

*THESE MINUTES ARE SUBJECT TO APPROVAL BY THE SUSTAINABLE ENERGY
COMMISSION*

Sustainable Energy Commission held a regular meeting Thursday, January 16, 2020, in shared meeting room 3 of the Municipal Center located at 3 Primrose Street, Newtown, CT 06470.

Chairman Kathy Quinn called the meeting to order at 7:00pm

Present: Kathy Quinn, Allen Adriani, Zach Marchetti, Erik Weiss, Tom Snayd, Vanessa Villamil, Mark Sievel, George Brown

Absent: David Stout

Also Present: Director of Public Works Fred Hurley, Chuck Litty, Bob Gerbert, Jack Thatcher, and Matt Tuttleman and Bill Cratty with C-Power

Communications – K. Quinn announced that there is a seminar on February 1 about zero energy at schools if anyone is interested.

Public Comments –Matt Tuttleman of C Power presented (Att.). If the commission chooses to move forward, C Power would look to move rapidly to have a strategy in place by the end of March and everything complete in April. This will be an agenda item at the next meeting.

Discussion with Robert Gerbert regarding the schools and energy savings measures and indoor Air Quality issues – R. Gerbert reported that they kicked off the recycling program at Sandy Hook School and it is well received. Currently they are doing three bins, one for garbage, one for single stream and one for liquid. Energy consumption at Sandy Hook school is down over 50% from last year.

Indoor air quality was discussed. R. Gerbert explained that they have done one off air quality tests when a concern came up. Both tests were good. It was also questioned if new testing should be done in all the schools.

E. Wiess moved to forward a recommendation that an indoor air quality study be incorporated into design considerations for upgrades on facilities when appropriate. V. Villamil seconded, motion unanimously approved.

Promotional reusable bags – Not discussed

ZREC for Community Center, Hook and Ladder and new Police Station – The vendor is working with the Police Department and the Community Center. Hook and Ladder is still in question as to if the roof can handle the load. If not, they will do a ground mount.

VNM solar project – Griswold 2MW (AC) – On schedule

VNM new 2 MW (AC) systems/Credit for High School (Hampton) – On schedule

Electric Vehicles-Charging Stations – Not discussed

Energy Savings program:

Community Center/Senior Center – No update

Police Department – No update

Edmond Town Hall update –K. Quinn spoke with S. Torres from ETH. They have completed an SBCA upgrade and got a 4 year payback. It is estimated that they will save 46,000 kwh per year.

Develop/update: Municipal Energy Plan, Web Site, Facebook page and Power Point Presentation. Incorporate demand reduction and Energy Star Portfolio Manager – no update

ADDITIONAL ITEMS TO BE ADDRESSED

Organic Recycling/ School program – No update

General Recycling – No update

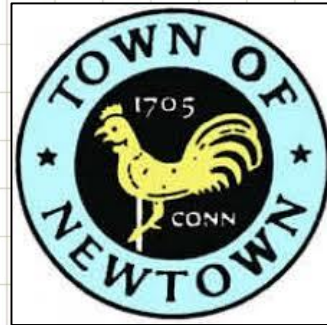
Outline Sustainable Newtown Program – No update

Batchelder site for future solar/installation/community solar site – Meter has been installed.

Next meeting is February 20, 2020.

Having no further business, the meeting was adjourned at 8:57pm.

Respectfully Submitted,
Arlene Miles, Clerk



DEMAND RESPONSE OVERVIEW

January 16, 2020



MEETING OVERVIEW

About CPower

CPower / Town of Newtown – Existing Relationship

Electric Grid Hierarchy

Problems We Are Trying to Solve

Grid Reliability – Top 10% Demand in 1/10 of 1% of the Entire Year

ISO-NE Coincidental Peak – Mitigating the CapTag

Demand Response

Types of Energy Programs

Value Proposition

New England Program Opportunities

Qualification

Next Steps

WHO IS CPOWER?

