

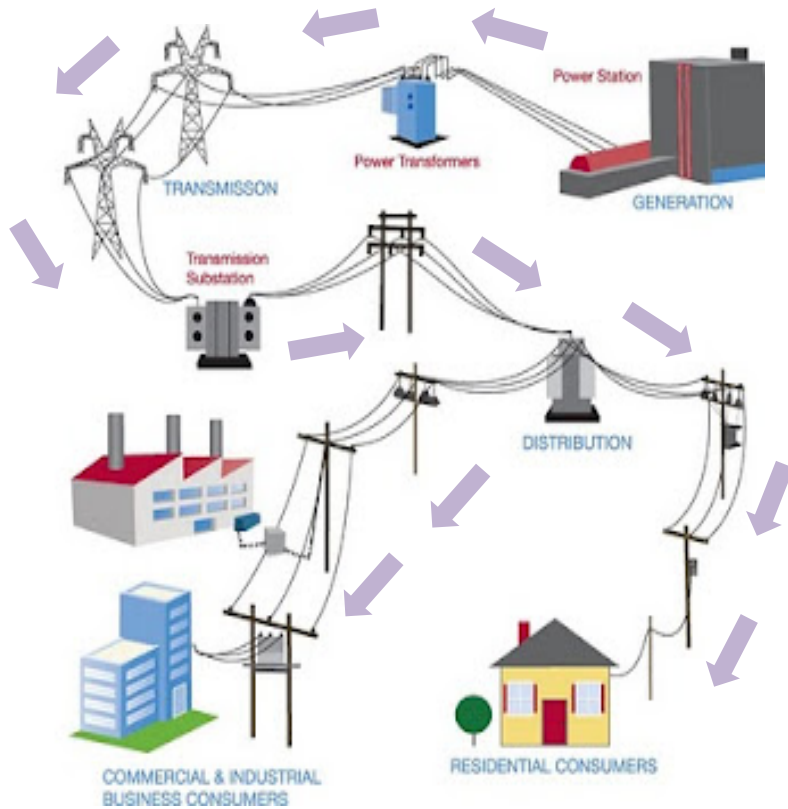
COMMONWEALTH OF MASSACHUSETTS
Judith Judson, Commissioner

Massachusetts' Distributed Energy Future

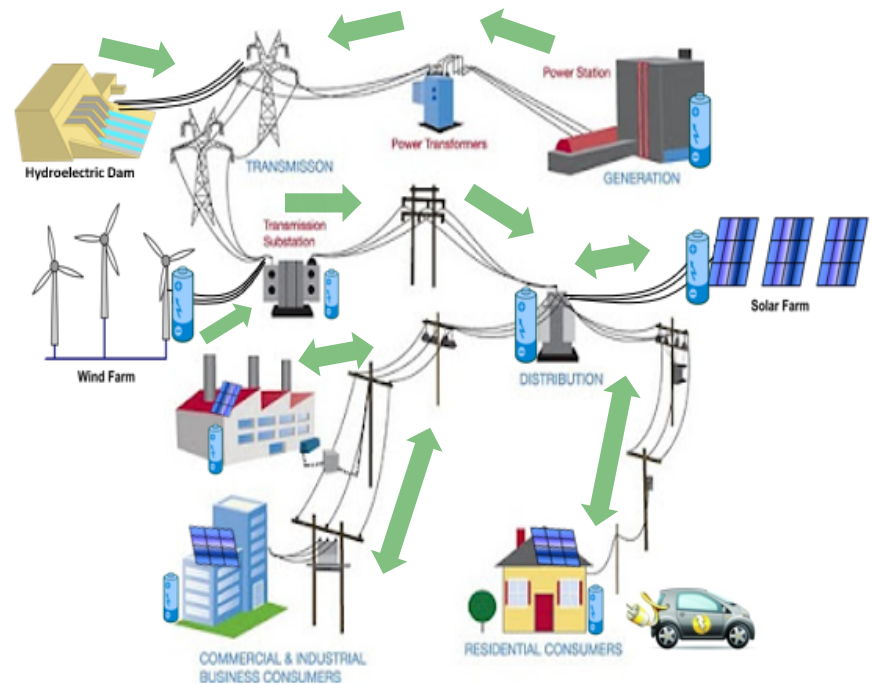
December 13, 2019

Distributed Energy Future

- Customers are more engaged with the power grid with more resources spread across the system
 - Electric vehicles, heat pumps, rooftop solar, etc.

