ConnectedSolutions

Energy Storage Equity

AN ASSESSMENT OF THREE MASSACHUSETTS PROGRAMS

Prepared by Applied Economics Clinic for Clean Energy Group

SEPTEMBER 2024

Applied Economics Clinic
Economic and Policy Analysis of Energy, Environment and Equity

CleanEnergyGroup

ABOUT THIS REPORT

This report, prepared by the Applied Economics Clinic (AEC) on behalf of Clean Energy Group (CEG), presents an assessment of the equity provisions of three energy storage programs currently being administered in Massachusetts. The report assesses ConnectedSolutions, the SMART solar program, and the Clean Peak Standard, and makes recommendations Massachusetts agencies and utilities should consider to make these programs more equitable and improve their accessibility to income-eligible and overburdened communities. This report is one of a series of reports CEG has published addressing energy storage policy and programs in Massachusetts and New England. Related reports can be found at www.cleanegroup.org/initiatives/energy-storage-policy-and-regulation/connectedsolutions. Learn more about CEG's broader work on energy storage policy at www.cleanegroup.org/initiatives/energy-storage-policy-and-regulation.

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Prepared by Applied Economics

Tanya Stasio, PhD

Elisabeth Seliga

Bryndis Woods, PhD

Jordan Burt

For Clean Energy Group

Todd Olinsky-Paul, Editor

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Applied Economics Clinic

Forward

For more than a decade, Clean Energy Group (CEG) has advocated for the equitable deployment of energy storage in Massachusetts. This advocacy has included state policy and program development support, technical support for projects and communities, independent analysis, and information sharing with state agencies as well as other organizations.

During this period, Massachusetts adopted ambitious energy storage procurement targets and developed a nation-leading suite of innovative energy storage policies and programs. Massachusetts also has a long-held commitment to equity in clean energy programs and policy, which cuts across all the Commonwealth's initiatives and agencies.

At this writing, three key energy storage-supporting programs—the SMART solar incentive, ConnectedSolutions, and the Clean Peak Standard—are entering a period of internal review as recommended in the December 2023 report, *Charging Forward: Energy Storage in a Net Zero Commonwealth*. This seemed an opportune time to review the equity provisions of Massachusetts' energy storage programs and assess their effectiveness in providing access to the Commonwealth's income-eligible and underserved communities.

To conduct this assessment, CEG contracted the Applied Economics Clinic, a long-time partner with which CEG has conducted prior key energy storage analyses in Massachusetts.

Our assessment reveals that two out of the three of the Commonwealth's energy storage programs (ConnectedSolutions and the Clean Peak Standard) lack specific equity provisions and do not report on equitable participation (Massachusetts has not mandated equity provisions or equity reporting in these programs). The third program, SMART, despite revisions aimed at improving equitable participation, continues to see very low enrollment rates from income-eligible customers—a category that is narrowly defined in a way that excludes other types of underserved communities that might benefit from participation.

In short, this report finds that the current energy storage-incentivizing programs in Massachusetts, while they are groundbreaking in many ways, do not live up to the Commonwealth's clean energy equity commitments.

Fortunately, there are energy storage equity programs in other states that demonstrate how it is possible to do better; there are even pilot programs in Massachusetts that provide good examples, such as the CVEO offering from Cape Light Compact. These programs, which we summarize in this report, include model equity provisions that could be adapted and applied to the statewide programs in Massachusetts.

It is CEG's hope that this report will inform the Massachusetts energy agencies in their review and revision of the Commonwealth's three energy storage-supporting programs, and that these programs will emerge from this process with new and better mechanisms to provide equitable access to the Commonwealth's underserved communities.

Todd Olinsky-Paul, Sr. Project Director, Clean Energy Group

Executive Summary

Massachusetts aims to achieve a statewide net zero greenhouse gas emissions target by 2050. To meet this target, several policies and programs have been implemented to spur renewable energy adoption. For example, electric utilities in the Commonwealth must adhere to requirements established in both the Renewable Portfolio Standard and the Clean Peak Energy Standard to derive specific amounts of their retail sales from clean energy resources.

In addition, Massachusetts has enacted policies to encourage the deployment of energy storage technologies. The 2018 *Act to Advance Clean Energy* set a 1,000 megawatt-hour (MWh) target for energy storage by the end of 2025—570 MWh of which had been installed as of February 2024. The 2022 *Act Driving Clean Energy and Offshore Wind* supports the widespread development of energy storage as well as offshore wind, solar power, and electrification of the transportation and building sectors.

Beyond its commitment to clean energy, Massachusetts has also made commitments to energy and environmental equity. Equitable policy design is critical to supporting the Commonwealth's clean energy transition without placing further burdens on its most vulnerable communities. Since the 2016 launch of the Affordable Access to Clean and Efficient Energy Initiative, Massachusetts energy policy and programs have included commitments to an equitable clean energy transition.

Prepared on behalf of Clean Energy Group (CEG), this Applied Economics Clinic (AEC) report assesses equity-supporting provisions in three Massachusetts programs that facilitate the development of energy storage resources: the **Solar Massachusetts Renewable Target (SMART)** program, the **Clean Peak Energy Standard (CPS)**, and **ConnectedSolutions**. Each of these programs was launched within the past decade and has supported the use of clean energy and energy storage resources. In terms of equitable policy design, however, only SMART includes equity provisions and they are limited to income-eligibility. The CPS and ConnectedSolutions programs lack program-specific equity provisions altogether.

Findings of this report include:

- The three energy storage programs assessed lack mandates, targets and reporting requirements to support the Commonwealth's commitment to equitable access to clean and efficient energy.
- Two out of three energy storage-incentivizing programs (ConnectedSolutions and the Clean Peak Standard) have no equity provisions or reporting on equitable participation.
- Low-income participation in the third program (SMART) is minimal even after the program was revised to improve equitable participation.
- The Massachusetts SMART program lacks specific incentives for vulnerable populations outside of income-eligibility. This means environmental justice communities, communities located near fossil fuel infrastructure, and other overburdened groups may not qualify for the SMART program's income-eligible incentives.

- Cape Light Compact and Generac (a private firm) have initiated two equity-focused customer energy storage incentive programs in the Commonwealth. While constrained in scale and budget, these programs may serve as models for the Massachusetts energy agencies and investor-owned utilities to draw from when considering revisions to their programs.

After assessment of the three Massachusetts programs, AEC reviewed energy storage pilots and federally funded projects already underway in the Commonwealth, as well as energy storage programs in other states, to identify recommendations for expanding equity provisions within Massachusetts' existing energy storage incentive programs. In total, AEC makes eight recommendations for Massachusetts' energy storage programs to improve their equity performance. These recommendations are intended to better align Massachusetts' energy storage programs with its equity commitments, as well as to draw on lessons learned and best practices from similar programs in other states (see ES-Table 1).

ES-Table 1. Recommendations to promote equitable energy storage deployment in Massachusetts

	Recommendation
Equity Performance Metrics	**1.** Require participation data for energy storage programs to be publicly available online together with detailed information regarding the income status of the households served, and the quantity and capacity of resources supported through the program.
	2. Develop specific income-eligible enrollment and capacity targets for energy storage programs and require detailed data on each program's progress towards these targets to be easily accessible and publicly available online.
	3. Create a stakeholder-informed outreach and enrollment plan for addressing low participation in EJ and/or low-income areas and launch targeted utility EJ community and low-income customer outreach and education programs.
Expanded and Increased Equity Incentives	**4.** Add Clean Peak Energy Standard financial incentives for retail electric suppliers supplying energy (or offsetting load) from qualifying clean peak resources in income-eligible areas.
	5. Increase the incentive rates for income-eligible customers enrolled in the ConnectedSolutions and SMART programs and offer up-front rebates and/or on-bill payments to increase low-income participation.
	6. Add financial incentives for other vulnerable households such as households that rely on uninterrupted electric supply to power life-saving medical devices and critical facilities serving state-designated EJ communities.
	7. Add an additional SMART resiliency adder for sustainable community microgrids serving state-designated EJ communities and/or low-income households.
	8. Add an additional SMART fossil fuel replacement adder for SMART solar plus storage units installed to replace existing fossil fuel plants located within Massachusetts EJ communities.

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I. Introduction

As established by the 2008 *Massachusetts Global Warming Solutions Act (GWSA)*[1] and the 2021 *Act Creating A Next-Generation Roadmap for Massachusetts Climate Policy,*[2] Massachusetts aims to achieve net zero greenhouse gas emissions by 2050, with direct emissions at least 85 percent below 1990 levels by 2050 and remaining emissions "netted" out via carbon capture and storage mechanisms like reforestation.[3] Electric utilities in the Commonwealth must also adhere to requirements established in the Renewable Portfolio Standard (RPS) and the Clean Energy Standard to derive specific amounts of their retail sales from clean energy resources in exchange for Renewable Energy Credits and Clean Energy Credits:[4] the RPS, which increases by 1 percent annually, requires 40 percent by 2030 and 60 percent by 2050, whereas the Clean Energy Standard, which increases by 2 percent annually, requires 60 percent by 2030 and 80 percent by 2050.[5] Every resource that is eligible to comply with Massachusetts' RPS[6] also complies with its Clean Energy Standard, and RPS compliance counts toward Clean Energy Standard compliance.[7] Compliance with the Clean Energy Standard (above and beyond RPS compliance) can be achieved through battery systems primarily storing and discharging renewable energy and additional clean energy technologies, like wind and solar, that have met an emissions-based performance standard.[8]

In addition to greenhouse gas reduction targets and clean energy goals, Massachusetts has enacted policies specifically designed to encourage the deployment of energy storage technologies. In 2015, in support of the Commonwealth's clean energy goals and emission reduction targets, former Massachusetts Governor Charlie Baker launched the Energy Storage

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[1] Massachusetts Executive Office of Energy and Environmental Affairs. N.d. "Global Warming Solutions Act Background." Available at: https://www.mass.gov/info-details/global-warming-solutions-act-background.

[2] Massachusetts General Laws Chapter 8, (2021). *An Act Creating a Next Generation Roadmap for Massachusetts Climate Policy*. Available at: https://malegislature.gov/Laws/SessionLaws/Acts/2021/Chapter8.

[3] Ibid.