- 135 dedicated employees
- National experience. Local expertise.
- 60+ demand-side programs
- 20+ utility programs
- 1,450+ customers, 11,000+ Accounts
- 4,500 MWs enrolled
- 70% of our business is through strategic partners.
 - Our offerings are a compliment to your business
- Demand-side solutions including: automation, storage and generator analysis
- End-to-end, in-house, full-service operations, dispatch and fulfillment
- Trusted by several states including the Commonwealth of MA as the CSP of record for demand side management
- Experienced Demand-side Energy Management Solutions for your industry



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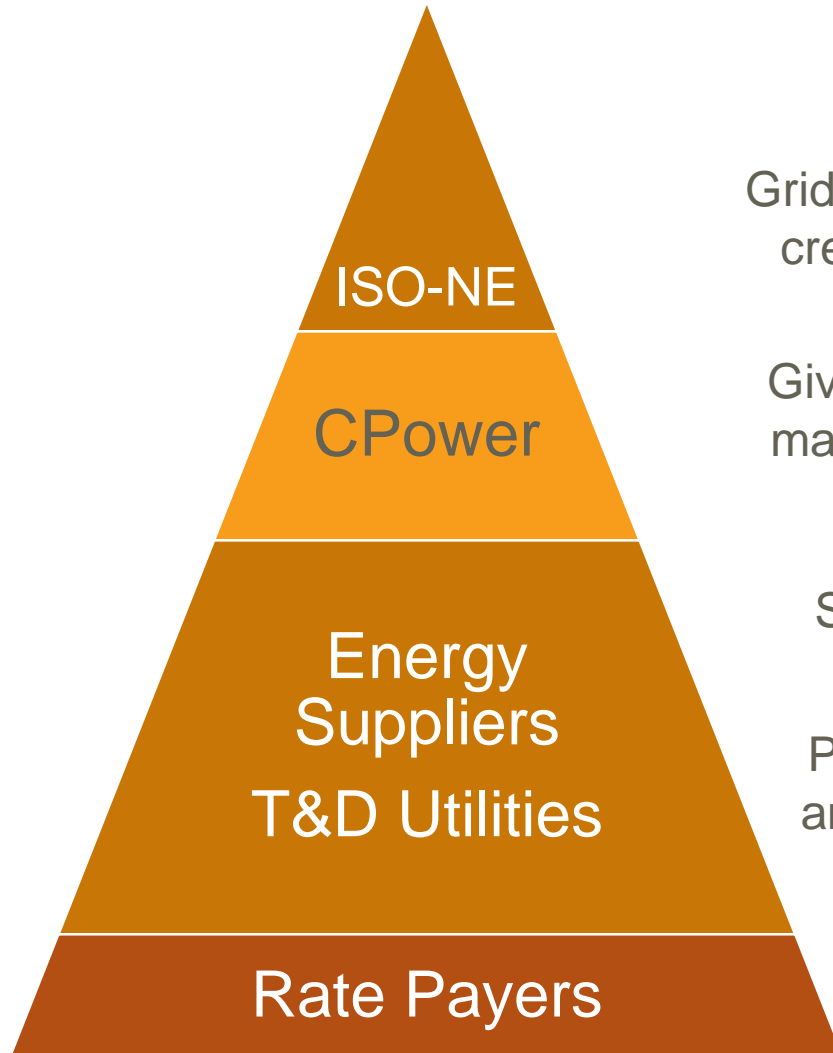
CPOWER & NEWTOWN, CT

Currently CPower has enrolled all of Newtown's Behind the Meter (BTM) Solar Arrays in the ISO-NE On-Peak Program.

- Dodgingtown
- Sandy Hook School
- Berkshire Fire Station
- Riverside
- Reed Intermediate School

The On-Peak program pays for the load reduction that solar provides. These payments are in addition to Tax Credits & Environmental Credits

UNDERSTANDING THE ELECTRIC GRID HIERARCHY



Grid Operators manage supply & demand and create energy markets and value of energy

Gives rate payers the ability to interface energy markets to stay in front of potential brownouts / blackouts and reduce total cost of energy