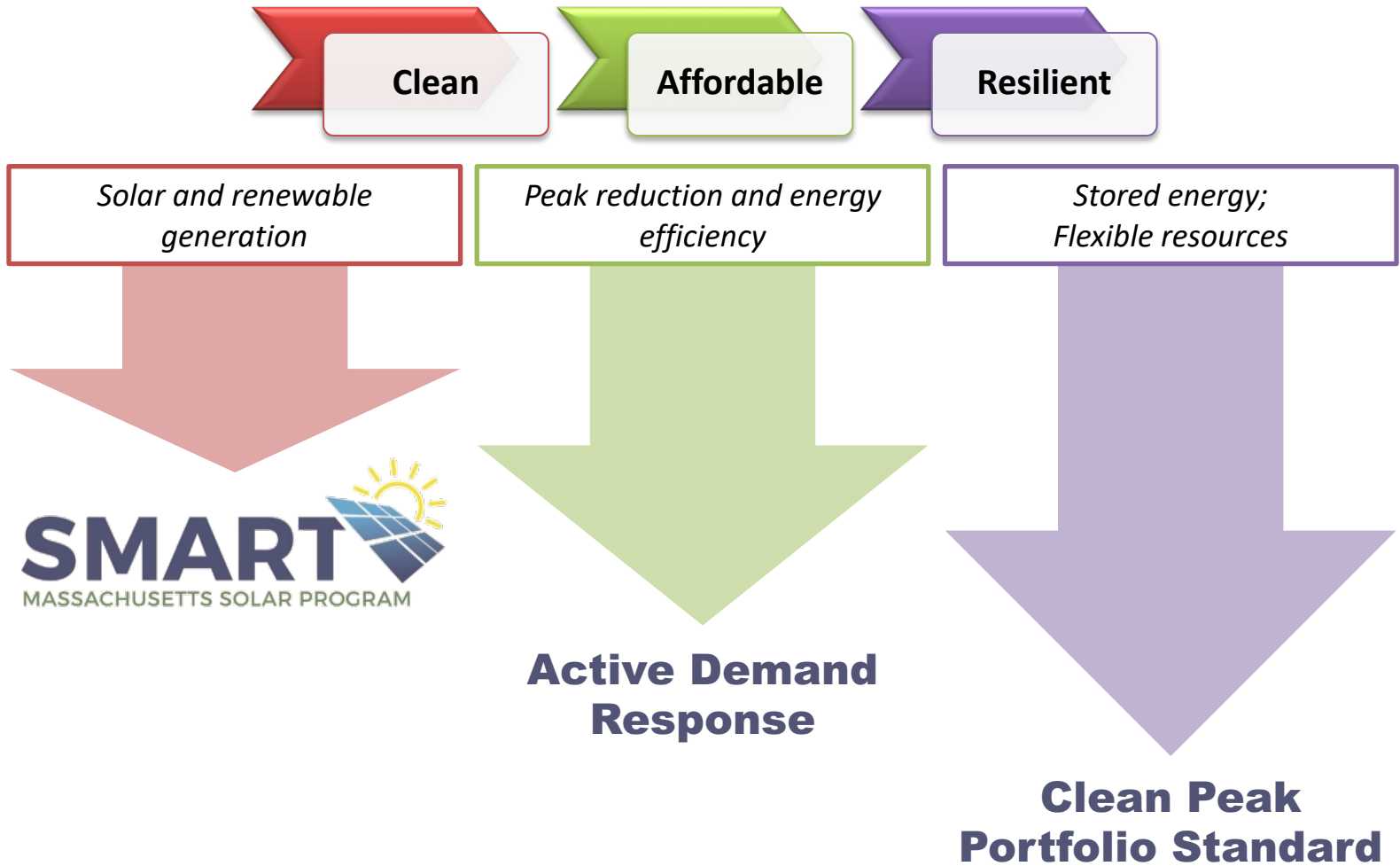


OLD



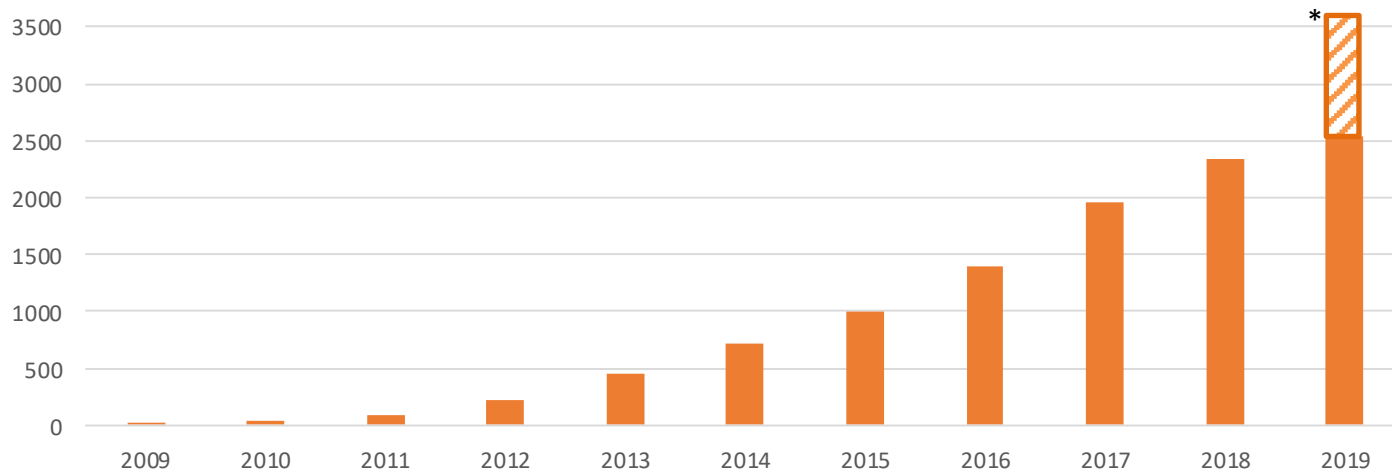
NOW

DOER Mission



Growth in Solar Across the Commonwealth

Cumulative Installed Solar Capacity (MW) in Massachusetts
2009 – 2019



* Approved but not yet built.

- **2,537 MW solar** or 98,482 projects installed and operating
- **6%** of retail electric sales
- Another **1,029 MW solar** approved in SMART

