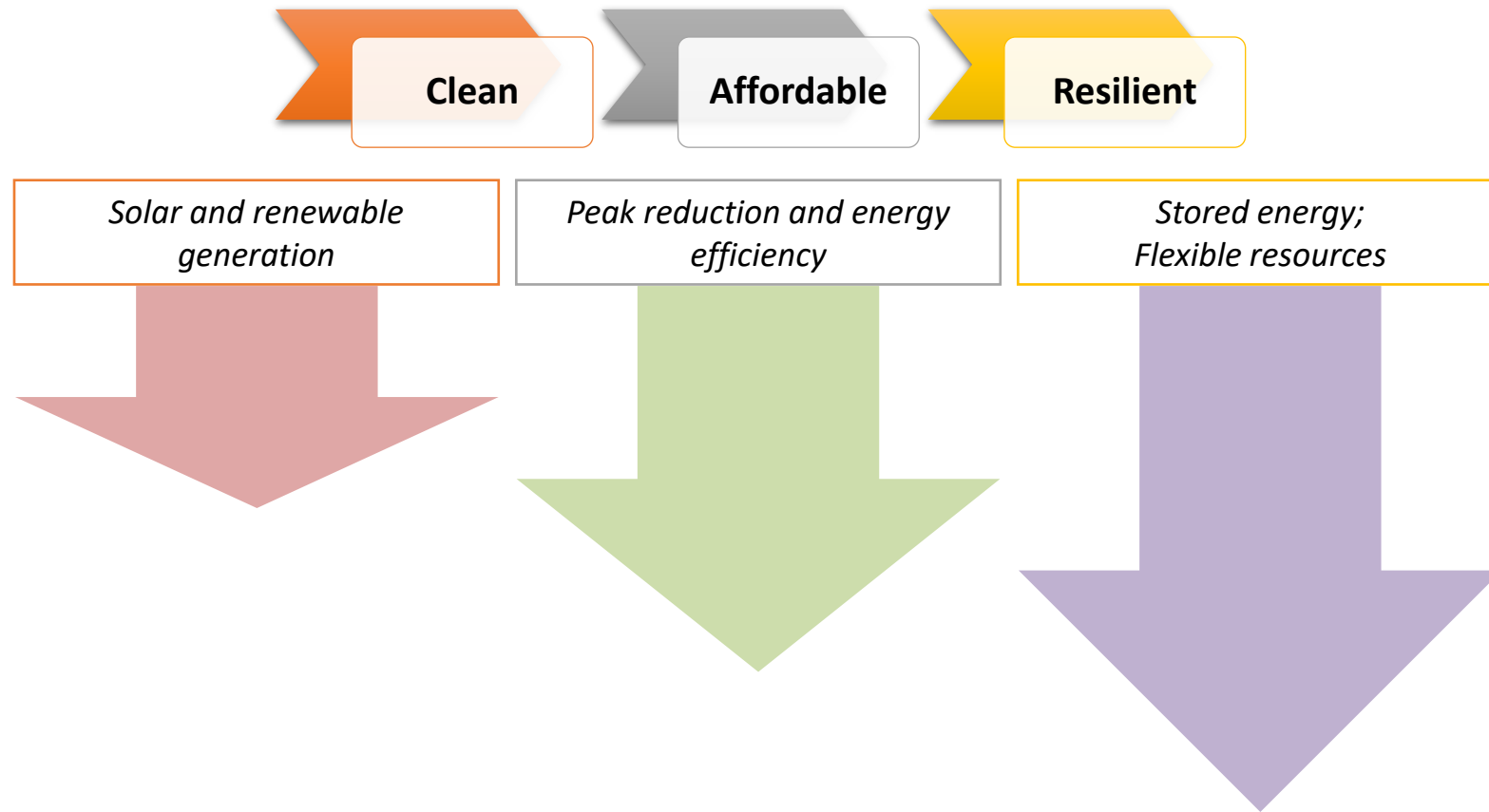


**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENERGY RESOURCES**
Patrick Woodcock, Commissioner

**NASEO-NARUC GEB Working Group –
Demand Flexibility/Grid Enabled Buildings
and Electrification in Utility Energy Efficiency
Programs
MASS SAVE[®] Connected Solutions**

