



Evaluating Massachusetts' ConnectedSolutions Program: Strengths and Weaknesses from the First Program Cycle

October 21, 2021

WEBINAR LOGISTICS



Join audio:

- Choose Mic & Speakers to use VoIP
- Choose Telephone and dial using the information provided

Use the orange arrow to open and close your control panel

Submit questions and comments via the Questions panel

This webinar is being recorded. We will email you a webinar recording within 48 hours. CEG's webinars are archived at www.cleangroup.org/webinars



THE NEW YORK
COMMUNITY TRUST



THE NATHAN
CUMMINGS
FOUNDATION

THE
KRESGE
FOUNDATION

MFF

PARK
FOUNDATION

www.cleangroup.org

WEBINAR SPEAKERS



Bryndis Woods

Senior Researcher,
Applied Economics Clinic



Todd Olinsky-Paul

Senior Project Director,
Clean Energy Group (moderator)



ENERGY STORAGE POLICY FOR STATES

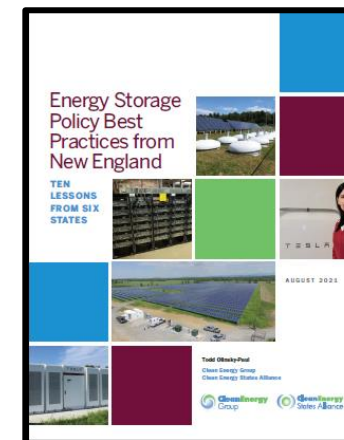
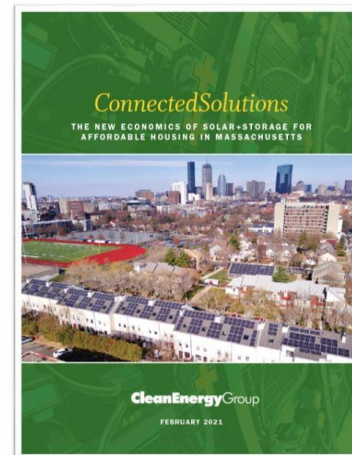
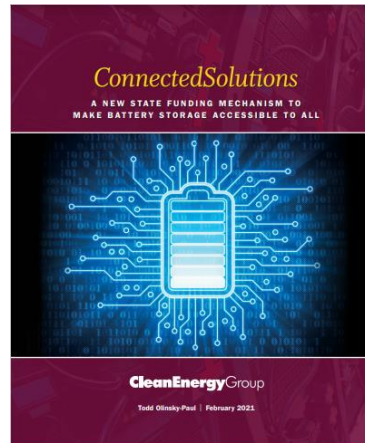
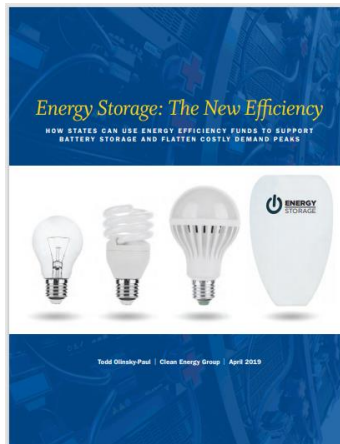
Clean Energy Group and Clean Energy States Alliance work to support state energy storage policy and program development by:

- Conducting independent analysis
- Producing reports, webinars, conference presentations, blogs
- Providing direct policy and program development support to individual states
- Convening CESA's State Energy Storage Working Group
- Collaborating with partners including the national labs

Background

CEG supported the development of the ConnectedSolutions battery storage program in Massachusetts

- Contracted with AEC to produce a needed cost-benefit analysis for BTM energy storage
- Contracted with AEC to produce the first valuation of seven non-energy benefit of BTM energy storage
- Published reports and advocated to MA EEAC during program design and implementation
 - Advocacy especially focused on the need for LMI provisions in the program



[Publications Library - Clean Energy Group \(cleanenergygroup.org\)](https://cleanenergygroup.org/publications-library)