Solar Massachusetts Renewable Target (SMART)



- Launched November 2018
- 1600 MW program size
- \$4.7 billion in cost savings
- Long term revenue certainty
- Alternative on-bill credit mechanism
- Location and project based adders and subtractors
- **1st in the nation – solar + storage incentive**

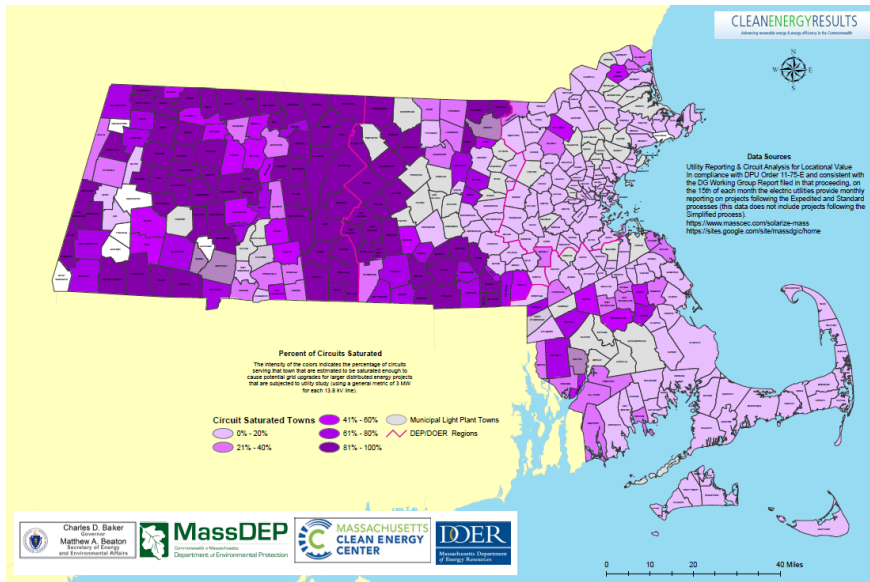
SMART Program Block Status by Distribution Company