[4] Massachusetts Department of Energy Resources (DOER). N.d. "Program Summaries." Available at: https://www.mass.gov/info-details/program-summaries.

[5] DSIRE. 2024. "Renewable Portfolio Standard." Available at: https://programs.dsireusa.org/system/program/detail/479/renewable-portfolio-standard; and Massachusetts Department of Environmental Protection. N.d. *Fact Sheet: Electricity Sector Regulations*. Available at: https://www.mass.gov/doc/fact-sheet-massdep-electricity-sector-regulations/download.

[6] The following resources are eligible to comply with the RPS Class I if built on or after January 1, 1998: Anaerobic digesters, biomass, hydroelectric, hydrokinetic, landfill gas, photovoltaic, tidal, and wind. The following resources are eligible to comply with RPS Class II if built prior to 1998: hydroelectric, hydrokinetic, landfill gas, photovoltaic, and wind. Source: MA DOER. N.d. "List of Qualified Generation Units." Available at: https://www.mass.gov/info-details/lists-of-qualified-generation-units.

[7] MA DOER. N.d. "Program Summaries."

[8] Massachusetts Department of Environmental Protection 310 CMR 7.75. 2023. *Clean Energy Standard (CES) Frequently Asked Questions (FAQ)*. Available at: https://www.mass.gov/doc/frequently-asked-questions-massdep-clean-energy-standard/download, p. 2.

Initiative (ESI) to expand energy storage in the Commonwealth.[9] As part of the initiative, the *Act to Advance Clean Energy* was signed into law in August 2018 with a goal of achieving 1,000 megawatt-hours (MWh) of energy storage by the end of 2025—570 MWh of which had been installed as of February 2024 across all electric distribution companies in the Commonwealth.[10]

In 2022, former Governor Baker signed the *Act Driving Clean Energy and Offshore Wind* to support the development of offshore wind, solar power, battery storage, and electrification of the transportation and building sectors.[11] In particular, the Act directed the Massachusetts Department of Energy Resources (DOER) to conduct a study of the current energy storage landscape and to assess emerging storage technologies and their potential benefits for Massachusetts electric customers. The 2023 study, *Charging Forward: Energy Storage in a Net Zero Commonwealth*,[12] identifies energy storage as "a critical and cost-effective strategy" for meeting Massachusetts' climate goals.[13] As part of this report, DOER proposes allotting $50 million to programs under four target areas: standalone bulk storage, resiliency programs, mid- and long-duration energy storage technology commercialization grants, and energy storage siting,[14] noting that additional incentives would be available to projects that will provide benefits to low-to-moderate income (LMI)[15] customers or Environmental Justice (EJ)[16] communities. According to the Low-Income Home Energy Assistance Program (LIHEAP) Clearinghouse, about 152,000

[9] MA DOER. N.d. "ESI Goals & Storage Target." Available at: https://www.mass.gov/info-details/esi-goals-storage-target#:~:text=On%20August%209%2C%202018%2C%20An,achieved%20by%20December%2031%2C%202025.
[10] Ibid.
[11] (1) Massachusetts General Laws Chapter 179, (2022). *An Act Driving Clean Energy and Offshore Wind.* Available at: https://malegislature.gov/Laws/SessionLaws/Acts/2022/Chapter179; (2) Massachusetts Executive Office of Energy and Environmental Affairs. April 22, 2020. *Determination of Statewide Emissions Limit for 2050*. Available at: https://www.mass.gov/doc/final-signed-letter-of-determination-for-2050-emissions-limit/download.
[12] MA DOER. December 2023. *Charging Forward: Energy Storage in a Net Zero Commonwealth*. Available at: https://www.mass.gov/doc/charging-forward-energy-storage-in-a-net-zero-commonwealth-report/download.
[13] Ibid, p. 3.
[14] Ibid.
[15] The MA DOER defines low-income customers as earning less than 60 percent of the state median income for a household of four. Moderate-income customers are defined as earning between 60 percent and 80-120 percent, depending on the program, of the state median income for a household of four. MA DOER. 2017. *Affordable Access to Clean and Efficient Energy.* Available at: https://www.mass.gov/doc/affordable-access-to-clean-and-efficient-energy-the-final-working-group-report/download. p. 2.
[16] The Massachusetts Executive Office of Energy and Environmental Affairs defines EJ communities as a neighborhood that meets at least one of the following criteria: (1) annual median income is 65 percent or less of the statewide annual median income, (2) minorities make up 40 percent or more of the population, (3) 25 percent or more households speak English less than "very well," or (4) minorities make up 25 percent or more of the population and the annual median household income of the municipality does not exceed 150 percent of the statewide annual median income. Massachusetts Executive Office of energy and Environmental Affairs. N.d. "Environmental Justice Populations in Massachusetts." Available at: https://www.mass.gov/info-details/environmental-justice-populations-in-massachusetts#interactive-maps-about-environmental-justice-populations-.

Massachusetts households (or 6 percent[17]) participated in LIHEAP in fiscal year 2023.[18] In 2022, 3.5 million people lived in Massachusetts' EJ communities—50 percent of the Commonwealth's population.[19]

Also in 2022, the Massachusetts Executive Office of Energy and Environmental Affairs published the *Massachusetts Clean Energy and Climate Plan for 2025 and 2030* ("2025/2030 CECP"), which presents the Commonwealth's plans to achieve its emissions reduction goals for 2025 and 2030, including "strategies to promote equity and reduce emissions in overburdened EJ communities."[20] The 2025/2030 CECP also lays out a commitment to equity that emphasizes the importance that "all Massachusetts residents can fully access and participate in the transition to a low-carbon economy" and that "differences in income-level, location, English proficiency, and previous marginalization" must not prevent anyone from participating in the benefits created by a new, low-carbon economy.[21]

Examples of specific equity provisions from these initiatives include the following:

- **The 2016 *Affordable Access to Clean and Efficient Energy Initiative***[22] is an initiative designed to help LMI residents access clean energy technologies by creating an Affordable Access Working Group to address barriers to clean energy investment for LMI households.[23]
    - The barriers identified included a lack of capital for purchasing clean energy technologies and a lack of control over clean energy and energy efficiency upgrades in rental homes.[24]
    - At the onset of the Initiative, the DOER committed $10 million in funding for energy storage projects and MassCEC committed $5 million in funding, to be allocated to organizations that will invest in clean energy technologies to lower energy bills for low-income and multi-family households, to renewable thermal projects at state-sponsored public housing, and to a competitive grant for a low-income community

[17] U.S. Census Bureau. 2022. "Housing." Available at: https://data.census.gov/profile/Massachusetts?g=040XX00US25#housing.
[18] LIHEAP Clearinghouse. 2023. "Massachusetts." Available at: https://liheapch.acf.hhs.gov/profiles/Mass.htm.
[19] (1) Massachusetts Executive Office of Energy and Environmental Affairs. 2022. "Environmental Justice Maps Update 2022 Frequently Asked Questions." Available at: https://www.mass.gov/doc/environmental-justice-maps-update-2022-frequently-asked-questions/download; (2) U.S. Census Bureau. 2022. "ACS Demographic and Housing Estimates." [Table ID: DP05]. Available at: https://data.census.gov/table/ACSDP5Y2022.DP05?q=population&g=040XX00US25.
[20] Massachusetts Executive Office of Energy and Environmental Affairs. 2022. *Massachusetts Clean Energy and Climate Plan for 2025 and 2030*. Available at: https://www.mass.gov/doc/clean-energy-and-climate-plan-for-2025-and-2030/download, p. 2.
[21] Ibid, p.11
[22] MA DOER. N.d. "Affordable Access to Clean and Efficient Energy Initiative." Available at: https://www.mass.gov/info-details/affordable-access-to-clean-and-efficient-energy-initiative.
[23] Ibid.
[24] MA DOER. 2017. *Affordable Access to Clean and Efficient Energy,* p. 1.

shared solar project as part of the SMART program.[25]

- **The 2022 *Act Driving Clean Energy and Offshore Wind*[26]** requires the Massachusetts Clean Energy Center (MassCEC) to offer a clean energy equity workforce and market development program to underrepresented businesses and individuals—particularly those located in EJ or low-income communities.
    - This program provides educational and professional development, workforce training, and startup opportunities and grants in the clean energy sector, among other efforts.[27]
    - The Act also requires the Massachusetts Department of Public Utilities (DPU) to direct each electric company to develop electric sector modernization plans that incorporate storage resources to meet reliability and resiliency needs and support renewable energy deployment. DPU must provide recommendations for how these plans might mitigate or prevent further impacts on low-income ratepayers.[28]

As recognized in a number of the Massachusetts programs cited above, it is important that initiatives to support the Commonwealth's clean energy transition are designed equitably to prevent further burdens on the most vulnerable communities. This report assesses equity-supporting provisions in three statewide Massachusetts programs that facilitate the development of energy storage resources:

1. **Solar Massachusetts Renewable Target (SMART) program:**[29] Launched by DOER in 2018, the SMART program supports a variety of solar and storage projects in the Commonwealth and provides additional incentives and adders for LMI customers.[30]
2. **Clean Peak Energy Standard (CPS):** The 2018 *Act to Advance Clean Energy*[31] also established the CPS, which provides Clean Peak Certificates to qualifying clean energy

[25] (1) MA DOER. N.d. "Affordable Access to Clean and Efficient Energy Initiative."; (2) MA DOER, MA Department of Housing and Community Development, MassCEC, and Meister Consulting Group. April 2017. *Affordable Access to Clean and Efficient Energy*. Massachusetts Affordable Access Working Group. Available at: https://www.mass.gov/doc/affordable-access-to-clean-and-efficient-energy-the-final-working-group-report/download, p. 11.

[26] Massachusetts General Laws Chapter 179, (2022). *An Act Driving Clean Energy and Offshore Wind.* Available at: https://malegislature.gov/Laws/SessionLaws/Acts/2022/Chapter179.

[27] Massachusetts General Laws Chapter 179, Section 13(a), (2022). *An Act Driving Clean Energy and Offshore Wind.*

[28] Massachusetts General Laws Chapter 179, Section 92C(b), (2022). *An Act Driving Clean Energy and Offshore Wind.*

[29] MA DOER 225 CMR. *SMART Program*. Available at: https://www.mass.gov/doc/225-cmr-2000-final-071020-clean/download.