Key elements of the program model:

- Battery storage is made eligible for state energy efficiency program
- Customers purchase or lease batteries and sign a pay-for-performance contract with their utility; utilities pay only for services received
 - Equity provisions (rebates, adders and favorable financing) may be adopted
 - Aggregators can market the program to customers and enroll them
- Customer batteries are used to reduce system-wide electric demand peaks, not individual customer peaks
 - Ratepayers benefit from reduced system-wide costs
 - Host facilities benefit from revenues and resilience during grid outages
- All customers can participate regardless of customer type, location or demand curve
- Multi-year utility contracts de-risk energy storage investments, making it easier for developers to develop project pipelines, especially in overburdened communities

Customer Economics Example

A commercial customer participating in the targeted dispatch program installs a 60 kWh battery and signs up for a \$200/kW summer daily dispatch program. Assuming perfect call response:

60 kWh battery = 20 kw/hr load reduction averaged over 3-hour calls.

20 kW average load reduction x \$200 incentive rate = \$4,000 maximum seasonal payout

Three Options to Curtail				
		Massachusetts	Rhode Island	
Commercial	Daily Dispatch	<ul style="list-style-type: none">• 30 - 60 events per summer• 2 - 3 hours per event• Technology/Vendor Agnostic• \$200/kW-performed-summer• \$ 25/kW-performed-winter• Plus SMART Battery Adder	<ul style="list-style-type: none">• 30 - 60 events per summer• 2 - 3 hours per event• Technology/Vendor Agnostic• \$300/kW-summer	
				
Residential	Residential Batteries	<ul style="list-style-type: none">• 30 - 60 events per summer• 2 - 3 hours per event• 4 Approved Battery Vendors• \$225/kW-performed-summer• \$ 50/kW-performed-winter• Plus SMART Battery Adder	<ul style="list-style-type: none">• 30 - 60 events per summer• 2 - 3 hours per event• 4 Approved Battery Vendors• \$400/kW-summer	
				

ConnectedSolutions model programs:

Massachusetts – effective in January, 2019; now being expanded for 2022-2024 EE plan

Rhode Island – effective in January, 2020

Connecticut – effective summer, 2020; PURA adopted similar 9-year, 580 MW program

New Hampshire – proposed for 2021-2023

Maine – legislation to make battery storage eligible in energy efficiency program

Similar utility demand response programs:

Vermont - Green Mountain Power Tesla and BYOD programs (more than 3,000 residential batteries)

New Hampshire – Liberty Utilities program

New York – ConEd and PSEG

California – Sacramento Municipal Utility District (SMUD), Southern California Edison (SCE) and Pacific Gas and Electric Company (PG&E)

Oregon – Portland General Electric

ConnectedSolutions: A Program Assessment for Massachusetts

October 21, 2021

Bryndis Woods, PhD

Elizabeth A. Stanton, PhD

Applied Economics Clinic

www.aeclinic.org



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

Applied Economics Clinic (AEC)

AEC is a 501(c)(3) non-profit consulting group based in Arlington, Massachusetts. Founded in 2017, the Clinic provides expert testimony, analysis, modeling, policy briefs, and reports for public interest groups on the topics of energy, environment, consumer protection, and equity, while providing on-the-job training to a new generation of technical experts.

Our mission is to:

1. Provide low cost and (when we receive foundation grants) pro bono expert services to public interest groups on the topics of energy, environment, consumer protection, and equity.
2. Train the next generation of expert technical witnesses and analysts by providing applied, on-the-job learning experiences to graduate students in related fields.
3. Work proactively to support and promote diversity in the fields of economics, engineering, math and sciences.