Distribution Company	Large Projects (>25kW ≤ 5MW)	Small Projects (≤ 25kW)
Eversource East	3 of 8	3 of 8
Eversource West	Waitlist	6 of 8
National Grid (MA Electric)	Waitlist	4 of 8
National Grid (Nantucket)	1 of 2	1 of 2
Unitil	Waitlist	3 of 4

SMART 400 MW Review

- Goal: continue to achieve the environmental and economic benefits of increasing solar installations in the Commonwealth
- DOER's proposals are particularly designed to achieve the following:
 - Provide certainty for solar development in the next few years
 - Help conservation impact of siting solar
 - Help to alleviate grid saturation and target interconnection sites
 - Improve incentives for projects located Behind-the-Meter (BTM), bringing greater parity to BTM and standalone incentives
 - Accessibility of program to low income communities
 - Encourage pairing solar with energy storage

Challenges



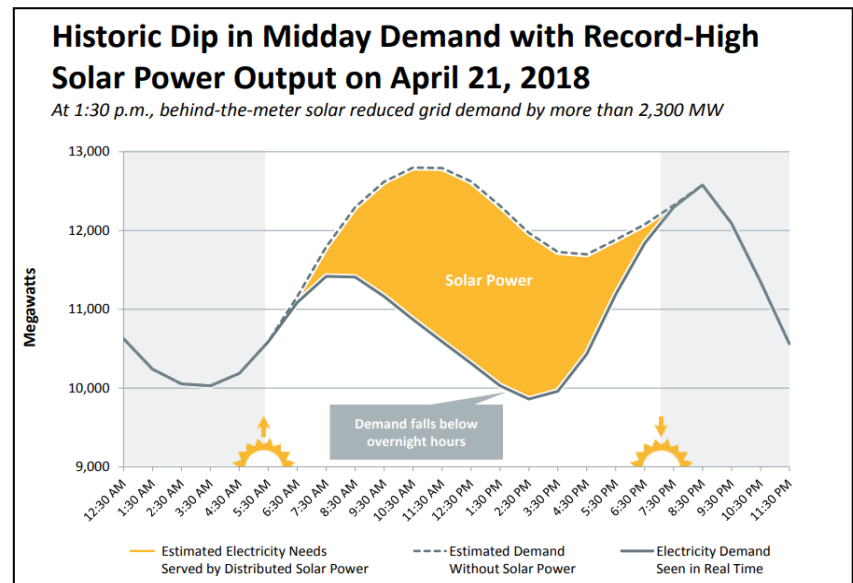
Interconnection

- Parts of the distribution system reaching saturation
- Interconnection costs and timelines have become significant challenges for solar development

“Duck Curve”

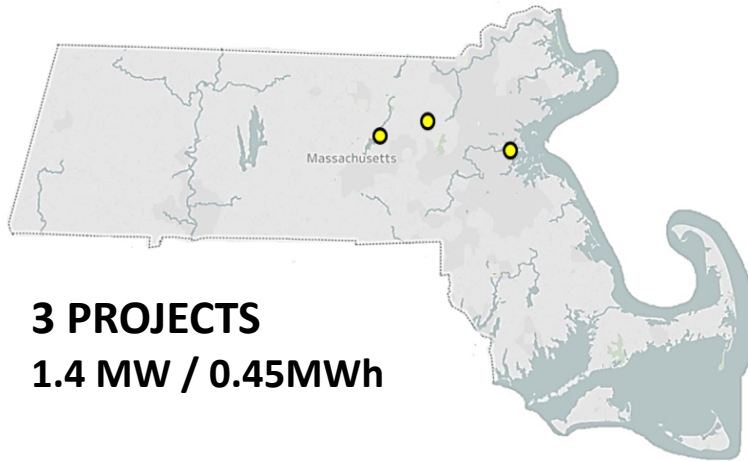
- After SMART there will be 5,000 MW of solar in MA
- MA has peak load of approximately 12,000 MW and minimum daytime load of approximately 6,000 MW