July 13, 2022

DOER Mission



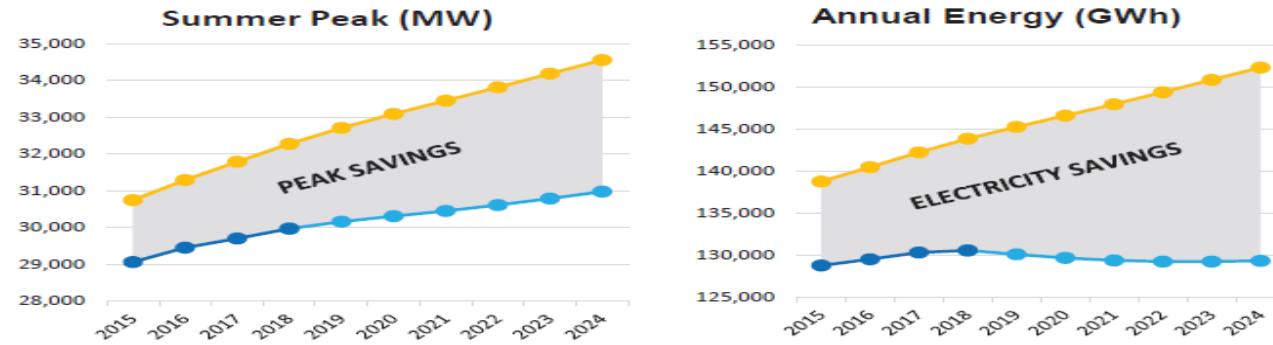
Origin Story

2016

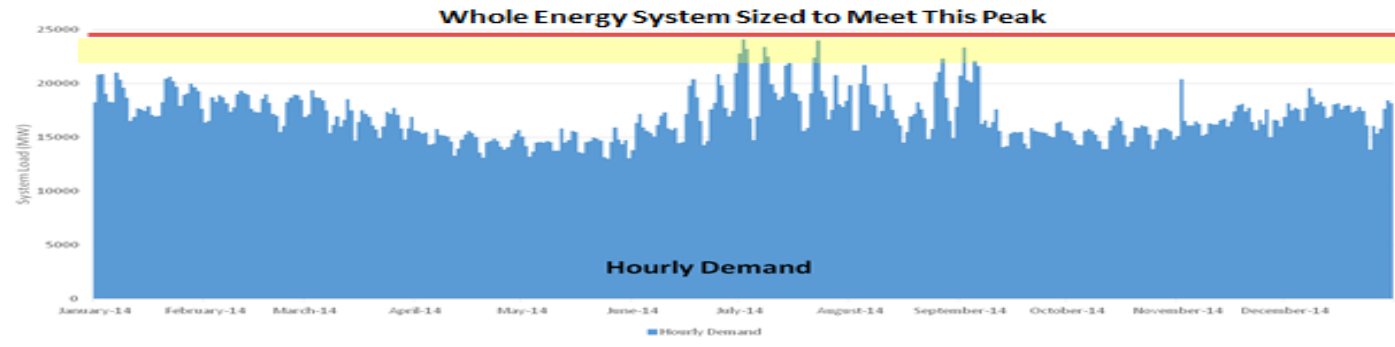
- Peaks getting “peakier”
- Increasing intermittent generation
- No smart meters in the short term
- EE statute that calls for “all cost-effective energy efficiency and demand reduction resources” starting in 2008

Origin Story

ISO-NE State of the Grid 2016 and System Annual Hourly and Weekly Demand



The need to size grid infrastructure to the highest peak usage results in system inefficiencies, underutilization of assets, and high cost



Top 1% of Hours accounts for 8% of MA Spend on Electricity
 Top 10% of Hours accounts for 40% of Electricity Spend

Source: State of Charge – [Massachusetts Energy Storage Initiative Study](#), 2016

Involving Electric EE Program Administrators

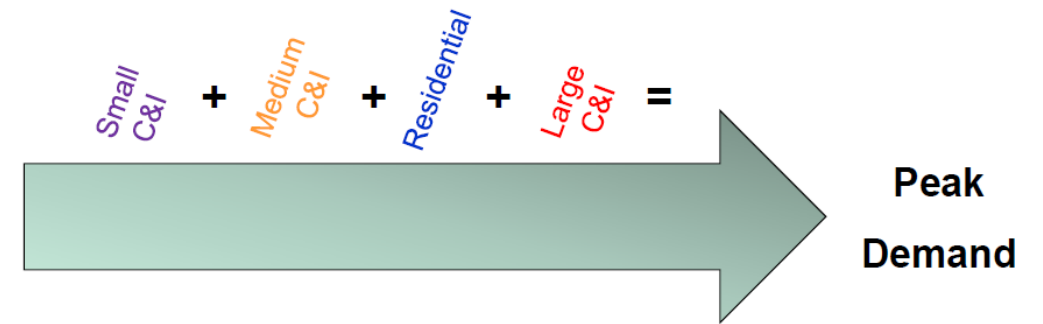
- **Existing Structure** - The mechanism to account for and incent shareholders to invest in passive coincident demand reduction already established
- **Other Pursuits were Long-Term** - As DOER established policies to manage increasingly uncertain loads, EE/DR infrastructure could be mobilized quickly
- **Pilot** - Included demonstrations of active demand management in the 2016-2018 Energy Efficiency Investment Plan (EEIP)
- **Scale** - First programs at scale were included in 2019-2021 EEIP

**Program Administrators is defined as the utilities and the Cape Light Compact, a regional municipal load aggregation that manages Eversource ratepayer funds in its territory*

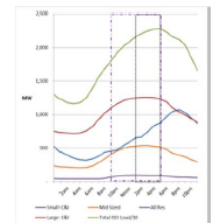
How do They Work? Demonstration Design

- PAs
 - Modeled load shapes
 - Developed customer personas
- Demonstrations built to test variety of technologies and sectors

Peak Demand Solutions for Each Customer Class



Storage	Ice Storage	Ice Storage	Unitil proposal	Battery storage Phase Change Materials
Controls	DR via Wi-Fi Tstats	Software	NGRID & CLC demos	Software Economic DR



How do They Work?