Presentation Agenda

- ConnectedSolutions performance to-date
- Recommended ConnectedSolutions program improvements
- Conclusions



Connected Solutions Performance



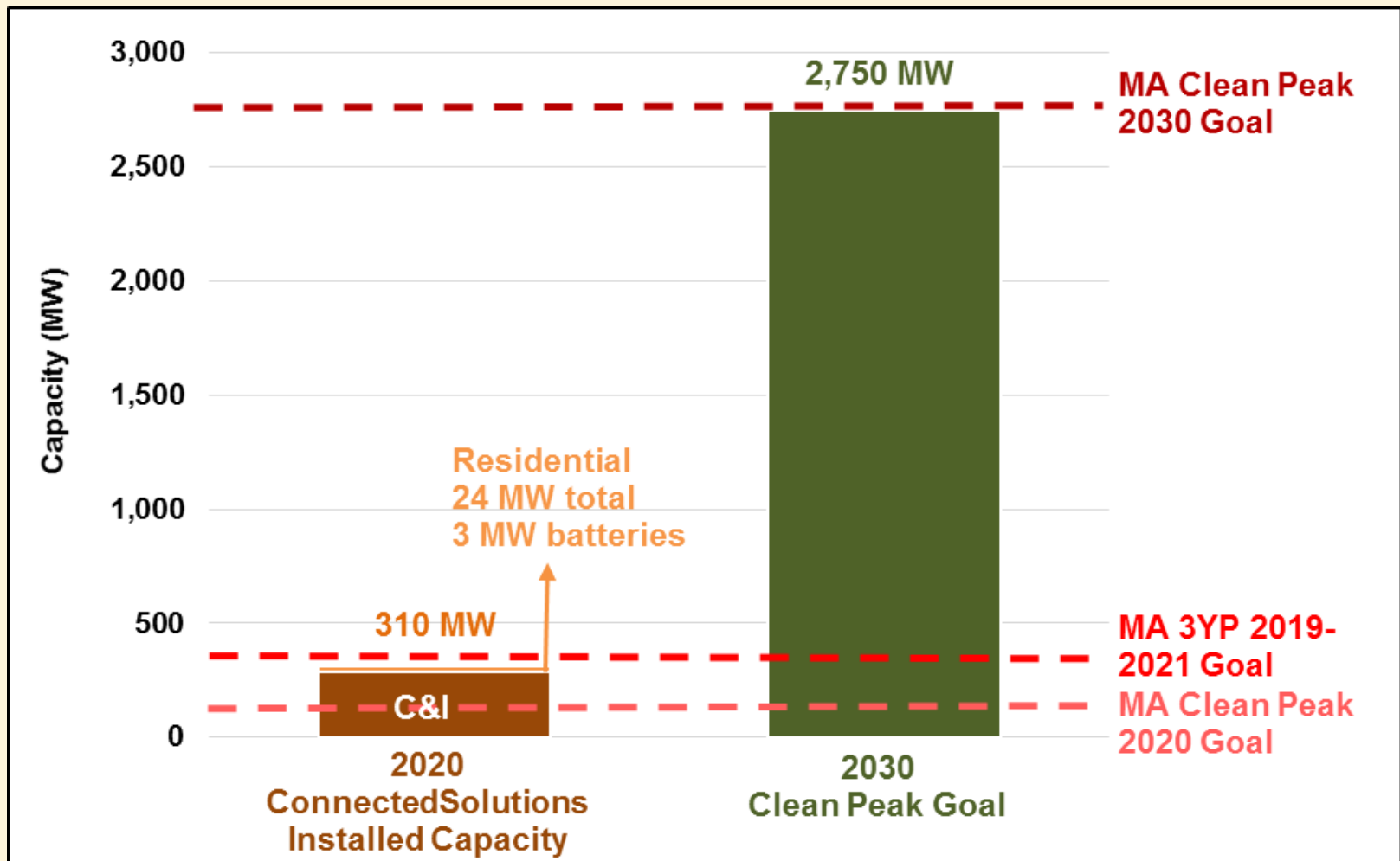
ConnectedSolutions Performance

- The ConnectedSolutions program has grown substantially since it was first launched as a pilot program in 2016-2019 (57 customers)
- ConnectedSolutions has contributed to progress regarding Massachusetts' clean peak, peak shaving, and energy storage policy goals