[30] MA DOER. N.d. "Affordable Access to Clean and Efficient Energy Initiative."

[31] Massachusetts General Laws Chapter 227, (2018). *An Act to Advance Clean Energy*. Available at: https://malegislature.gov/Laws/SessionLaws/Acts/2018/Chapter227.

generators and energy storage resources that supply electricity to the grid during seasonal peak demand periods (i.e. the periods of highest electric demand in the summer or winter).[32]

3. **ConnectedSolutions:** Launched in 2019 by the Commonwealth's investor-owned electric utilities and Cape Light Compact (a municipal energy provider serving Cape Cod, Martha's Vineyard, and Dukes County), the ConnectedSolutions customer battery program allows utilities to provide incentives in exchange for being able to draw on the energy stored in customer-sited batteries and/or curtail customer energy use, in order to lower the costs of meeting peak electric demand.[33]

The remainder of this report is organized as follows: Section II summarizes existing provisions within the three Massachusetts' energy storage programs summarized above. Section III discusses new and proposed federal- and state-funded programs that may support energy storage deployment in the Commonwealth. Section IV provides examples of equity provisions and best practices drawn from other states' energy storage programs. Section V identifies best practices and recommendations for Massachusetts' energy storage programs to improve their equity performance.

II. Equity in Massachusetts' Energy Storage Programs

Three Massachusetts programs offer incentives to support deployment of energy storage resources in the Commonwealth: SMART, Clean Peak Energy Standard, and ConnectedSolutions. Each of these programs were launched within the past decade and have supported the use of clean energy and energy storage resources but lack equity provisions that go above and beyond income-eligibility provisions or lack equity provisions entirely (see Table 1).

[32] DOER. N.d. "Program Summaries."

[33] Clean Energy Group. 2021. *ConnectedSolutions: A Program Assessment for Massachusetts.* Prepared by Applied Economics Clinic. Available at: https://www.cleanegroup.org/wp-content/uploads/ConnectedSolutions-An-Assessment-for-Massachusetts.pdf, p. 8; and Mass Save. N.d. "Use your Battery Storage Device to Make the Grid More Sustainable." Available at: https://www.masssave.com/residential/rebates-and-incentives/connectedsolutions-batteries.

Table 1. Massachusetts energy programs that support energy storage development

Program	Description	Equity Provisions
Solar Massachusetts Renewable Target (SMART)	Supports solar and solar+storage resources to reduce peak demand, distribution congestion, and system losses	SMART program recently expanded to increase the number of low-income eligible customers
		Minimum of 5 percent of total capacity must be allocated to low-income communities
		Projects servicing low-income customers must demonstrate that the customer will receive net savings
		Low-income behind-the-meter units have the highest base compensation rate factor
		SMART program adders are differentiated such that low-income projects receive higher adders
Clean Peak Energy Standard	Incentivizes the use of clean energy resources, including energy storage resources, to meet peak demand by requiring increasing shares of clean peak-certified retail electric sales	No equity provisions
ConnectedSolutions	Incentivizes household energy use reduction to reduce peak demand by drawing on customer-sited energy storage resources	No equity provisions

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Solar Massachusetts Renewable Target (SMART)

DOER launched the SMART program in 2018 to support the Commonwealth's climate and environmental protection targets by encouraging the development of solar photovoltaic (PV) technology across the state as a way to reduce peak demand, address distribution congestion and system losses, and mitigate the need for new non-renewable resources.[34] To support energy storage, the SMART program provides an energy storage adder—in other words, a higher dollar-per-kilowatt-hour (kWh) incentive—to solar units co-located with an energy storage system.[35] The value of the adder is determined by the ratio of storage capacity to solar capacity and the duration

[34] 1) MA DOER. 2018. Solar Massachusetts Renewable Target (SMART) Program Summary [PowerPoint Presentation]. Available at: https://www.mass.gov/doc/smart-launch-and-program-overview/download, p. 1; and MA DOER 225 CMR. SMART Program, p. 1.

[35] Ibid, p. 16.

of the storage resource.[36] The SMART program is open to all customers in all sectors, but projects must be approved by DOER.[37] For a project to be approved, it must use solar PV technology, be interconnected to the grid, and be located on a single land parcel with no more than 5 megawatts (MW) of capacity.[38]

The SMART program design includes a declining block tariff-based incentive structure that supports a total of 3,200 MW of new solar generation capacity (an increase from the original 1,600 MW of total program capacity).[39] There are 16 separate capacity blocks, each with 200 MW of available capacity. As SMART applications are approved, the blocks fill up starting with Block 1, which has the highest base compensation rate (Block 16 has the lowest).[40] The base compensation rate also depends on the project location and whether the solar is a standalone or behind-the-meter (BTM) generation unit.[41]

Funding for the incentive structure comes from the electric distribution company, which pays the incentives to the system owners in their territory.[42] When calculating the incentive payment, the current year's Value of Energy (equal to the sum of several utility electric rate charges, including the per kWh distribution charge, transmission charge, transition charge, and the three-year average of basic service charge)[43] is subtracted from the total incentive payment plus any project adders. For some blocks—where the base compensation rate is lower than the current year's Value of Energy—that means that the total incentive rate is low or nonexistent.[44] In 2023, capacity blocks with no solar incentive payment included Blocks 3, 5, 8, 9, and 10 (assuming that the project was residential solar and did not include storage).[45] In addition, the program allows for each MWh of electricity produced by an approved unit to be eligible for a Class I renewable certificate[46] that is

[36] MA DOER. 2018. SMART Program Summary [PowerPoint Presentation], p. 10.
[37] (1) MA DOER 225 CMR. SMART Program, p. 1; (2) MA DOER. N.d. "Solar Massachusetts Renewable Target (SMART) Program." Available at: https://www.mass.gov/info-details/solar-massachusetts-renewable-target-smart-program#open-proceedings-
[38] MA DOER 225 CMR. SMART Program, p. 8.
[39] (1) MA DOER. N.d. "Solar Massachusetts Renewable Target (SMART) Program; (2) MA DPU. January 2021. *Joint Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil, Massachusetts Electric Company and Nantucket Electric Company d/b/a National Grid, and NSTAR Electric Company d/b/a Eversource Energy for Approval of Revised Model Solar Massachusetts Renewable Target Program Provision.* Available at: https://www.mass.gov/doc/dpu-20-145-smart-notice-of-filing-and-public-hearing/download, p. 2
[40] Massachusetts Department of Public Utilities (DPU) No. 20-145. March 2022. *Solar Massachusetts Renewable Target Program.* Eversource. Available at: https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/14662227, p. 24-25.
[41] MA DPU No. 20-145. March 2022. *Solar Massachusetts Renewable Target Program*, p. 24-25.
[42] MA DOER. N.d. "Solar Massachusetts Renewable Target (SMART) Program."
[43] See: MA DOER 225 CMR. *Declining Incentive Rates and Billing/SMART Incentive Payment Effects*. Available at: https://www.mass.gov/doc/declining-smart-incentive-rates/download.
[44] Ibid.
[45] Ibid.
[46] GIS Certificates that are considered RPS Class I Renewable Generation Attributes.

transferred directly to the respective distribution company in which the unit is located.[47]

In December 2021, DPU issued an order requiring, amongst other provisions, low-income eligible area definitions to increase participation from the Commonwealth's most burdened.[48] In 2022, DPU approved the utilities' expansion of the SMART program to provide specific incentives for low-income customers.[49] The 2022 revisions to the SMART program expanded the definition of a low-income customer to include low-income eligible areas, or neighborhoods with household income "equal to or less than 65 percent of the statewide median income for Massachusetts"[50] per the U.S. Census' American Community Survey.[51]

The SMART program provides the following definitions:

- **Low-income customers** are end-use customers that reside in low-income eligible areas, or customers that receive a low-income discounted rate from an electric distribution company.[52]
- **Low-income solar tariff generation units** are defined as being one of three types:[53]
    - *Low Income BTM:* A unit with an alternating current (AC) rated capacity of less than or equal to 25 kilowatts (kW) that serves low-income customers
    - *Low Income Community Shared:* A unit with at least 50 percent of its energy output allocated to low-income customers in the form of electricity or bill credits
    - *Low Income Property:* A unit with a rated capacity greater than 25 kW that provides all of its generation output in the form of electricity or bill credits to low- or moderate-income housing

Beyond the program's 2022 expansion to increase the number of eligible low-income customers, SMART includes four additional equity provisions for low-income groups, including:

- Reserving a minimum of 5 percent of total capacity in each capacity block for *Low Income Community Shared* and *Low Income Property* units[54]

[47] MA DOER 225 CMR. *SMART Program*, p. 9.
[48] MA DPU Docket No. 20-145. December 2021. *Order on Phase I Revisions to the Model SMART Provision*. Available at: https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/14355548.
[49] May, R. and Dorfler, J. January 2022. "The Massachusetts Solar Program Expands at a Lower Total Cost." Rich May, P.C. Available at: https://www.richmaylaw.com/the-massachusetts-solar-program-expands-at-a-lower-total-cost/; and MA DPU Docket No. 20-145. February 2022. *Solar Massachusetts Renewable Target Program Revised Model Tariff.* Available at: https://fileservice.eea.comacloud.net/FileService.Api/file/FileRoom/14529185.
[50] MA DOER 225 CMR. *SMART Program*, p. 5.
[51] MA DOER 225 CMR. *SMART Program*, p. 4-5.
[52] MA DOER 225 CMR. *SMART Program*, p. 4.
[53] MA DOER 225 CMR. *SMART Program*, p. 4-5.
[54] MA DOER 225 CMR. *SMART Program*, p. 8.