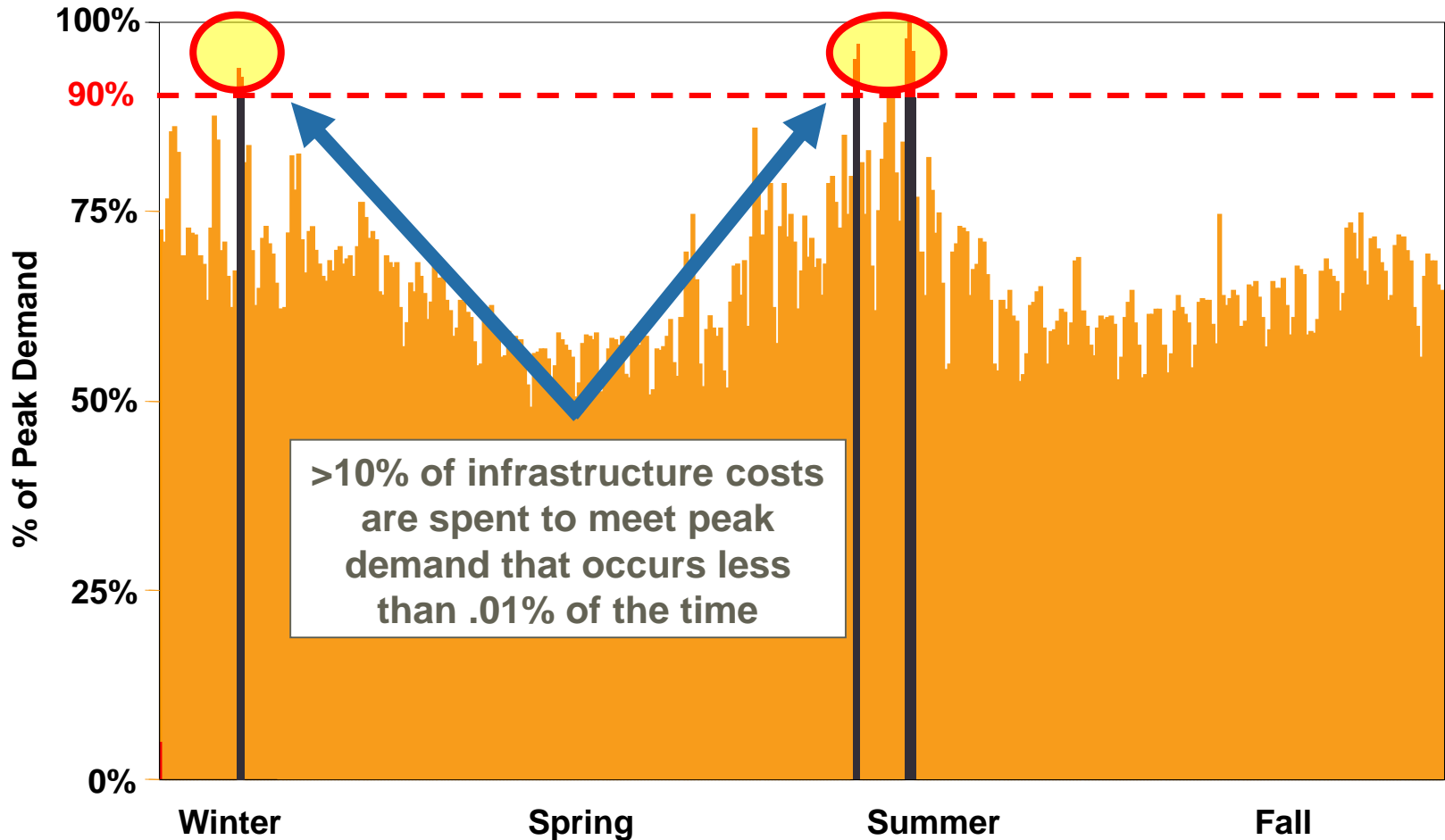
Suppliers and T&D Utilities make power and deliver it to market.

Procurement & management of consumption and volatility can account for up to 50% of the total cost of energy!