ISO-NE Data

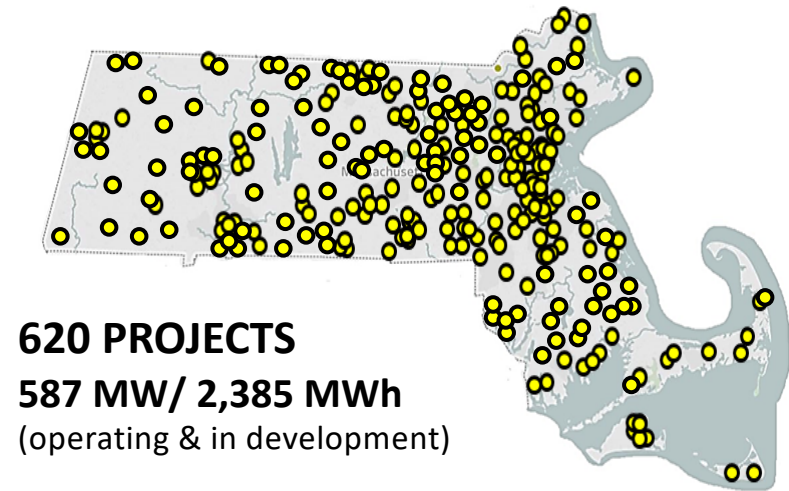


Massachusetts' Energy Storage Success

2015



2019



Energy Storage is a game changer for meeting peak, aligning supply and demand, creating flexibility and increasing resiliency

Clean Peak Standard

Background

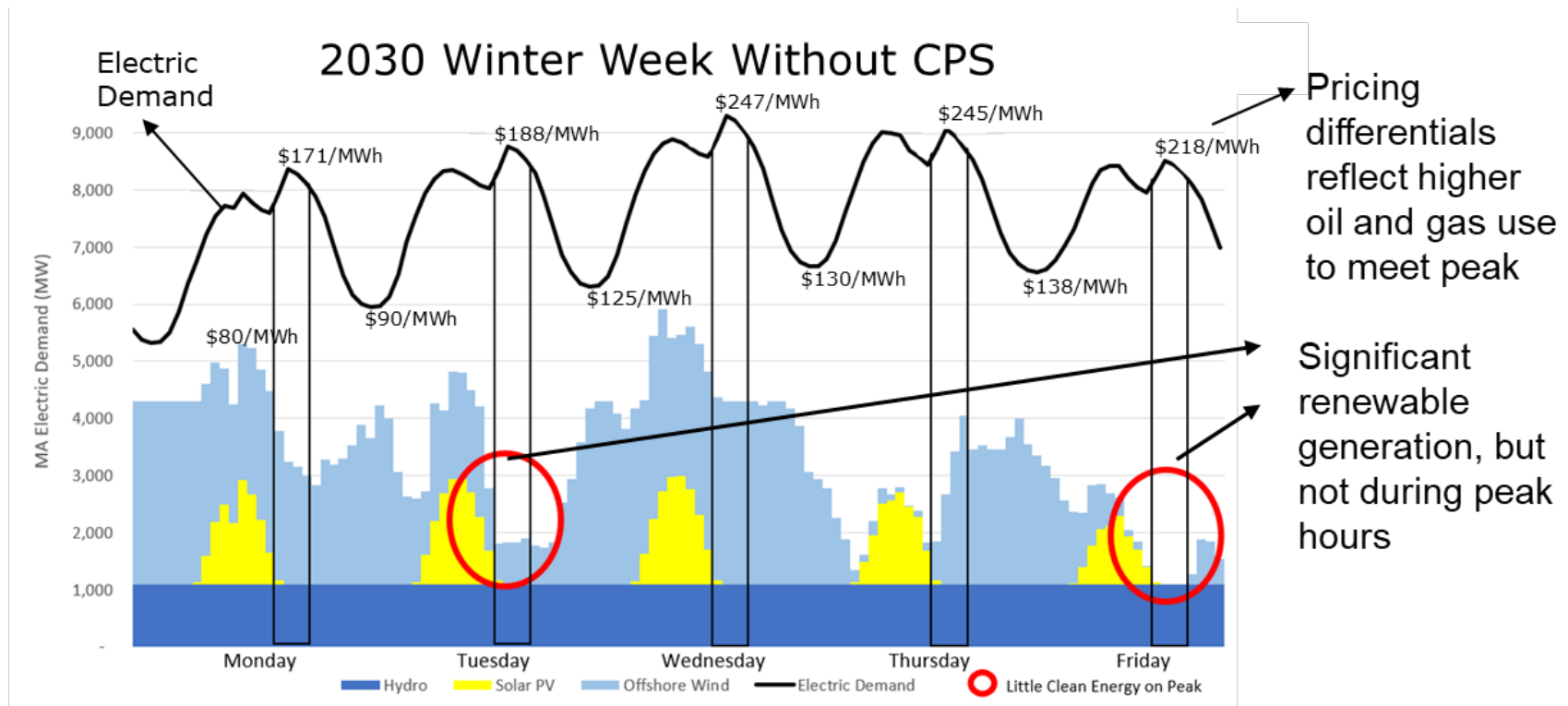
- 2018 legislation tasked DOER with establishing a Clean Peak Standard (CPS)
- Market incentive for clean energy to be used – storage, renewables, demand response – during times when costs and emissions are at their highest
- Creates an annual requirement on all electricity suppliers to purchase a certain amount of Clean Peak Energy Certificates (CPECs)