- Mandating that any solar tariff generation unit servicing low-income eligible customers must be able to demonstrate to DOER that any customer served by the solar generation unit will receive net savings when enrolling in the solar contract[55]
- Providing the highest base compensation rate (BCR) factor to *Low Income* BTM solar units[56]
- Providing SMART program adders differentiated by equity provisions. For example, the highest possible adder is applied to *Low Income Community Shared* units and the second highest possible adder is applied to *Low Income Property* units (see Table 2)[57]

Table 2. SMART program adders by generation type

Generation Type	Adder Value ($/kWh)
Community Shared Solar	$0.05
Low Income Property Owner	$0.03
Low Income Community Shared Solar	$0.06
Public Entity	$0.02

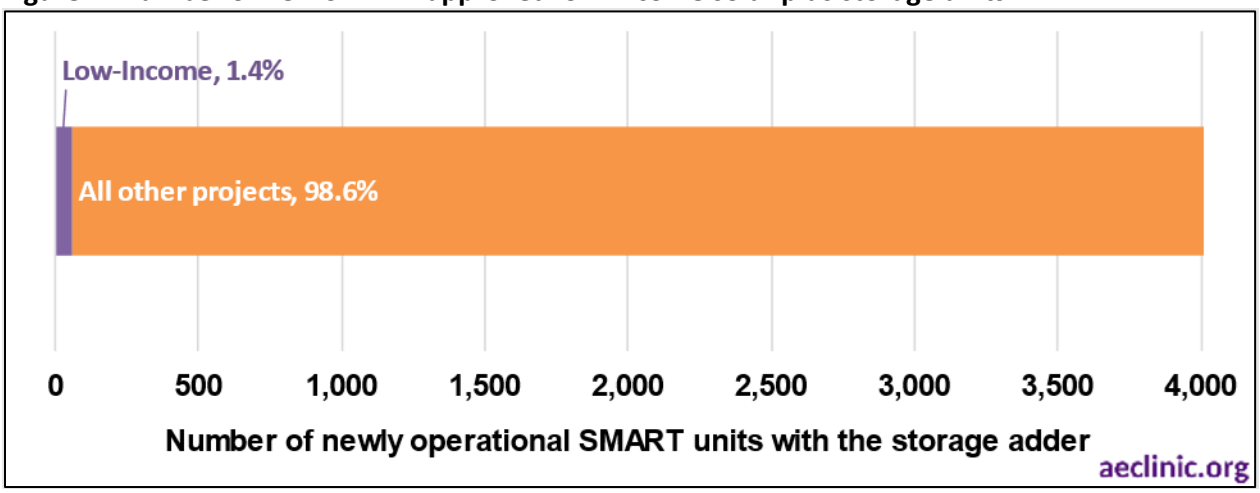
Data source: MA DOER 225 CMR. SMART Program, p. 190-191.

The SMART program administrators maintain a workbook complete with information pertaining to all participating Solar Tariff Generation Units, including the number and capacity of units, any applicable adders, whether the unit is classified as a BTM *Low Income*, *Low Income Community Shared*, or *Low Income Property*, and total installation costs, among other metrics.[58]

Between the SMART program's launch in 2018 and the end of 2023, in total, over 3,800 behind-the-meter solar plus storage units (i.e. less than 25 kW capacity) and over 125 standalone solar plus storage units (i.e. greater than 25 kW capacity) have come online[59] across Massachusetts. Of those, less than 1.5 percent were low-income projects (i.e., *Low Income* BTM, *Low Income Community Shared*, or *Low Income Property*, see Figure 1 and Figure 2).

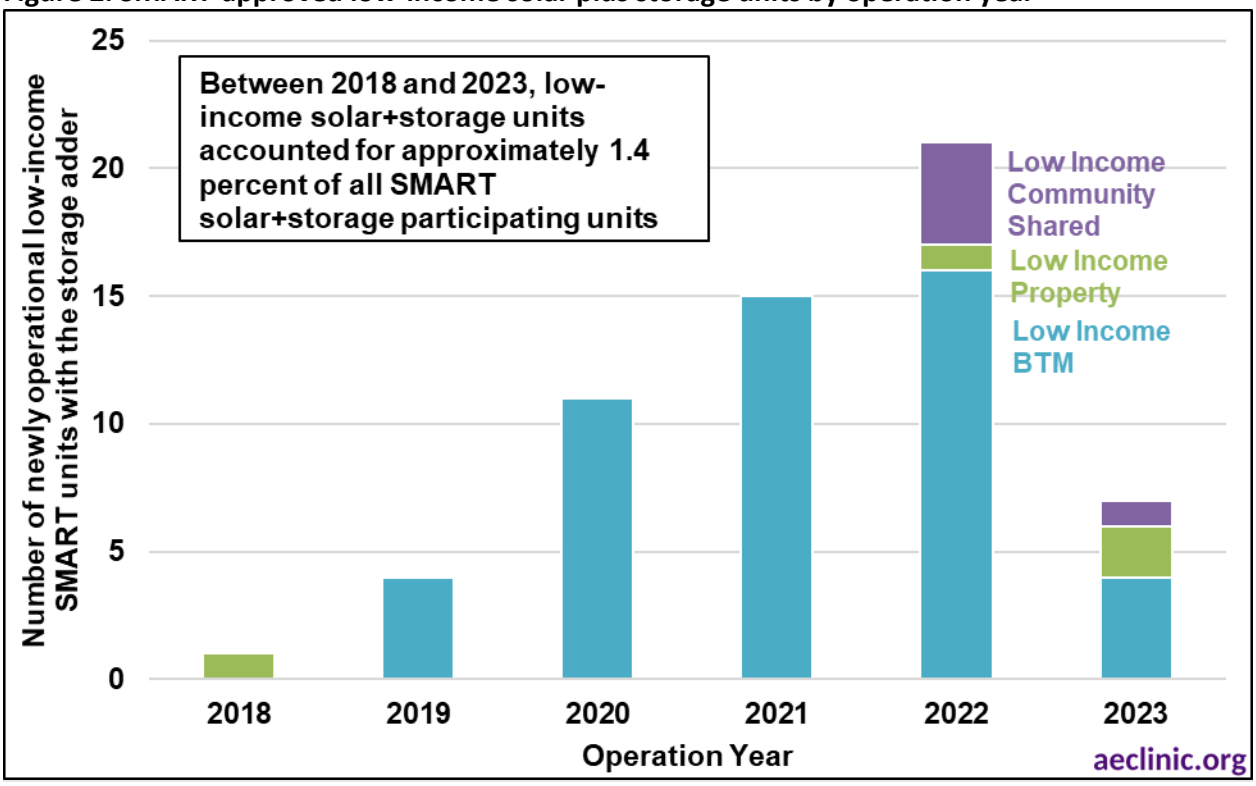
[55] MA DOER 225 CMR. *SMART Program*, p.19.
[56] MA DOER 225 CMR. *SMART Program*, p. 190.
[57] MA DOER 225 CMR. *SMART Program*, p. 190-191.
[58] MA DOER. June 2024. "SMART Solar Tariff Generation Units." [Workbook]. Available at: https://www.mass.gov/doc/smart-solar-tariff-generation-units/download.
[59] The SMART program database uses the term "Operation Date" to describe when the unit came online. Source: MA DOER. June 2024. "SMART Solar Tariff Generation Units." [Workbook].

Figure 1. Number of new SMART-approved low-income solar plus storage units



Data source: MA DOER. 2024. "SMART Solar Tariff Generation Units." [Workbook]. Available at: https://www.mass.gov/doc/smart-solar-tariff-generation-units/download.

Figure 2. SMART-approved low-income solar plus storage units by operation year



Data source: MA DOER. June 2024. "SMART Solar Tariff Generation Units." [Workbook]. Available at: https://www.mass.gov/doc/smart-solar-tariff-generation-units/download.

The DOER is currently reviewing SMART and soliciting stakeholder and public feedback on proposed revisions to the program.[60] DOER's straw proposal, released on July 10, 2024, includes potential program changes to both the low-income definitions and available adders for certain project types.[61] DOER proposes to:

- Combine the adders and eligibility criteria for Community Shared Solar and Low-Income Community Shared Solar, wherein each project type would receive the same $0.07 per kWh adder (an increase of $0.02 per kWh for Community Shared and an increase of $0.01 per kWh for Low-Income Community Shared) with the caveat that all Community Shared solar projects must enroll a minimum of 40 percent low-income customers.[62]
- Expand the definition of low-income property to include other forms of housing serving Low-Income Customers, such as homeless shelters and deed-restricted condominiums, among others.[63]
- Expand the Low-Income Customer definition to allow customers to qualify based on participation in other needs-based programs and self-attestation of meeting low-income requirements.[64]
- Expand the definition of low-income property to include units that allocate all energy output to qualified affordable housing, either through electricity or bill credits.[65]
- Remove the energy storage adder for small projects (less than 25 kW of solar capacity).[66]
- Increase the project size required to co-locate with energy storage from 500 kW to 1 MW solar capacity.[67]

Other proposed changes have not been adopted and are therefore not reflected in AEC's assessment of SMART or in its recommendations for equity improvements.

[60] MA Renewable and Alternative Energy Division. 2024. "SMART Programmatic Review." Available at: https://www.mass.gov/info-details/smart-programmatic-review.
[61] MA DOER. July 10, 2024. *Solar Massachusetts Renewable Target (SMART) Straw Proposal.* [PowerPoint Slides]. Available at: https://www.mass.gov/doc/2024-smart-straw-proposal/download.
[62] Ibid, p. 19, 44
[63] Ibid, p. 46
[64] Ibid, p. 47
[65] Ibid, p. 48
[66] Ibid, p. 23
[67] Ibid, p. 23

Clean Peak Energy Standard

The Massachusetts Clean Peak Energy Standard (CPS) was launched in 2020, two years after the SMART program went into full effect.[68] CPS was designed to increase the use of clean energy technologies when electric demand is at its highest, as well as reduce demand during these periods (which are defined by the DOER).[69] CPS requires electric suppliers to meet a certain share of their energy sales to Massachusetts end-use customers with energy from qualified clean peak energy resources during these defined periods, starting at 1.5 percent in 2020 and increasing 1.5 percent each subsequent year, until reaching 46.5 percent in 2050.[70] Beginning this year (2024) and every four years thereafter, DOER will conduct a review of the minimum standard and may modify it based on stakeholder input.[71]

Clean peak energy resources are defined as one or more of the following resources that are interconnected to the grid and offset load that would otherwise be served by the grid:

- *RPS Class I Renewable Generation Units* (commercial operation date on or after 1/1/2019)
- *RPS Class I Renewable Generation Units* or *RPS Class II Renewable Generation Units*[72] (commercial operation date on or after 1/1/2019) that are co-located with a *Qualified Energy Storage System* (commercial operation date on or after 1/1/2019), which include systems with a duration of at least four hours[73]
- *Qualified Energy Storage Systems* that store renewable energy (commercial operation date or incremental new capacity added on or after 1/1/2019)
- *Demand Response Resources*, which include resources that can demonstrate measurable changes in electric usage patterns such as remote load control devices that reduce energy use during peak times (for example, smart thermostats).[74]

CPS provides Clean Peak Energy Certificates (CPECs)—credits received for each MWh of generation—to retail electric suppliers supplying energy (or offsetting load) from qualifying clean

[68] MA DOER. N.d. "Clean Peak Energy Standard History of Program Development." Available at: https://www.mass.gov/info-details/clean-peak-energy-standard-history-of-program-development.
[69] (1) MA DOER 225 CMR 21.00. 2020. *Clean Peak Energy Portfolio Standard (CPS).* Available at: https://www.mass.gov/doc/225-cmr-21-clean-peak-energy-portfolio-standard-cps/download, p. 197; (2) MA DOER. N.d. "Clean Peak Energy Standard." Available at: https://www.mass.gov/clean-peak-energy-standard.
[70] MA DOER 225 CMR 21.00. 2020. *Clean Peak Energy Portfolio Standard (CPS),* p. 205-206.
[71] MA DOER 225 CMR 21.00. 2020. Clean Peak Energy Portfolio Standard (CPS). Available at: https://www.mass.gov/doc/225-cmr-21-clean-peak-energy-portfolio-standard-cps/download, p. 207.
[72] The following resources are eligible to comply with the RPS Class I: Anaerobic digesters, biomass, hydroelectric, hydrokinetic, landfill gas, photovoltaic, tidal, and wind. The following resources are eligible to comply with RPS Class II: hydroelectric, hydrokinetic, landfill gas, photovoltaic, and wind. Source: MA DOER. N.d. "List of Qualified Generation Units." Available at: https://www.mass.gov/info-details/lists-of-qualified-generation-units.
[73] DSIRE. July 2023. Clean Peak Energy Standard. Available at: https://programs.dsireusa.org/system/program/detail/22535/clean-peak-energy-standard.
[74] MA DOER 225 CMR 21.00, Section 21.05. 2020. *Clean Peak Energy Portfolio Standard (CPS)*, p. 201-202.

peak energy resources during prescribed peak demand hours. The amount of CPECs awarded is adjusted by seasonal multipliers,[75] which are used to reflect the degree of peak demand (and associated greenhouse gas emissions) across seasons, where summer and winter seasons receive a multiplier of 4, and spring and fall receive a multiplier of 1.[76]

CPS includes no equity provisions for low-income or other vulnerable or overburdened groups. In addition, information on program performance is unavailable.[77] Without performance data, it is not possible to assess how much storage has been deployed as a result of the program nor how equitable any storage deployment has been.

ConnectedSolutions

ConnectedSolutions was launched as a full program offering in Massachusetts in 2019, after being demonstrated as a pilot program during the summers since 2016.[78] It is administered by the Commonwealth's investor-owned electric utilities and Cape Light Compact, with the goal of lowering the cost (and associated emissions) of peak energy by allowing electric suppliers to draw on customer-stored energy and/or curtail customer energy use during high-demand, high-cost periods.[79] ConnectedSolutions offers customers incentives in exchange for allowing the electric distribution company to (1) draw on the energy stored in customer-sited batteries, (2) curtail customer energy use via smart thermostats, and (3) delay electric vehicle charging during times when demand on the electric grid is at its peak.[80] Participating customers are compensated on a "pay-for-performance" basis based on the average performance of their energy reduction when called upon (called a "demand response" or "dispatch" event).[81] In addition to ConnectedSolutions performance incentives, qualifying battery customers enrolled in the program may also receive CPS incentives and SMART program incentives (which, as described previously, include an energy storage adder).[82]

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[75] MA DOER 225 CMR 21.00. 2020. *Clean Peak Energy Portfolio Standard (CPS)*, p. 203.

[76] MA DOER 225 CMR 21.00. 2020. *Clean Peak Energy Portfolio Standard (CPS)* p. 203.

[77] Only historical development information is available, such as a list of regulatory proceedings and prior changes to the Standard. See: MA DOER. N.d. "Regulatory Proceedings." Available at: https://www.mass.gov/regulatory-proceedings.

[78] Clean Energy Group. September 2021. *ConnectedSolutions: A Program Assessment for Massachusetts.* Prepared by Applied Economics Clinic. Available at: https://www.cleanegroup.org/wp-content/uploads/ConnectedSolutions-An-Assessment-for-Massachusetts.pdf, p. 11.

[79] Clean Energy Group. 2021. *ConnectedSolutions.* Prepared by Applied Economics Clinic, p. 8; and Mass Save. N.d. "Use your Battery Storage Device to Make the Grid More Sustainable." Available at: https://www.masssave.com/residential/rebates-and-incentives/connectedsolutions-batteries.

[80] Clean Energy Group. 2021. *ConnectedSolutions.* Prepared by Applied Economics Clinic, p. 10; and Mass Save. 2023. *Program Materials for ConnectedSolutions for Small Scale Batteries.* Available at: https://www.masssave.com/-/media/Files/PDFs/Save/Residential/MA-Resi-Battery-Program-Materials---Final—5-4-2023.pdf, p. 2.

[81] Mass Save. 2023. *Program Materials for ConnectedSolutions for Small Scale Batteries,* p.2.

[82] Mass Save. N.d. "Use your Battery Storage Device to Make the Grid More Sustainable." p.7.

ConnectedSolutions is part of a broader, statewide three-year energy efficiency plan and its incentive payments, therefore, are funded by Massachusetts' Energy Efficiency Fund (a surcharge on customers' electricity bill that supports energy efficiency programs in the Commonwealth). Only residential or small business customers of Eversource, National Grid, and Cape Light Compact that pay into the Energy Efficiency Fund on their monthly electric bill are eligible to participate in ConnectedSolutions—which means that customers of municipal utilities are not eligible to participate in the program.[83] In addition, participating batteries must be controlled by an approved inverter.[84]

ConnectedSolutions lacks any program-specific equity provisions, but there are financial incentives available to offset the cost of program participation. For example, Mass Save provides a zero percent interest loan for the cost of eligible energy efficiency measures through the HEAT Loan program.[85] Like other efficiency measures, battery systems to be enrolled in ConnectedSolutions are eligible for this loan. But unlike other energy efficiency programs offered by the Commonwealth,[86] ConnectedSolutions does not provide any income-eligible incentive adders to support participation from lower income households.[87]

Because ConnectedSolutions provides limited publicly available program performance data and no information on the demographics of participants or participant neighborhoods, it is impossible to know how equitable any storage deployment through the program has been—such as how many income-eligible participants are enrolled. However, within the Commonwealth's statewide three-year energy efficiency program, ConnectedSolutions falls under a broader offering known as Active Demand Reduction (ADR). Low-income-eligible targets for all ADR programs (including ConnectedSolutions) are set as part of Massachusetts' *Three-Year Energy Efficiency Plan*. The current plan, covering 2022-2024, promised 127 participants and 1,003 kilowatts (kW) of net summer capacity savings from income-eligible ADR residential customers, including any that may be enrolled in ConnectedSolutions.[88]

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[83] Mass Save. 2023. *Program Materials for ConnectedSolutions for Small Scale Batteries*, p. 3.

[84] Mass Save. 2023. *Program Materials for ConnectedSolutions for Small Scale Batteries*, p. 3; and Mass Save. N.d. "Use your Battery Storage Device to Make the Grid More Sustainable."

[85] Mass Save. N.d. "Use your Battery Storage Device to Make the Grid More Sustainable"; and MA DOER. 2014. *MA HEAT Loan Overview* [PowerPoint Presentation]. Available at: https://www.energy.gov/sites/prod/files/2014/01/f6/f1-avers-ma_heat_loan_overview.pdf, p. 2.

[86] Mass Save. N.d. "Income-Based Assistance." Available at: https://www.masssave.com/en/residential/programs-and-services/income-based-offers.

[87] Program administrators have announced that they are considering offering income-eligible thermostat customers a participation incentive adder in the coming 2025-2027 efficiency plan but will not be offering a similar adder to income-eligible battery customers. Source: Cape Light Compact. March 2024. "Mass Save ConnectedSolutions Stakeholder Meeting." Available at: https://www.youtube.com/watch?v=R52gBBWE9Ps.

[88] Mass Save. November 1, 2021. "Massachusetts Joint Statewide Electric and Gas Three-Year Energy Efficiency Plan: 2022-2024." Available at: https://ma-eeac.org/wp-content/uploads/Exhibit-1-Three-Year-Plan-2022-2024-11-1-21-w-App-1.pdf, Exhibit 1, Appendix C.1, Page 27 of 38.

The utility data provided publicly online as part of the Massachusetts' *Three-Year Energy Efficiency Plan* is limited to the subprogram level, with several missing entries, but does provide some information on ADR participation and benefits. In 2023, there were 1,313 income-eligible ADR participants across the state—far exceeding the planned total of 127—that saved 1,351 kW of capacity during summer peak periods—exceeding the planned goal of 1,003 kW (see Table 3). Unfortunately, it is impossible to know how much the ConnectedSolutions program, specifically, contributed to the statewide income-eligible ADR performance shown in Table 3 below.[89] Presumably, the contribution of ConnectedSolutions is greater than zero for all utilities except Unitil (because Unitil customers are not eligible to participate in ConnectedSolutions). However, information on the contribution of income-eligible battery customers, if there are any, is not available.

Table 3. Income-eligible Active Demand Reduction (ADR) program performance, 2023

Income-Eligible Advanced Demand Management Program					
Utility	2023 Participants	2023 Program Costs ($)	2023 Net Savings (kW)		2023 Benefits ($)
			Summer	Winter	
Cape Light Compact	34	Not Available	50	Not Available	$23,289
Eversource	1,279	Not Available	772	Not Available	$357,961
Unitil	Not Available	Not Available	Not Available	Not Available	$9,564
National Grid	Not Available	Not Available	529	Not Available	$96,239
Total	1,313	Not Available	1,351	Not Available	$487,053

Note: For several Massachusetts utilities, no data on participation, costs, and/or savings for the ADR program were available. These missing entries are denoted with "Not Available" in this table.
Data source: Massachusetts Energy Efficiency Advisory Council. 2023. "Individual Utility Annual Reports." Available at: https://ma-eeac.org/results-reporting/annual-reports/.

