



Program Materials for Connected Solutions for Small Scale Batteries

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Summary

Connected Solutions incentivizes customers to curtail their energy when demand on the New England electric grid is forecasted to be at its peak. Customers are compensated on a pay-for-performance basis for the average kW they curtail during dispatch events.

A summary of the program is given in the table below:

	Summer	Winter
Performance Incentive	\$225 per kW-summer	\$50 per kW-winter
Discharge Events per Season	30 to 60	5 - 15
Months Discharge Events Can Occur	June through September	December through March
Time Discharge Events Can Occur	2 p.m. to 7 p.m.	2 p.m. to 7 p.m.
5-year incentive lock	Yes	Yes
<ul style="list-style-type: none"> Participating in both Summer and Winter may count towards the SMART 52 full cycle equivalent Dispatch Requirement Customers can apply for a 0% Heat Load for the cost of the battery system Customers with battery inverter capacity of 50kW or less are eligible for the incentives in this table 		

Participation Through an Approved Battery Partner

To participate in the program, the customer needs to have a battery storage system from an approved battery implementer. The battery implementers in this program are Pika Energy, sonnen, Sunrun, and Tesla. The battery implementers are responsible for communicating the need for a demand response event and sending the customer's battery storage systems discharge rate and state-of-charge to the customers' program administrator. During a demand response event, the battery will be remotely discharged without the customer's active participation.

Incentive Payment Process

Incentive payments for summer performance will be made in October or November each year. Incentive payments for winter performance will be made in April or May each year.

Incentive payments will be made to either the customer or their battery partner depending on the selection made on the CUSTOMER INCENTIVE PAYMENT OPTIONS section of the customer application. Some battery partners may offer their customers an upfront discount on the customer battery system in exchange for the customer selecting for their performance incentives to go to the battery partner. Such negotiations are between the customer and battery partner.

Number of Events

Summer Season

The goal of discharge events in the summer season is not only to hit the ISO-NE peak hour, but also to hit the highest daily peaks in July and August. Events will only be called in June and September if the



annual peak is forecasted to be in those months. Events will be called in July and August to try to hit the highest 40 peak hours in those months. The program administrators will never call more than 60 events in a summer season.

Winter Season

The goal of Winter Dispatch is to hit the top 5 peak hours between December 1 each year and March 31 of the following year. The program administrators will never call more than 15 events in a winter season.

Eligibility Requirements

To be eligible for this program, the customer must have a National Grid electric service account in Massachusetts, where the demand response savings will be achieved. The customer must also pay into the energy efficiency fund on their electric bill. Most electric customers pay into the energy efficiency fund. Customers whose National Grid electric service monthly bill has a line for “Energy Efficiency Prgms”, are eligible for this program. Customers in Cape Light Compact (Cape Cod and Martha’s Vineyard), Eversource, or Unitil service territories are not able to participate at this time.¹

Enrollment Deadlines

Summer Season

For a customer to ensure they receive their full incentive for the summer season, the customer’s application must be received by the customer program administrator by 11:59 p.m. on June 30 of that year. Customers can still enroll after June 30 for the summer season. However, the customers discharge performance will be set to zero (0 kW average) for any discharge events the customer missed.

Winter Season

For customer to ensure they receive their full incentive for the winter season, the customers application must be received by the customer program administrator by 11:59 p.m. on November 30 of that year. Customers can still enroll after November 30 for the winter season. However, the customers discharge performance will be set to zero (0 kW-average) for any discharge events the customer missed.

Unsubscribing from the Program

Customers who enroll in the Connected Solutions program will remain in the program until they provide written notice to their battery partner or program administrator that they would like to be removed from the program. Once a season (summer or winter) starts, the customer must stay enrolled for the entire season to receive the incentive. A customer cannot unenroll part way through a season and receive the performance incentive for fewer events than all the other program participants.

¹ Eversource, Unitil, and Cape Light Compact customers should contact their utility customer support to learn more.



No Transfer of Enrollment

Enrollment in Connected Solutions cannot be transferred from one customer to another. If a customer moves out of their residence/facility, and the new occupant would like to participate in Connected Solutions, they may do so at the incentive rate offered at that time.

Notification of Demand Response Events

Notification of discharge events will be sent directly to the customer’s battery system. The customer normally does not need to take any action for their battery system to respond to a discharge event.