The Consumer

GRID RELIABILITY

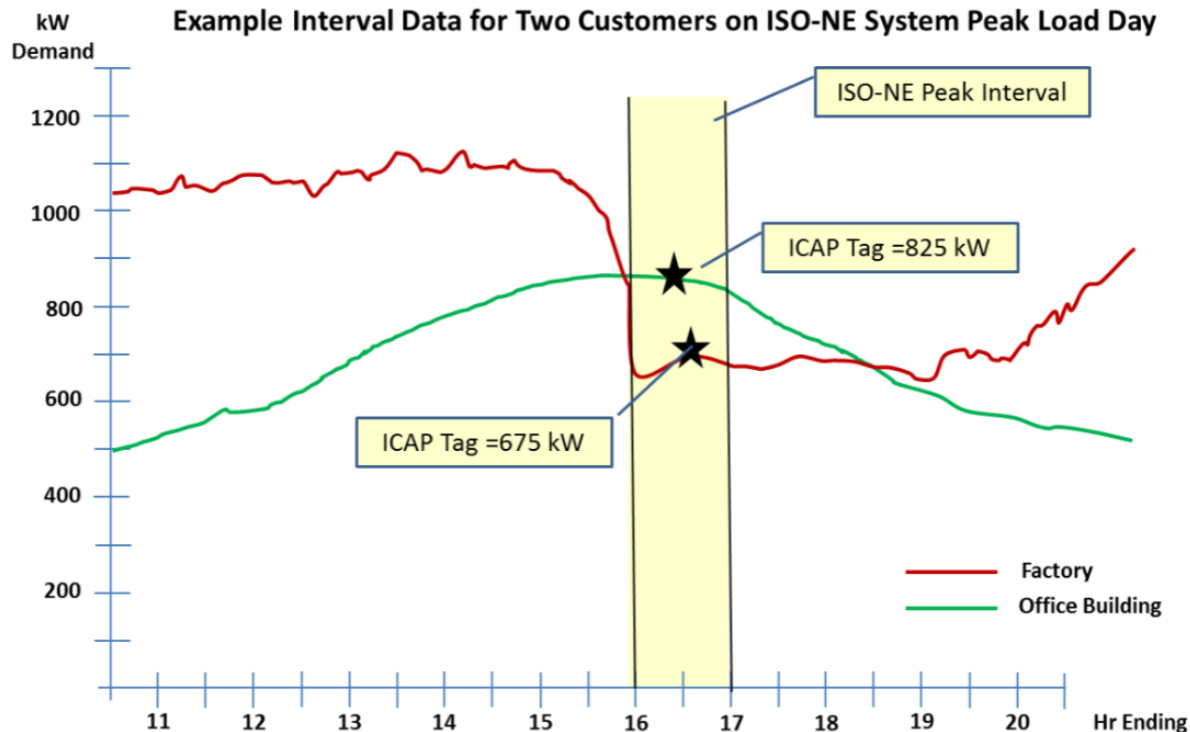
TOP 10% OF USAGE OCCURS IN .01% OF THE ENTIRE YEAR!



ISO-NE CAPACITY CHARGES

THE HIDDEN DEMAND CHARGE

In New England the (1) Hour of the year in which the system sets it's highest consumption is known as the Coincidental Peak. Rate payers are assessed a Capacity Tag or CapTag based on their demand / consumption.

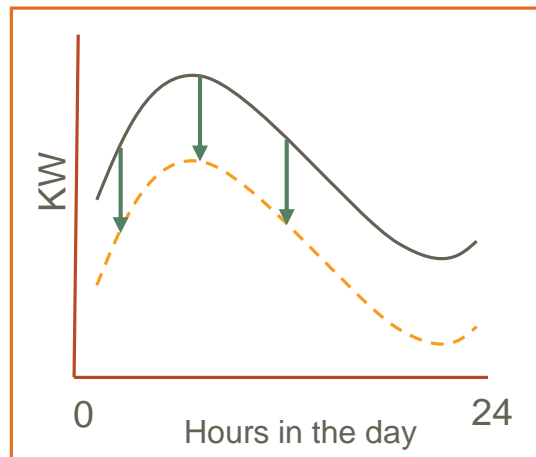


TYPES OF ENERGY PROGRAMS

Demand Response Programs

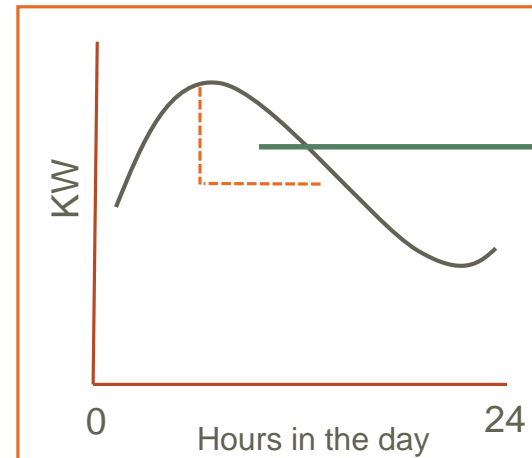
Programs designed to balance grid load in response to anticipated excess of demand or unanticipated loss of supply. In contrast, permanent programs offer savings and incentives for permanent reductions in load.