Key Takeaways

Massachusetts' three programs incentivizing energy storage deployment in the Commonwealth show significant gaps in addressing equity. The SMART program, despite having expanded the definition of low-income customers, reports minimal participation from this group. The ConnectedSolutions and CPS programs lack specific equity provisions or targets and do not offer added incentives to increase participation from these demographics, nor do they provide public reporting on income-eligible participation. These observations highlight areas for potential improvement in the programs assessed.

[89] Massachusetts Energy Efficiency Advisory Council. 2023. "Individual Utility Annual Reports." Available at: https://ma-eeac.org/results-reporting/annual-reports.

III. New and Proposed Programs

Massachusetts' efforts to increase equitable access to energy storage resources are not limited to the three statewide programs that develop energy storage resources outlined above. In fact, there are a number of projects and proposals in the pipeline in Massachusetts, as a result of recent federal and state funding efforts that aim to promote grid modernization technologies like energy storage.

Federally Funded Projects and Proposals

As part of the 2021 Bipartisan Infrastructure Law,[90] the U.S. Department of Energy's (DOE) Grid Deployment Office is investing $10.5 billion through the Grid Resilience and Innovation Partnerships (GRIP) program in projects that enhance the reliability and flexibility of the electric grid.[91] Grant allocations through GRIP may be made to utilities, industry, institutions, nonprofits, and/or state, local, or tribal governments. The GRIP program began seeking project proposals in 2022 and will conclude after a five-year period in 2026. GRIP has three specific goals, to (1) strengthen the resiliency of the U.S. electric grid, (2) prioritize energy justice, and (3) leverage private and non-federal public capital for innovative technology and infrastructure deployment.[92] In Massachusetts to date, GRIP funding has been awarded to two programs that include efforts to improve the equitable deployment of energy storage resources:

- **The Generac Grid Services pilot program** was granted $50 million in GRIP funding to improve low-income consumer cost savings through electrification.[93] Specifically, about 2,000 income-eligible participants will receive home battery systems from Generac. Generac plans to begin installing batteries in late 2024 or early 2025 and to partner with Mass Save; the efficiency program administrators (utilities) will supply participants with smart thermostats and heat pumps.[94]
- **The Future Grid Project** was granted $50 million in GRIP funding and will be administered by

[90] The White House. May 2022. *A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments, and Other Partners*. Available at: https://www.whitehouse.gov/wp-content/uploads/2022/05/BUILDING-A-BETTER-AMERICA-V2.pdf.

[91] U.S. Department of Energy (DOE). N.d. *Grid Resilience and Innovation Partnerships (GRIP) Program.* Available at: https://www.energy.gov/gdo/grid-resilience-and-innovation-partnerships-grip-program.

[92] Interagency Working Group on Coal & Power Plant Communities & Economic Revitalization. 2023. *Grid Resilience and Innovation Partnerships (GRIP) – FY 2024*. Available at: https://energycommunities.gov/funding-opportunity/grid-resilience-and-innovation-partnerships-grip-fy-2024.

[93] U.S. DOE. 2023. *Improving Consumer Cost Savings through Home Heating Electrification*. Available at: https://www.energy.gov/sites/default/files/2023-11/DOE_GRIP_2039_Generac%20Grid%20Services_v4_RELEASE_508.pdf; and Wasser, M. November 15, 2023. "Pilot program will install batteries in 2,000 Mass. Homes to reduce energy demand on the grid." Available at: https://www.wbur.org/news/2023/11/15/generac-mass-save-battery-shave-peak-demand-pilot.

[94] Wasser, M. November 2023. "Pilot program will install batteries in 2,000 Mass. Homes to reduce energy demand on the grid." WBUR. Available at: https://www.wbur.org/news/2023/11/15/generac-mass-save-battery-shave-peak-demand-pilot.

National Grid.[95] The project will deploy digital technology solutions to improve the value of distributed energy resources, including energy storage, with a particular focus on targeting disadvantaged communities (as defined by the U.S. Office of Energy Justice and Equity's Justice40 Initiative).[96]

In 2021, the U.S. DOE allocated $61 million as part of its Connected Communities funding opportunity to 10 projects that advance grid-interactive efficient buildings ("GEBs"). One project was located in Massachusetts and targeted affordable and mixed income housing:

- **Open Market ESCO LLC Energy saving and flexible technologies:** One of the largest managers of affordable housing in the United States, WinnCompanies' energy services arm—Open Market ESCO LLC, together with multiple partners, including Clean Energy Group (the organization that is funding this report), Sunrun, and Massachusetts Department of Housing and Community Development[97]—was awarded $6.56 million to improve energy efficiency in up to 20 underserved LMI renter communities in Lowell, Massachusetts, representing approximately 2,000 homes.[98] Specifically, WinnCompanies aims to achieve energy savings of 30 percent by retrofitting homes to install and manage battery storage, renewable generation, energy efficiency, and demand response technologies.[99] The project is a four-year initiative that will aggregate and dispatch distributed energy resources to demonstrate that—in addition to energy savings and comfort benefits for participants—distributed resources, like solar plus storage, can also provide grid services and enhance resiliency.

In June 2023, the U.S. Environmental Protection Agency (EPA) launched the Solar for All competition, which will award $7 billion in grant funding to projects that seek to expand residential solar energy in low-income and affordable communities, including those that interconnect energy storage systems in conjunction with solar energy systems.[100]

- **MassCEC, MassHousing, Boston Housing Authority, and DOER clean energy for affordable housing:** In April 2024, MassCEC, DOER, MassHousing, and Boston Housing Authority obtained a $156 million grant from the federal Solar for All program to make clean energy investments in

[95] U.S. DOE. 2023. *The Future Grid Project*. Available at: https://www.energy.gov/sites/default/files/2023-10/DOE-GRIP-National-Grid-USA-Service-Company-Inc.pdf.
[96] National Grid. January 2024. *Future Grid Plan: Empowering Massachusetts by Building a Smarter, Stronger, Cleaner, and More Equitable Energy Future*. Available at: https://www.nationalgridus.com/media/pdfs/our-company/massachusetts-grid-modernization/future-grid-executive-summary.pdf.
[97] U.S. DOE. October 2021. "Meet DOE's Newest Connected Communities of Grid-interactive Efficient Buildings." Available at: https://www.energy.gov/eere/buildings/articles/meet-does-newest-connected-communities-grid-interactive-efficient-buildings.
[98] WinnCompanies. October 13, 2012. "U.S. Department of Energy Awards $6.56 Million to WinnCompanies for Technologies to Reduce Energy Use in Massachusetts Apartment Buildings." Available at: https://www.winncompanies.com/news/2707-u-s-department-of-energy-awards-6-56-million-to-winncompanies-for-technologies-to-reduce-energy-use-in-massachusetts-apartment-buildings.
[99] U.S. DOE. October 2021. "Meet DOE's Newest Connected Communities of Grid-interactive Efficient Buildings."
[100] U.S. Environmental Protection Agency (EPA). 2024. "Solar for All." Available at: https://www.epa.gov/greenhouse-gas-reduction-fund/solar-all.

up to 48,500 low-income and affordable homes.[101] The proposal was developed in collaboration with representatives from solar companies, environmental justices groups, and other community stakeholders.[102]

In July 2023, the U.S. EPA announced the $14 billion National Clean Investment Fund (NCIF), which will provide funding to nonprofit clean financing institutions to provide accessible, affordable financing for clean technology projects across the country, of which approximately 20 percent is dedicated to distributed energy generation and storage.[103]

- **Massachusetts Community Climate Bank affordable housing decarbonization:** In parallel with the $250 million Solar for All proposal described above, the Massachusetts Community Climate Bank—along with a consortium of five non-profit organizations, each with their own proposed investment program—submitted a proposal to the NCIF that would fund decarbonization measures for an additional 28,000 affordable renter homes over the next five years.[104] If approved, these two programs would spend at least 40 percent of program dollars targeting low-income and disadvantaged communities to help families, small businesses, and communities to install clean and affordable clean technology projects.[105]

Note that federal funding programs such as those referenced above provide states and utilities with one-time grants that can accelerate progress toward clean energy and climate goals, including the deployment of distributed energy generation and energy storage resources. However, in the absence of state programs to ensure the continued funding of such efforts, these initiatives will be limited and may fall short of stimulating sustainable markets that would enable further progress beyond the scope of federal funding.

State-funded Projects

In February 2023, Massachusetts Governor Healey announced its $50 million Affordable Housing Deep Energy Retrofit Grant Program which will fund decarbonization retrofits in LMI residential buildings.[106] While the Program does not list energy storage technologies as eligible for this program, it may

[101]MA DOER. October 2023. "Massachusetts Submits Application for Federal Funds to Decarbonize Low-Income and Affordable Housing." Available at: https://www.mass.gov/news/massachusetts-submits-application-for-federal-funds-to-decarbonize-low-income-and-affordable-housing.

[102] Ibid.

[103] U.S. EPA. N.d. "National Clean Investment Fund." Available at: https://www.epa.gov/greenhouse-gas-reduction-fund/national-clean-investment-fund; and U.S. EPA. N.d. "NCIF and CCIA Fast Facts." Available at: https://www.epa.gov/greenhouse-gas-reduction-fund/ncif-and-ccia-fast-facts.

[104] Ibid.

[105] U.S. EPA. N.d. "National Clean Investment Fund." Available at: https://www.epa.gov/greenhouse-gas-reduction-fund/national-clean-investment-fund.