ConnectedSolutions Performance

- Between 2019 and 2020, the total number of commercial and industrial participants increased from 769 to 1,105 and the total number of residential participants increased from about 17,000 to 33,000
- The total planned benefits (across all ADR programs) increased by 76 percent between 2019 and 2020 for C&I and almost 450 percent for residential
- For every dollar in total program planned costs in 2020, planned benefits totaled \$4.18 for C&I—higher than what Program Administrators expected (\$3.80)—and \$2.14 for residential—higher than what Program Administrators expected (\$1.78)
- In 2020, ADR programs reduced statewide peak summer load by 0.9 percent, with benefits that far exceeded costs.

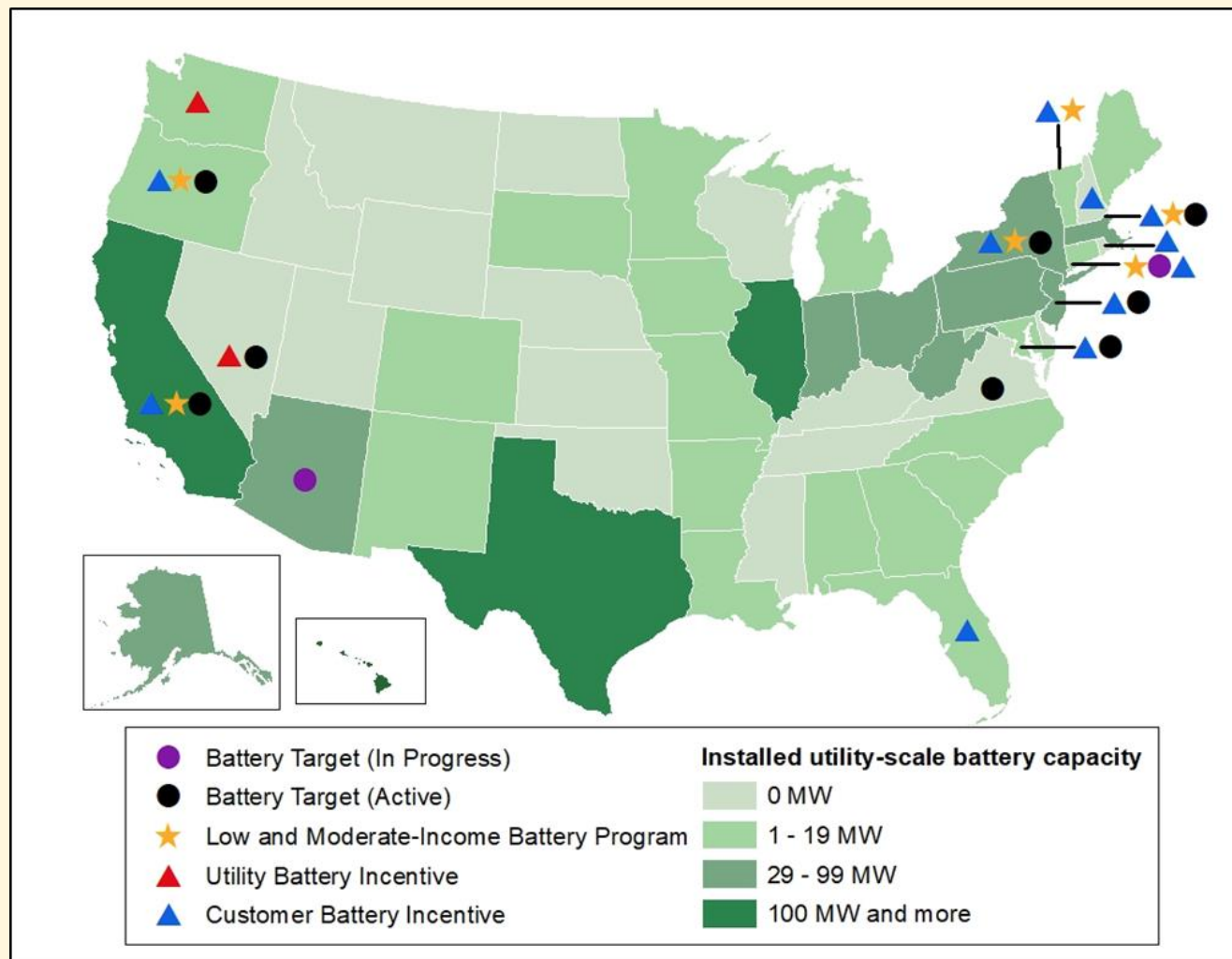
ConnectedSolutions Performance



Recommended Connected Solutions program improvements



2019 installed utility-scale battery storage, battery storage targets, battery incentives, and low- and moderate-income battery programs by U.S. state



Massachusetts leads the country

- Nation-leading elements of Massachusetts energy storage policy include:
 - **Low-income incentives** that target both upfront costs and ongoing costs via its Solar Massachusetts Renewable Target (SMART) program
 - **Mandatory, statewide Clean Peak Energy Standard** (46.5 percent of 2050 electric sales must be met with “clean peak resources” like battery storage)
 - **Mandatory, statewide battery storage target** of 1 GWh by 2025
 - ConnectedSolutions offers **seasonal-based customer performance incentives for battery storage** that enhance effectiveness at reducing winter and summer peak demand



Recommended improvements for ConnectedSolutions

1. Develop specific ConnectedSolutions income-eligible enrollment targets or carve-outs for its 2022-2024 energy efficiency and demand management plan, broken out by technology (including specific income-eligible battery enrollment targets).



Recommended improvements for ConnectedSolutions

2. ConnectedSolutions should offer higher incentives for income-eligible customers. Other equity provisions, such as up-front rebates and on-bill payment, should also be considered.