Permanent



- Energy Efficiency
- Co-generation
- Load Shifting
- Fuel Cell
- Solar*

Responsive



Payments made for responses to peak energy curtailment

- Capacity
- Ancillary
- Economic
- Utility
- Efficiency
- Excessive Demand
- Loss of supply
- Price Initiated
- Local programs
- Monetizing ECMs

VALUE PROPOSITION

Energy OpEx Reduction

Markets participation provides both payments & reduced energy cost

ISO-NE Demand Response - Participants receive payments for their capacity and additional payments for energy.

Peak Demand Management* – Eversource, National Grid & Unitil sponsoring day ahead program to reduce New England Capacity Tag associated with 1-hour annual system peak. Participants get paid AND reduce their cost of energy by as much as 30%*

Permanent Load Reduction – Measures such as BTM Solar, CHP & Fuel cells are eligible to receive capacity payments for the entire effective useful life of the measure up to 20 years! These payments are above and beyond ITC & RECs.

Daily Dispatch – Facilities with Battery Energy Storage Systems (BESS) (Typically paired with Solar) received significant additional payments to have the BESS dispatched 40-60 times during July & August. Eversource & NGrid

Operational Reliability

Demand Response provides advance notice when the supply of electric cannot meet demand.

Notification protects facility operations and machinery from damage, costly repairs or replacement due to power quality threats from grid instability.

Notification helps provide advanced awareness of Grid instability.

NEW ENGLAND PROGRAMS

Program Name	Program Type	Customer Obligation / Hours	Notification Lead Time	Program Term	Performance Season	Typical Event Length	Typical Curtailment Frequency	Adminsitrator
Active Demand Capacity Resource (ADCR)	Capacity	24/7/365	30 Minute	June-May	Summer (June-Aug) & Winter (Dec-Jan)	3.5 Hours	(2) 1 HR Season Audits (June & Dec) - > 1 Event / Year	ISO-NE
On-Peak Hours Resource (OPHR)	Energy Efficiency & Distributed Generation - CHP, Fuel Cell, Solar, Solar + Storage	June, July, Aug M-F 1-5PM --- Dec & Jan M-F 5-7PM	N/A	June-May	Summer (June-Aug) & Winter (Dec-Jan)	NA	None	ISO-NE
Connected Solutions - (Basic)	Capacity	June-September 2-6PM	Day Ahead	June-September	Summer Only (June - September)	3 Hours	3-4 calls per summer	NGrid, Eversource & Unitil
Peak Demand Management (CapTag)	Energy Bill Cost Avoidance	Voluntary	Day Ahead & Day of	June-May	Summer	3 Hours	2-7 Calls / Year	CPower
Connected Solutions - (Advanced)	Battery Energy Storage Systems	July & August Dec & Jan	Day Ahead	June-May	Summer Required (July & August) Winter Potential (Dec & Jan)	2-3 Hours	Targeted: 12 Dispatches / Season Daily: 40-60 Dispatches / Season	Eversource & NGrid

CURTAILMENT COMMITMENTS

Historical Summary of Event Dispatch

Real-Time Demand Response (ISO-NE)

- Summer Season: April - November
- Winter Season: December - March
- (1) Audit / Season: 1 hour minimum
- Actual event: Duration based on need

CURTAILMENT EVENT HISTORY		
YEAR	EVENTS	DURATION
2010	1	2:45
2011	2	6.45
2012	0	0:00
2013	3	13:10
2014	0	0:00
2015	0	0:00
2016	1	3:30
2017	0	0:00
2018	1	3:30
2019	0	0:00
AVE	0.8	1:46