[106] Massachusetts Executive Office of Energy and Environmental Affairs. February 2023. "Healey-Driscoll Administration Announces $50 Million Grant Program for Low- and Moderate-Income Electrification." Available at: https://www.mass.gov/news/healey-driscoll-administration-announces-50-million-grant-program-for-low-and-moderate-income-electrification.

facilitate storage deployment through the support of on-site renewable generation.[107] In November 2023, the Healey Administration announced the first round of grants under the Program, totaling $27.75 million across seven organizations.[108] Applications for the second round of funding began in January 2024.[109]

The Massachusetts Clean Energy Center (MassCEC) administers the rolling InnovateMass program, which provides up to $350,000 in grant funding and technical support to applicants. InnovateMass provides funding to projects that support the deployment of new and innovative clean energy technologies that address the Commonwealth's energy challenges, thereby growing the Massachusetts' clean energy economy.[110]

In 2020, a $194,700 InnovateMass grant was allocated to fund a solar and storage pilot program in Norwood, Massachusetts:

Solar and storage pilot program in Norwood, Massachusetts: Administered by Alternate Power Source, the pilot program will provide small home battery and solar PV systems to residential customers in Norwood, including 15 LMI customers with critical home health needs who will receive larger batteries for longer duration backup power.[111] Clean Energy Group has provided a small additional grant to support expanded resilience for the 15 LMI customers.

[107] MA DOER. February 2023. *Low- and Moderate-Income Housing Decarbonization Grant Program*. Available at: file:///C:/Users/stasi/Downloads/DOER%20PON-ENE-2023-017%20Low-%20and%20Moderate-Income%20Housing%20Decarbonization%20Grant%20Program%2002.16.22.pdf.

[108] Massachusetts Executive Office of Energy and Environmental Affairs. November 2023. "Healey-Driscoll Administration Awards $27 Million to Decarbonize Affordable Housing Across Massachusetts." Available at: https://www.mass.gov/news/healey-driscoll-administration-awards-27-million-to-decarbonize-affordable-housing-across-massachusetts.

[109] COMMBUYS Operational Services Division. 2023. "Bid Solicitation: BD-23-1041-ENE01-ENE01-84564." Available at: https://www.commbuys.com/bso/external/bidDetail.sdo?docId=BD-23-1041-ENE01-ENE01-84564&external=true&parentUrl=close.

[110] Massachusetts Clean Energy Center. N.d. "InnovateMass." Available at: https://www.masscec.com/program/innovatemass.

[111] The Sun Chronicle. February 2, 2020. "Mansfield Energy Business Gets State Grant." Available at: https://www.thesunchronicle.com/news/local_news/mansfield-energy-business-gets-state-grant/article_79ce23c0-db42-595f-b63c-1a95f348e15e.html; and Milford, L. and Olinsky-Paul, T. April 13, 2020. "The New England Battery Revolution: In a Public Health Crisis, State Efficiency Programs Are Making Resilient Power Affordable for All." Available at: https://www.cesa.org/the-new-england-battery-revolution.

Cape & Vineyard Electrification Offering

Unique among the Massachusetts equity energy storage offerings is Cape Light Compact's Cape & Vineyard Electrification Offering (CVEO). The CVEO, which was greenlit in 2023 by the DPU, is a pilot program designed to increase equitable access to clean energy and energy efficiency technologies through incentives.[112]

The CVEO will target 100 households in total, 80 of which will be low-income (i.e., below 60 percent of area median income)[113] and 20 of which will be moderate-income (i.e., between 60-80 percent of area median income).[114] Low-income households will receive rooftop solar and heat pumps free of charge, and moderate-income households will receive an 80 percent discount on heat pumps and a $15,000 incentive to cover rooftop solar costs.[115]

The pilot program will also provide battery storage systems to 25 households: low-income households will receive two batteries free of charge.[116] While all households that receive a battery storage system are automatically enrolled in ConnectedSolutions, households will only receive payments from the pilot program, not from ConnectedSolutions. The performance payments that would have been awarded to customers through ConnectedSolutions are instead paid to Cape Light Compact to offset CVEO program costs.[117]

This pilot provides a model that could be adopted by the Commonwealth's other electric distribution companies, including the regulated utilities Eversource, National Grid and Unitil, and the many municipal utilities and electric cooperatives that serve areas of the Commonwealth. It also provides a model that could be adopted by Mass Save (the Commonwealth's statewide energy efficiency program).

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[112] Cape Light Compact. N.d. "Cape & Vineyard Electrification Offering." Available at: https://www.capelightcompact.org/cveo.

[113] In 2022, 60 percent of the area median income for Barnstable County was $54,286. In Dukes County, 60 percent of the annual median income was $55,935. See: U.S. Census. 2022. American Community Survey 5-Year Estimates Subject Tables [Table ID: S1903]. Available at: https://data.census.gov/table/ACSST5Y2022.S1903?q=S1903:%20Median%20Income%20in%20the%20Past%2012%20Months%20(in%202022%20Inflation-Adjusted%20Dollars)&g=050XX00US25001,25007&moe=false.

[114] Olinsky-Paul, T., & Epstein, G. 2023. "Innovative Massachusetts Low-Income Battery Pilot Finally Wins Approval (For Now…)." *Clean Energy Group*. Available at: https://www.cleanegroup.org/innovative-massachusetts-low-income-battery-pilot-finally-wins-approval-for-now.

[115] 1) Ibid; 2) Cape Light Compact. "Cape & Vineyard Electrification Offering." Available at: https://www.capelightcompact.org/cveo.

[116] Ibid.

[117] Ibid.

IV. Equitable Energy Storage Programs in Other States

When considering how to improve equity provisions within the Commonwealth's existing energy storage incentive programs, Massachusetts policymakers have a number of good examples to look to. These include pilots and federally funded programs already underway in the Commonwealth, such as those mentioned above in this report; but they also include programs and policies that have been developed and administered in other states.[118]

California Self-Generation Incentive Program (SGIP)

The best-funded and longest-running energy storage customer incentive program in the country, SGIP launched in 2001 in response to grid outages associated with the 2000-2001 California Energy Crisis.[119] In 2016, the California Public Utilities Commission (CPUC) created an Equity budget for disadvantaged communities, which reserved 25 percent of program funds for projects in disadvantaged and low-income communities, but initially offered no added incentives to help disadvantaged participants manage capital costs. In the first year, there were no equity subscribers. According to the CPUC Rulemaking 12-11-005, stakeholders cited financial barriers and a lack of public education and outreach as obstacles to participation.[120] In a 2019 Rulemaking, the CPUC increased the residential equity budget incentive rate from $350 to $850 per kWh and created a new Equity Resiliency Budget with an incentive rate of $1,000 per kWh. CPUC also stipulated that no developer cap should be applied to the SGIP Equity Resiliency Budget.[121] When the higher equity incentives became available in May 2020, the SGIP Equity Budget was fully subscribed in many utility territories within three days.[122]

Connecticut Energy Storage Solutions Program

Launched in 2022, Connecticut's Energy Storage Solutions program combines an up-front rebate with a performance incentive. The Program offers a 2-times rebate multiplier for income-eligible residential participants (for purposes of this Program, multifamily affordable housing facilities are considered "residential" and thus qualify for the residential incentive). Other equity provisions include low-cost financing from the Connecticut Green Bank (a co-administrator of the program), an on-bill payment option, and a Justice40 commitment (meaning that 40 percent of the systems installed under the program are to be installed in historically underserved communities). In the

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[118] See the Clean Energy Group's website for more information on equity and energy storage policy: https://www.cleanegroup.org.

[119] San Diego Gas & Electric (SDG&E). n.d. "Self-Generation Incentive Program." Available at: https://sgipsd.org/background#:~:text=The%20Self%2DGeneration%20Incentive%20Program,electrical%20outages%20throughout%20the%20state.

[120] CPUC Rulemaking 12-11-005. September 18, 2019. *Order Instituting Rulemaking Regarding Policies, Procedures and Rules for the California Solar Initiative, the Self-Generation Incentive Program and Other Distributed Generation Issues*. Available at: https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M313/K975/313975481.PDF.

[121] Ibid.

[122] State of California and the Self-Generation Incentive Program. May 15, 2020. "Self-Generation Incentive Program." Available at: https://www.selfgenca.com/home/about.

first year of implementation, the program was very successful on the commercial side, but the residential program has been markedly less successful, prompting the program administrators to increase the residential rebate rate. This increase included a 50 percent increase for disadvantaged and low-income customers (from $300 per kWh to $450 per kWh for underserved communities, and from $400 per kWh to $600 per kWh for low-income customers).[123]

New York Energy Storage Procurement

The New York State Public Service Commission (PSC) addressed equity in energy storage procurement in Case 18-E-0130 - *In the Matter of Energy Storage Deployment Program.*[124] The Commission's *Order Establishing Updated Energy Storage Goal and Deployment Policy*[125] states that a 35 percent equity carve-out must be applied to the State's procurement of its 6 GW energy storage target, to be attained by 2030.[126] The carve-out applies both to bulk and distributed energy storage procurement.[127]

Specifically, the PSC order directs allocation of a minimum of 35 percent of program funding for energy storage projects in areas of the state that will most benefit disadvantaged communities[128] and reduce reliance on high-emitting peaking plants. For bulk power storage, the Commission specifies which capacity zones of the state should be prioritized for hosting large-scale energy storage projects to provide the greatest benefit to disadvantaged communities. Moreover, the Commission further orders that at least 35 percent of procured energy storage projects be located within disadvantaged communities. Lastly, the Commission directs the New York State Energy Research and Development Authority to incorporate considerations for disadvantaged communities and their participation within its implementation plans.[129]

Oregon Solar + Storage Rebate Program

Through the Solar + Storage Rebate Program, Oregon homeowners can receive a rebate of up to $5,000 for a solar electric system and up to $2,500 for an energy storage system. The program offers income-defined tiers of incentives, with LMI customers receiving $1.80 per watt (DC) of installed capacity up to 60 percent of the net cost, while customers not considered LMI receive

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[123] Connecticut Public Utilities Regulatory Authority (PURA) Docket No. 17-12-03RE03. *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage*. Available at: https://portal.ct.gov/-/media/PURA/electric/Final-Decision-17-12-03RE03.pdf.

[124] New York State Case No. 18-E-0130. 2024. *In the Matter of Energy Storage Deployment Program.* Available at: https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterSeq=55960.

[125] New York Public Service Commission. June 2024. *Order Establishing Updated Energy Storage Goal and Deployment Policy.* Available at: https://www.nyserda.ny.gov/All-Programs/Energy-Storage-Program.