Recommended improvements for ConnectedSolutions

3. ConnectedSolutions administrators should provide more detailed program data to track progress towards the Commonwealth's energy storage goals



Recommended improvements for ConnectedSolutions

4. ConnectedSolutions needs to scale up rapidly to meet Massachusetts clean peak goals. To drive clean peak resource development at the scale desired, ConnectedSolutions must offer higher incentive rates and longer-term customer contracts.



Conclusions



Conclusions

- ConnectedSolutions is a nation-leading program that has expanded rapidly, reduced peak demand, provided ratepayer cost savings, funded customer battery adoption, enhanced resiliency for participating residential, commercial, and industrial customers, and had benefits that far exceed costs
- However, lessons from battery storage programs elsewhere in the United States indicate that ConnectedSolutions could be improved in four primary ways to be more in line with the Commonwealth's broader efficiency program and equity goals, placing the program in the best possible position to meaningfully contribute to Massachusetts' clean peak and energy storage goals in the most equitable fashion possible

Thank you!

Website:

www.aeclinic.org

Contact:

bryndis.woods@aeclinic.org
liz.stanton@aeclinic.org



Thank you for attending our webinar

Todd Olinsky-Paul

Senior Project Director

Clean Energy Group

todd@cleanegroup.org

Find us online:

www.resilient-power.org

www.cleanegroup.org

www.facebook.com/clean.energy.group

@cleanenergygrp on Twitter

@Resilient_Power on Twitter



Upcoming Webinars



Making Justice40 a Reality

Friday, October 29, 1-2pm ET

Energy Storage for Social Equity (ES4SE): An Introduction to the DOE-OE Initiative

Monday, November 1, 3-4pm ET

Solar+Storage for Clean Energy and Cost Savings at Albuquerque Public Schools

Friday, November 5, 1-2pm ET

Exploring Europe's Approach to Using Offshore Wind for Green Hydrogen Production

Tuesday, November 9, 11am-12pm ET

Read more and register at www.cleangroup.org/webinars