Implementation

- 2019
 - Engaged stakeholders, developed and presented a straw proposal, issued draft regulations, and held public hearings
 - Currently reviewing public comments received on draft regulations
 - Technical Bulletin will be issued to set 2020 obligation
- Anticipated in Q1 2020
 - Final regulations filed

MA will be first in the nation to implement a Clean Peak Standard

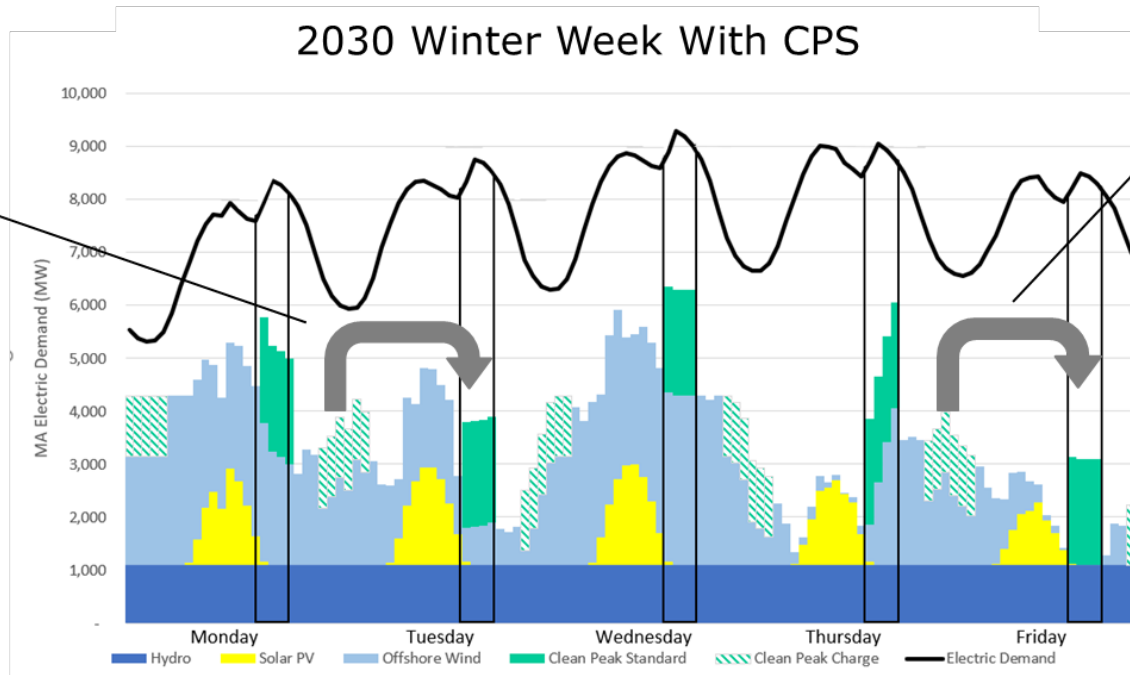
Status Quo Challenge to Resolve



Production profile for 1,090 MW Hydro, 3,200 MW Offshore Wind, 5,000 MW Solar PV

Clean Peak As a Solution

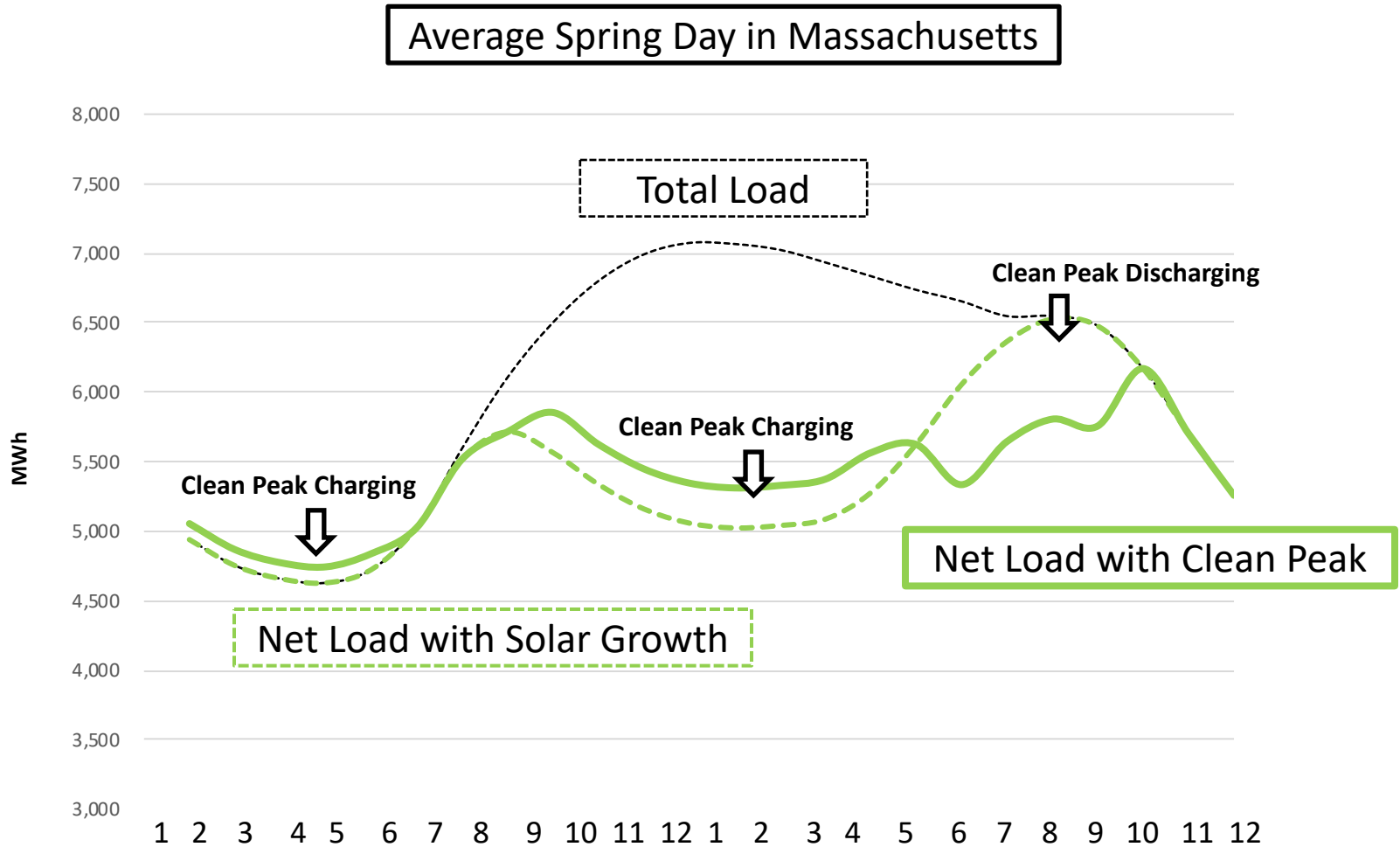
Opportunity to shift clean energy to peak periods through storage