All Performance-Based

Commercial

- Targeted
 - No more than 8 events per summer, 3 hours per event
 - “Last 10-of-10” baseline with same day adjustment
- Daily
 - No more than 60 events per summer, 2 or 3 hours per event
 - “Last 10-of-10” baseline without same day adjustment

Residential

- DLC through equipment manufacturers – equipment owners can sign up online or through company
- Storage through approved inverter manufacturers

How Are They Performing?

RESIDENTIAL

COMMERCIAL

Summary of 2021 ADR Performance

Direct Load Control Offerings

Technology	Participants	2021 Planned (MW)	2021 Performed (MW)
EV	100	0.6	0.1
EVSE	612	0.0	0.2
Storage	1,871	4.6	4.9
Thermostats	40,943	14.7	29.9
Total	43,526	19.9	35.1

Daily and Targeted Offerings

Dispatch Type	Technology	Participants	2021 Planned (MW)	2021 Performed (MW)
Daily	Neutral	41	7.0	11.9
	Storage	25	10.1	4.8
Targeted	Neutral	912	160.7	131.5
	Storage	10	10.2	0.6
Total		988	188.0	148.8

STORAGE FINANCING

SOURCE

SECTOR

Residential

Commercial

Private

- Power Purchase Agreements
- Private Financing

- Power Purchase Agreements
- Private Financing

Public

- 0% Heat Loan
- SMART
- Clean Peak Standard
- Connected Solutions

- PACE Financing
- SMART
- Clean Peak Standard
- Connected Solutions

Lessons Learned

DLC rolled-out relatively smoothly

Storage:

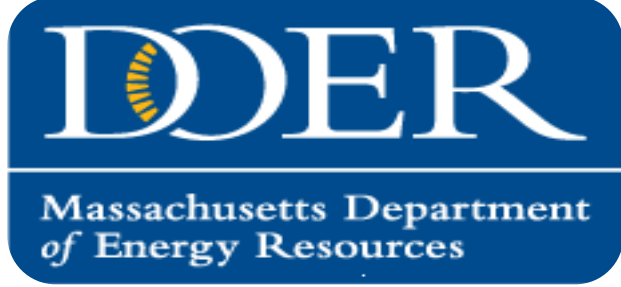
- 5-year incentive lock was essential
- Need to find ways to define benefits more broadly
- Find a way to better serve income eligible customers when all incentives are for performance
- Interaction with Clean Peak Standard and ISO-NE programs
- Residential needed to go through inverter manufacturers, not battery manufacturers
- Find better incentives for installation

Moving Forward

- Electrification
 - Heating
 - Transportation
- Increasing intermittent generation
 - Additional offshore wind procurements
 - Increasing installed solar base
- Climate resilience

THANK YOU!

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Appendix: Specific Program Details and Links to Program Materials

How do They Work? Residential

Performance Incentive	For National Grid and the Cape Light Compact Customers: \$275 per kW
	For Eversource Customers: \$225 per kW
Discharge Events per Season	30 to 60
Months Discharge Events Can Occur	June through September
Time Discharge Events Can Occur	2 p.m. to 7 p.m.
5-year incentive lock	Yes
<ul style="list-style-type: none"> • Customers can apply for a 0% HEAT Loan for the cost of the battery system with no down payment and a \$25,000 lifetime cap per account number. • Customers with battery inverter capacity of 50kW or less are eligible for the incentives in this table. Larger systems should enroll in the Daily Dispatch program. • The incentive rates listed here changed as of August 2021. The new incentives will be applied starting the summer of 2022. So, customers who participated in events for the summer of 2021 will be paid at the old incentive rate of \$225 per kW. 	

How do They Work? Commercial

	Targeted Dispatch	Daily Dispatch
Number of Events per Season	1 to 8 per Summer	30 to 60 per Summer
Incentive	\$35/kW-Summer ¹	\$200/kW-Summer
	+10/kW-Summer Weekend Bonus ²	
Incentive Lock	None	5 Years
Length of Events	3 Hours	2 to 3 Hours
Incentive Lock	None	5 years
Time of Day	Between 2pm and 7pm	Between 2pm and 7pm
Weekend/Weekday	Mon. – Friday Only	Any Day
	With a Weekend Bonus	
Events on Holidays	No	Yes
Day-Ahead Notification	Yes	Yes
Months	June – September	June – September
Metering Assistance Incentive (Eversource Customers Only)	\$1,500 upfront incentive to help pay for required metering	

Source: [C&I DR Program Materials June 2022](#). Source material includes additional detail.