[126] Ibid. p. 34.

[127] Ibid.

[128] New York State identifies a disadvantaged community (DAC) based on a set of 45 environmental, climate change, and socioeconomic indicators. For more information, see: New York State. 2023. *New York State's Disadvantaged Communities Criteria*. Available at: https://climate.ny.gov/Resources/Disadvantaged-Communities-Criteria.

[129] New York State Case No. 18-E-0130. 2024. *In the Matter of Energy Storage Deployment Program.*

$0.50 per watt (DC) of installed capacity up to 40 percent of the net cost. In addition, organizations that provide services to Oregonians with low- and moderate-incomes can receive a rebate of up to $30,000 for a solar electric system and up to $15,000 for an energy storage system. This includes developers and owners of affordable multifamily housing that are eligible for public assistance, community service organizations (public, tribal, or a 501(c) nonprofit) whose primary purpose is to offer health, dental, social, financial, energy conservation, or other assistive services to households below 100 percent of the state median income, and tribal or local government entities that use public buildings to provide services to LMI individuals, or to provide emergency shelter and/or communications in disaster situations.[130]

V. Findings and Recommendations

Findings

AEC's assessment of the three energy storage programs currently being administered in Massachusetts yields the following findings:

- The three energy storage programs assessed lack mandates, targets and reporting requirements to support the Commonwealth's commitment to equitable access to clean and efficient energy.
- Two out of three energy storage-incentivizing programs (ConnectedSolutions and the Clean Peak Standard) have no equity provisions or reporting on equitable participation.
- Low-income participation in the third program (SMART) is minimal even after the program was revised to improve equitable participation.
- The Massachusetts SMART program lacks specific incentives for vulnerable populations outside of income eligibility. Environmental justice communities, communities located near fossil fuel infrastructure, and other overburdened groups may not qualify for the SMART program's income-eligible incentives.
- Cape Light Compact and Generac (a private firm) have initiated two equity-focused customer energy storage incentive programs in the Commonwealth. While constrained in scale and budget, these programs may serve as models for the Massachusetts energy agencies and investor-owned utilities to draw from when considering revisions to their programs.

[130] Oregon Department of Energy. 2024. "Oregon Solar + Storage Rebate Program." Available at: https://www.oregon.gov/energy/Incentives/Pages/Solar-Storage-Rebate-Program.aspx.

Recommendations

AEC makes eight recommendations for Massachusetts' energy storage programs to improve their equity performance through the development and transparent tracking of equity performance metrics and expanded and increased equity incentives (see Table 4). These recommendations are intended to better align Massachusetts' energy storage programs with its equity commitments, as well as to draw on lessons learned and best practices from similar programs in other states.

Table 4. Recommendations to promote equitable energy storage deployment in Massachusetts

	Recommendation
Equity Performance Metrics	**1.** Require participation data for energy storage programs to be publicly available online together with detailed information regarding the income status of the households served, and the quantity and capacity of resources supported through the program.
	2. Develop specific income-eligible enrollment and capacity targets for energy storage programs and require detailed data on each program's progress towards these targets to be easily accessible and publicly available online.
	3. Create a stakeholder-informed outreach and enrollment plan for addressing low participation in EJ and/or low-income areas and launch targeted utility EJ community and low-income customer outreach and education programs.
Expanded and Increased Equity Incentives	**4.** Add Clean Peak Energy Standard financial incentives for retail electric suppliers supplying energy (or offsetting load) from qualifying clean peak resources in income-eligible areas.
	5. Increase the incentive rates for income-eligible customers enrolled in the ConnectedSolutions and SMART programs and offer up-front rebates and/or on-bill payments to increase low-income participation.
	6. Add financial incentives for other vulnerable households such as households that rely on uninterrupted electric supply to power life-saving medical devices and critical facilities serving state-designated EJ communities.
	7. Add an additional SMART resiliency adder for sustainable community microgrids serving state-designated EJ communities and/or low-income households.
	8. Add an additional SMART fossil fuel replacement adder for SMART solar plus storage units installed to replace existing fossil fuel plants located within Massachusetts EJ communities.

These recommendations are discussed in more detail below.

Equity Performance Metrics

Recommendation #1: Publicly available participation data. Require participation data for SMART, the CPS, and ConnectedSolutions to be publicly available online together with detailed information regarding the income status of the households served, and the quantity and capacity of resources supported through the program. Data should further break out energy storage resources as distinct from other resources such as thermostats or solar PV.

Recommendation #2: Income-eligible targets. Develop specific income-eligible enrollment and capacity targets for SMART, the CPS, and ConnectedSolutions. Require program administrators to provide detailed, public data on each program's progress towards these targets. Additionally, the Commonwealth's progress towards its energy storage goals should be easily accessible and publicly available online.

Recommendation #3: Stakeholder outreach plan. Create a stakeholder-informed outreach and enrollment plan for addressing low participation in EJ and/or low-income areas. This plan should include targeted utility EJ community and low-income customer outreach and education programs to increase customer awareness and participation in state energy storage programs. It may also include collaboration with community-based organizations already working within EJ and low-income communities in the Commonwealth—many of which may have pre-existing energy efficiency program outreach networks—to promote community engagement and ensure alignment with community needs for equitable energy storage deployment. Collaborative efforts could also benefit from capacity-building grants targeted toward EJ-focused community-based organizations.

Expanded and Increased Equity Incentives

Recommendation #4: Additional incentives for retail suppliers. Add CPS financial incentives for retail electric suppliers providing energy (or offsetting load) from qualifying clean peak energy resources in income-eligible areas.

Recommendation #5: Higher incentive rates. Increase the incentive rates for income-eligible customers enrolled in the ConnectedSolutions and SMART programs and offer up-front rebates and/or on-bill payments to increase low-income participation.

Recommendation #6: Incentives for vulnerable households. Add financial incentives for vulnerable households. Equitable adoption of storage resources goes beyond targeting low-income participation—other kinds of vulnerable and disadvantaged communities could benefit immensely from increased battery storage adoption. For example, households that rely on electric supply to power life-saving medical devices, and critical facilities serving state-designated EJ communities, should be made eligible for incentive adders and other equity provisions through SMART, CPS and ConnectedSolutions.

Recommendation #7: Resiliency adder for microgrids. Adopt an additional SMART resiliency adder for sustainable community microgrids[131] serving state-designated EJ communities and/or low-income households or multi-family affordable housing facilities.

Recommendation #8: Fossil fuel replacement adder. Adopt an additional SMART fossil fuel replacement adder for SMART solar plus storage units installed to replace existing fossil fuel plants located within or adjacent to Massachusetts EJ communities. A March 2024 report prepared by researchers at Alternatives for Community & Environment, Conservation Law Foundation, GreenRoots, and the Union of Concerned Scientists provides evidence of historically disproportionate environmental burdens faced by Massachusetts EJ communities due to past failures in fossil fuel siting decisions.[132] A SMART fossil fuel replacement adder would provide a direct incentive for clean energy development in communities that have been exposed to disproportionate levels of environmental harms from living in close proximity to an existing fossil fuel plant.

[131] In a 2021 policy brief, AEC staff define sustainable community microgrids as "independently controlled energy systems that, depending on their design, have the potential to enhance grid resilience, lower electric bills, improve public health, and strengthen local communities while prioritizing equitable outcomes." See: Castigliego J. R., Stasio T., and Tavares, E. 2021. Conditional Benefits of Sustainable Community Microgrids. Prepared on behalf of GreenRoots. Available at: https://aeclinic.org/publicationpages/2021/5/20/conditional-benefits-of-sustainable-community-microgrids.

[132] García, P., Declet-Barreto, J., Owen, S., Peale Sloan, C., Sathia, S., and Walkey, J. 2024. *Siting for a Cleaner, More Equitable Grid in Massachusetts*. Alternatives for Community & Environment, Conservation Law Foundation, GreenRoots, and the Union of Concerned Scientists. Available at https://doi.org/10.47923/2024.15371.

About the Applied Economics Clinic

Based in Arlington, Massachusetts, the Applied Economics Clinic (AEC) is a mission-based nonprofit consulting group that offers expert services in the areas of energy, environment, consumer protection, and equity from seasoned professionals while providing on-the-job training to the next generation of technical experts. AEC's nonprofit status allows us to provide lower- cost services than most consultancies and when we receive foundation grants, AEC also offers services on a pro bono basis. AEC's clients are primarily public interest organizations—nonprofits, government agencies, and green business associations—who work on issues related to AEC's areas of expertise. Our work products include expert testimony, analysis, modeling, policy briefs, and reports, on topics including energy and emissions forecasting, economic assessment of proposed infrastructure plans, and research on cutting-edge, flexible energy system resources. AEC works proactively to support and promote diversity in our areas of work by providing applied, on-the-job learning experiences to graduate students—and occasionally highly qualified under graduates—in related fields such as economics, environmental engineering, and political science.
www.aeclinic.org

About Clean Energy Group

Clean Energy Group (CEG), a national nonprofit organization, works at the forefront of clean energy innovation to enable a just energy transition to address the urgency of the climate crisis. CEG fills a critical resource gap by advancing new energy initiatives and serving as a trusted source of technical expertise and independent analysis in support of communities, nonprofit advocates, and government leaders working on the frontlines of climate change and the clean energy transition. CEG collaborates with partners across the private, public, and nonprofit sectors to accelerate the equitable deployment of clean energy technologies and the development of inclusive clean energy programs, policies, and finance tools. Founded in 1998, CEG has been a thought leader on effective climate and clean energy strategies for more than two decades. CEG specializes in providing resources and assistance related to emerging technology trends and transformative policy, regulatory, and market approaches.
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Energy Storage Equity

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Clean Energy Group (CEG) is a leading national, nonprofit advocacy organization working on innovative policy, technology, and finance strategies in the areas of clean energy and climate change.

CEG's energy storage policy work is focused on the advancement of state, federal, and local policies that support increased deployment of energy storage technologies. Battery storage technologies are critical to accelerate the clean energy transition, to enable a more reliable and efficient electric power system, and to promote greater energy equity, health, and resilience for all communities.

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Clean Energy Group

50 State Street, Suite 1 · Montpelier, VT 05602
802.223.2554 | www.cleanegroup.org | info@cleanegroup.org