CPS shifted wind energy generated overnight when prices and demand are lower to evening peak when demand is high

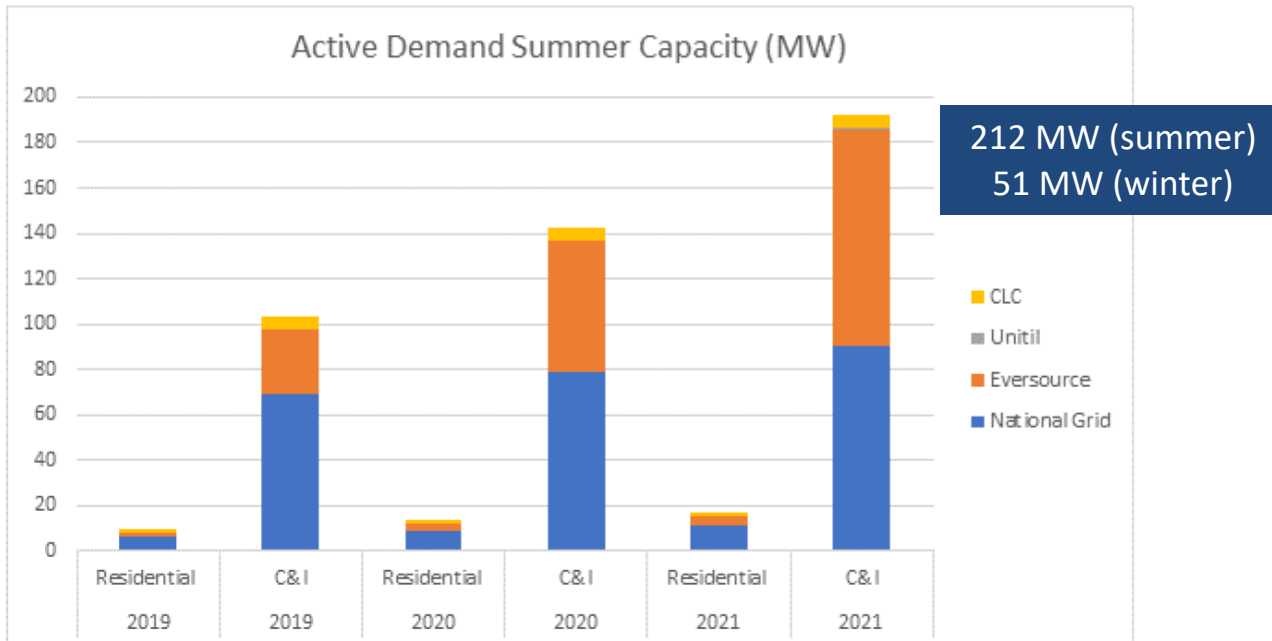
Production profile for 1,090 MW Hydro, 3,200 MW Offshore Wind, 5,000 MW Solar PV

Clean Peak Adds Flexibility



Mass Save[®] Active Demand Reduction

Residential	Direct Load Control – Wifi thermostats (+ Natl Grid EV Charging)	\$20 sign-up, \$25 per summer
	Battery Storage (daily dispatch)	\$225/kw-summer, \$60/kw-winter
	Electric Vehicles (Natl Grid only)	
Commercial & Industrial	Targeted dispatch (DR and storage)	\$35/kw-summer \$100/kw-summer - Storage (Eversource)
	Daily dispatch (storage)	\$200/kw-summer
	Winter dispatch (storage)	\$25/kw-winter



Challenges for the Future

- **Grid Transformation** – Customers will be more engaged in the future of the grid with more resources spread across the system
- **Customer Facing** – Policies should support customer transitions and use of customer distributed resources such as EVs, storage, heat pumps, rooftop solar, etc.
- **Resilience** – As more customers rely on electricity to meet heating and transportation demands, electric resilience becomes an even greater policy priority