Connected Solutions (Utility Program)

- Summer Only: June – September
 - M-F 2PM-5PM
- Expect 3-4 Dispatch Notices / Season

National Grid		
CURTAILMENT EVENT HISTORY		
YEAR	EVENTS	DURATION
2017	2	6:00
2018	6	18:00
2019	1	3:00
AVE	3.0	3:00

Eversource		
CURTAILMENT EVENT HISTORY		
YEAR	EVENTS	DURATION
2019	3	9:00
AVE	3.0	3:00

ADCR VALUE (ISO-NE 30-MIN)

Commitment Period	ISO-NE kW Reduction		ISO-NE Program Revenues	
	Summer (8 months)	Winter (4 months)	\$/kW-mth	Annual Gross
June 1, 2019 - May 31, 2020	-	1,000	\$ 5.87	\$ 23,480
June 1, 2020 - May 31, 2021	1,000	1,000	\$ 4.00	\$ 47,991
June 1, 2021 - May 31, 2022	1,000	1,000	\$ 4.00	\$ 48,004
June 1, 2022 - May 31, 2023	1,000	1,000	\$ 3.80	\$ 45,600
June 1, 2023 - May 31, 2024	1,000	1,000	\$ 3.80	\$ 45,600
June 1, 2024 - May 31, 2025	1,000	1,000	\$ 3.80	\$ 45,600
Total Market Value				\$ 256,275



UTILITY PROGRAM (DAY-AHEAD)

Payment for the NGrid (MA & RI) & Eversource (CT, MA & NH), Unitil (MA & NH) Programs follows a simple formula:

$$\begin{array}{|c|} \hline \text{Average} \\ \text{Curtailed Load} \\ \hline \end{array} \times \begin{array}{|c|} \hline \text{Capacity} \\ \text{Payment} \\ \hline \end{array} = \begin{array}{|c|} \hline \text{Revenue} \\ \text{Earned} \\ \hline \end{array}$$

Commitment Period	Utility kW Reduction		Utility Program Revenues		
	Summer (3 months)	Winter (2 months)	\$/kW Summer	\$/kW Winter	Annual Gross
June 1, 2020 - May 31, 2021	1,000	1,000	\$ 35.00	\$ 25.00	\$ 60,000
June 1, 2021 - May 31, 2022	1,000	1,000	\$ 35.00	\$ 25.00	\$ 60,000
June 1, 2022 - May 31, 2023	1,000	1,000	\$ 35.00	\$ 25.00	\$ 60,000
June 1, 2023 - May 31, 2024	1,000	1,000	\$ 35.00	\$ 25.00	\$ 60,000
June 1, 2024 - May 31, 2025	1,000	1,000	\$ 35.00	\$ 25.00	\$ 60,000
Total Market Value					\$ 300,000

- Performance calculated on the average performance across all season event hours
- Customers can choose to participate in Summer ONLY, Winter ONLY or BOTH
- Winter load season not-available in some markets

CAP TAG MANAGEMENT VALUE

CapTag is set Summer of this year	ISO-NE Zone	CapTag Power Year	CapTag Value \$/kW
2020	ALL	2021-2022	\$55.57
2021	ALL	2022-2023	\$45.60
2022	ALL	2023-2024	\$45.60 (Projected)
2023	ALL	2024-2025	\$45.60 (Projected)

- CapTag reduction in summer 2020, value is realized from June 2021 – May 2022*
- Customer recognizes 100% of CapTag reduction via their energy supply rate

1,000 kW x \$55.57 x RM = \$79,465 of savings through 12 months of utility bills

■	PY21–22 =	\$79,465
■	PY22–23 =	\$65,208
■	PY23–24 =	\$65,208
■	PY 24-25 =	\$65,208
	Total =	\$275,089

* Assumes capacity is passed through on your power contract

ISO-NE ON-PEAK

Permanent load reduction measures qualify for capacity payments for the entire effective useful life of the measure up-to 20 years!

