administration

discount rates or mandating the terms of terminating the contract. MEA has received substantial grant requests for projects in each of the years that the grant was offered since 2018, especially in its FY23 and FY24 offerings.

To date, $14.3 million has been budgeted for this program. The demand for program grants has substantially exceeded the budgeted funds, but fortunately MEA has been able to shift funds to deploy $16.4 million to support LMI subscribers of community solar projects to date. Over 120 MW of solar capacity has been incentivized to date, with 55.5 MW (45.6%) dedicated to LMI subscribers. The average LMI customer subscribes for about 8 kW from the community solar array, so when all projects funded to date are completed, about 7,000 LMI households will benefit from 20 years of low-cost energy, helping them improve their lives.

In addition to providing cost savings to community solar subscribers, community solar can help the state achieve its clean energy goals. Community solar arrays can be more efficient, optimally sited on land to face southward. In addition, many community solar arrays can track the sun on one or two axes, allowing for even higher generation efficiencies than residential rooftop arrays. As such, community solar arrays have become a powerful and cost-effective tool for reducing greenhouse gases and delivering equitable solar energy benefits to many households. This adds to their value to help meet Maryland's energy and environmental policy goals, and ensures that community solar subscribers are receiving quality, affordable, clean energy.

Ensuring Greater Benefits to LMI Communities

MEA's Community Solar LMI-PPA Program is a unique and innovative model that decouples the costs of construction for community solar arrays from the costs of service provision and subscriber procurement/ management, to specifically address energy burden for Maryland's underserved and disadvantaged communities. It does this by offering a direct, efficient subsidy to Maryland community solar subscriber organizations that design a measurably equitable consumer product—a community solar subscription—that is affordable for a subscriber who experiences LMI. The Program has been acknowledged by many other jurisdictions and solar industry stakeholders as instrumental in helping to advance the market equitably.

The grant program was designed to provide monetary incentives to promote cost savings for LMI subscribers, to allow the termination of a subscriber contract early without accruing a large penalty, and to ensure community solar developers would have the resources needed to conduct income verification for the LMI community. When it became apparent that the existing LMI verification criteria was difficult to follow, MEA leveraged some lessons learned from the State of Illinois and developed them into recommendations that were ultimately adopted by the Maryland Public Service Commission. The grant amount is based upon a net present value (NPV) formula, taking into account the amount of energy subscribed to LMI households and the cost savings guaranteed over and above that of a specified base case over an assumed 20-year PPA period. A discount rate of 10 percent is used.

The program itself has not yet leveraged outside funding but could easily do so if needed. Funding sources can vary year-to-year based on budget objectives, funding availability, and actions by the legislature. However, the program has been funded every year in full, with funds from Maryland's Strategic Energy Investment Fund (SEIF), which takes funding from multiple external sources including the Regional Greenhouse Gas Initiative (RGGI) carbon emissions cap-and-trade program, alternative compliance payments (ACPs), and other sources. Specifically, the Program makes generous use of proceeds from ACPs as well as Maryland's RGGI auction proceeds.

To date, MEA has not asked grantees to provide data for total project costs because the Community Solar LMI-PPA grant doesn't directly pay for construction. However, assuming a conservative $2/watt construction cost, the projects incentivized by the $16.4 million of program cost would cost about $225 million to construct. This constitutes a leveraging factor of about 13.8 to 1.

A Model for Other States

The Community Solar LMI-PPA Grant Program has largely succeeded in its program objectives. Without placing mandates on industry, the program helped guide developers to offer significant monetary savings for LMI subscribers (normally 20-25 percent), short contract periods (or at least the ability to end a contract early without penalty fees), and an incentive to pursue LMI projects, providing solar energy services to communities and a market segment that otherwise would not benefit from solar.

It was designed to work with a deregulated electric system where the distribution utilities would not own means of energy generation. While community solar projects may proceed under an ownership concept—whereby subscribers provide money up front to buy the energy output from a portion of an array—or under a lease/PPA model, in Maryland the PPA model was the one that took off. Results from this program, industry feedback, and consumer observation have indicated that there is a general desire among participating households to avoid solar ownership and maintenance responsibility, due to the cost. This program is easily replicable by other states that allow Community Solar. MEA has had many jurisdictions reach out to discuss the program with its staff, and they would welcome the opportunity to present to more states on the successes of this Program model and to report on lessons learned.

JUDGES' QUOTE

"Maryland's Community Solar LMI-PPA Grant Program is successfully reducing barriers to clean energy adoption for hard-to-reach customers, emphasizing equity and LMI access. It provides direct benefits and lower prices for clean power by focusing on community solar projects, through a unique program design that aligns with needs of those that stand to benefit. It is a model for inclusive community-scale solar program design."

Maryland Energy Administration

About Maryland Energy Administration

The mission of the Maryland Energy Administration is to promote clean, affordable, reliable energy and energy-related greenhouse gas emission reductions to benefit Marylanders in a just and equitable manner. MEA is the statutory Administrator of Maryland's Strategic Energy Investment Fund (SEIF), which provides incentive funds for projects and services that advance clean energy, energy efficiency, energy resilience, and energy equity projects for Marylanders. MEA continues to focus on maximizing the greenhouse gas reduction potential of each MEA dollar invested and ensuring the delivery of equitable outcomes to our State's many communities, especially those that are overburdened, underserved, or disadvantaged. MEA focuses on efforts to enhance and expand consumer clean energy education, community outreach and engagement, and helping communities take ownership of their energy decisions.

For more information:
https://energy.maryland.gov/residential/Pages/CommunitySolarLMI-PPA.aspx

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Triple Bottom Line Foundation

More information about CESA's members can be found on our website at http://www.cesa.org/members.

The Clean Energy States Alliance (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 an 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 views and achievements of its members.

Ørsted US Offshore Wind/Block Island Wind Farm

Clean Energy States Alliance

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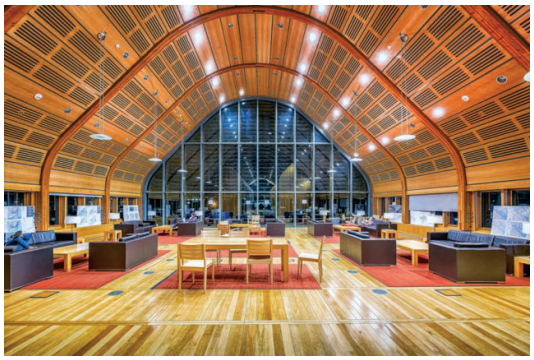



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