Measures include:

- Behind the Meter (BTM) Solar
 - 1MW DC = 450 kW enrollable
- Combined Heat & Power (CHP)
 - CHP enrollable at full base load 1MW
- Fuel Cells
 - FuelCell enrollable at full base load 1MW
- Energy Efficiency

Forward Capacity Market Year	Demand Reduction Values		Capacity Price (\$/kW-month)	OPHR Revenue
	Summer kW (8 months)	Winter kW (4 months)		
June 1, 2020 - May 31, 2021	450	-	\$ 1.59	\$ 5,724
June 1, 2021 - May 31, 2022	450	-	\$ 1.39	\$ 5,004
June 1, 2022 - May 31, 2023	450	-	\$ 1.52	\$ 5,472
June 1, 2023 - May 31, 2024	450	-	\$ 3.80	\$ 13,680
June 1, 2024 - May 31, 2025	450	-	\$ 3.80	\$ 13,680
June 1, 2025 - May 31, 2026	450	-	\$ 3.80	\$ 13,680
June 1, 2026 - May 31, 2027	450	-	\$ 3.80	\$ 13,680
June 1, 2027 - May 31, 2028	450	-	\$ 3.80	\$ 13,680
June 1, 2028 - May 31, 2029	450	-	\$ 3.80	\$ 13,680
June 1, 2029 - May 31, 2030	450	-	\$ 3.80	\$ 13,680
June 1, 2030 - May 31, 2031	450	-	\$ 3.80	\$ 13,680
June 1, 2031 - May 31, 2032	450	-	\$ 3.80	\$ 13,680
June 1, 2032 - May 31, 2033	450	-	\$ 3.80	\$ 13,680
June 1, 2033 - May 31, 2034	450	-	\$ 3.80	\$ 13,680
June 1, 2034 - May 31, 2035	450	-	\$ 3.80	\$ 13,680
June 1, 2035 - May 31, 2036	450	-	\$ 3.80	\$ 13,680
June 1, 2036 - May 31, 2037	450	-	\$ 3.80	\$ 13,680
June 1, 2037 - May 31, 2038	450	-	\$ 3.80	\$ 13,680
June 1, 2038 - May 31, 2039	450	-	\$ 3.80	\$ 13,680
June 1, 2039 - May 31, 2040	450	-	\$ 3.80	\$ 13,680
				\$ 248,760

UTILITY DAILY DISPATCH

Payment for the NGrid (MA & RI) & Eversource (CT, MA & NH)
For locations with Battery Energy Storage Systems (BESS)*

Commitment Period	Utility kW Reduction		Utility Program Revenues		
	Summer (3 months)	Winter (2 months)	\$/kW Summer	\$/kW Winter	Annual Gross
June 1, 2020 - May 31, 2021	1,000	1,000	\$ 200.00	\$ 50.00	\$ 250,000
June 1, 2021 - May 31, 2022	1,000	1,000	\$ 200.00	\$ 50.00	\$ 250,000
June 1, 2022 - May 31, 2023	1,000	1,000	\$ 200.00	\$ 50.00	\$ 250,000
June 1, 2023 - May 31, 2024	1,000	1,000	\$ 200.00	\$ 50.00	\$ 250,000
June 1, 2024 - May 31, 2025	1,000	1,000	\$ 200.00	\$ 50.00	\$ 250,000
			Total Market Value		\$ 1,250,000

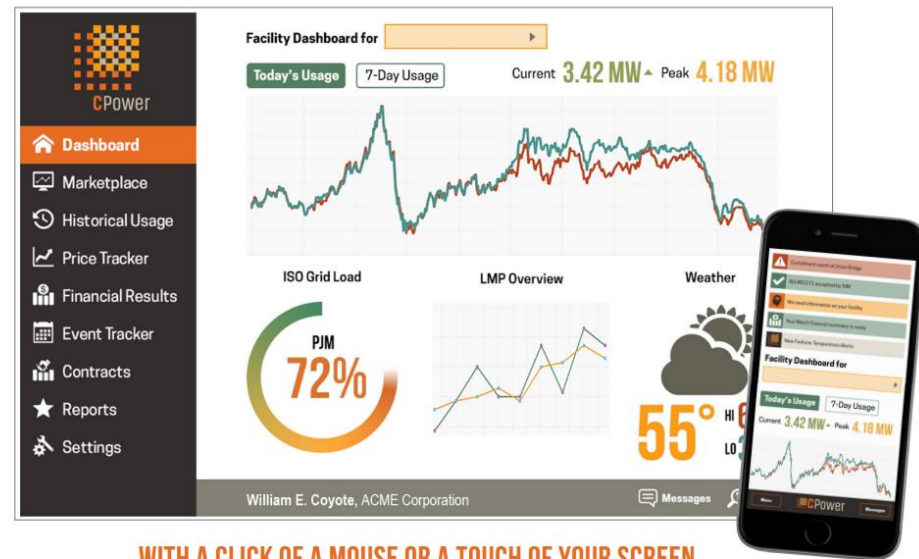
- Performance calculated on the average performance across all season event hours
- Customers can choose to participate in Summer ONLY, Winter ONLY or BOTH
- Winter load season not-available in some markets

* NGrid offers Daily Dispatch of Tier IV final, permitted back up generators

DEMAND MANAGEMENT TOOLS

The CPower Portal: Managing Complexity with Context

- Easily set curtailment schedules
- Full functionality on your desktop or mobile device
- Link to your independent system operator (ISO) and set your bids in synchronized, day-ahead, and real-time markets quickly and easily
- Monitor your energy consumption levels and learn to make effective energy management decisions in near real time
- Combined with CPower's Link, you can leverage ADR (automated demand response) to participate in programs and earn revenues with less resources or business interruption



WITH A CLICK OF A MOUSE OR A TOUCH OF YOUR SCREEN,
CPower ALLOWS YOU TO ACCESS ALL VITAL USAGE
AND LOAD INFORMATION QUICKLY AND INTUITIVELY.



WATCH THE VIDEO
SEE THIS TECHNOLOGY EXPLAINED BY THE CPOWER EXPERTS



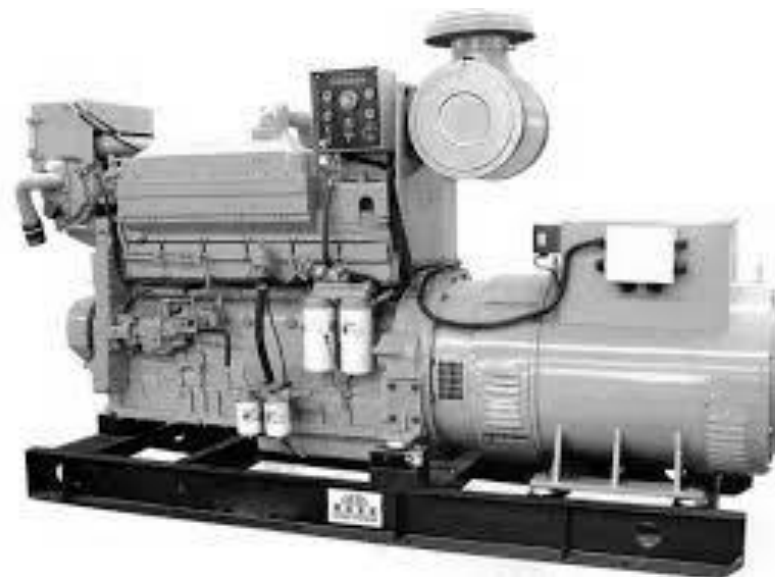
GENERATOR ELIGIBILITY

Non-emergency generators are eligible

- Needs to meet Federal non-emergency emission levels
- Tier 4 emission standards
- Non-emergency permit

2 MW+ units are the target:

- Eligibility determinates
 - Manufacture Date
 - Install Date
 - Nameplate Capacity
 - Engine Horsepower
 - Generator Retrofit?



NEXT STEPS

- Are you ALREADY trying to mitigate CapTag?
- Provide us with a recent utility bill (Both T&D and Energy Supply)
- Provide 15 minute or hourly utility interval usage or signed LOA
- Buildings which have building management systems and / or back up generators should be focused on.
 - Photographs of all back up generator (BUG) nameplates to be taken and forwarded. Rules for the utilization of generators in the market have changed and CPower's engineering team will need to vet all BUGs for viable participation.
 - Provide copies of all generator permits
- CPower to perform site visit to help develop curtailment plan



THANK YOU!

Mathew Tuttelman

Account Executive – ISO-NE

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