Battery System Maintenance, Internet Connection, and Durability

Customers, their battery implementer, or other vendor are responsible for maintaining the customer’s battery system so that it can respond to dispatch events. The incentives in this program are calculated using the actual dispatch (in average kW over the duration of dispatch events) of the customer’s battery system. If a battery system is not properly maintained, the internet connection to the battery system is not maintained, or any other aspect that would cause the battery system to discharge less, the incentive amount could be affected. Battery systems do degrade over time, causing them to be able to discharge less power and/or energy. This will also affect the incentive amount. Customers and their vendors should consider the financial risk of poor performance of their battery systems before enrolling in the Connected Solutions program.

Length and Time of Demand Response Events

Discharge events can last 2 or 3 hours. All events happen between 2pm and 7pm.

Days for Demand Response Events

Discharge events are called on weekdays – Monday through Friday. Events will not be called on the following holidays.

Dispatch Season	Holiday	Date
Winter	New Year’s Day	January 1
Winter	Birthday of Martin Luther King Jr.	January 21
Winter	Birthday of George Washington (President’s Day)	February 18
Summer	Independence Day	July 4
Summer	Labor Day	First Monday of September
Winter	Christmas Day	December 25

No Winter Dispatch Events Before Large Winter Storms

We realize many customers purchase energy storage systems in part for backup power during power outages. Most power outages in our region happen during the winter time. The customer’s program administrator will not call a winter discharge event during an outage or for the 2 days preceding predicted severe outage events (Type 1 and Type 2 events as defined in the current National Grid Emergency Response Plan).



Incentive Rates and Average Performance

The incentive rate for each option is shown in the table below.

	Summer	Winter
Performance Incentive	\$225 per kW-summer	\$50 per kW-winter

The incentive rates refer to the average curtailment amount for every event of the dispatch season.

Performance per event is equal to the average discharge rate of the battery in kW-AC over the length of the event.

Performance for an event may not be increased by curtailing solar production to increase the battery discharge rate. For example, if the total production of the solar system and battery system is limited by the inverter size, the solar system cannot be limited during demand response events so that the battery can discharge more. Doing this would not decrease the load on the grid and would be against the goals of this program.

The table below shows the results of a fictional customer’s curtailment performance over a summer season that had 3 demand response events over the whole summer. In reality, summer dispatch seasons have many more events.

Event	Performed Curtailment Amount
Event 1	1 kW
Event 2	2 kW
Event 3	3 kW

The customers average performance over the summer would be:

$$\text{Average Season Performance} = \frac{1 \text{ kW} + 2 \text{ kW} + 3 \text{ kW}}{3} = 2 \text{ kW}$$

The total incentive amount to be paid for this fictional customer would be:

$$2 \text{ kW} \cdot \frac{\$225}{\text{kW}} = \$450$$

The average season performance for winter discharge events would be calculated by the same process.

5-Year Incentive Lock

The customers’ incentive rate is locked in for the first 5 consecutive years that the customer is in the program. Even if the incentive rate for new customers changes during the first 5 years of the customer’s participation, the incentive rate for that customer will remain the same. After the 5th year of



participation, the program administrators may still plan to offer an incentive for customers to discharge their battery system at the right dates and times. However, those future incentive rates are not yet set.

Co-Participation in ISO-NE Demand Resource Programs

One of the benefits of the Connected Solutions program is the decrease in the long-term requirement for capacity (generation) in the ISO-NE markets, also known as the installed capacity requirement (ICR). Customers are not allowed to co-participate in Connected Solutions and any ISO-NE program that would cause the customer's curtailment in the Connected Solutions program to be reconstituted in the ICR, because this would negate one of the core goals of Connected Solutions.

Co-Participation in SMART

Customers may co-participate in SMART (Solar Massachusetts Renewable Target) Program and Connected Solutions. SMART provides an energy storage adder of applicable technologies.

The energy storage system adder in the SMART program is dependent on the energy storage system discharging at least 52 complete cycle equivalents per year.

Co-Participation in Net Metering

Customers may co-participate in Net Metering and Connected Solutions. Net Metering provides an incentive for electricity generated from renewable sources, like solar.

Net Metering is capped at certain levels for each utility. However, the cap does not apply for systems smaller than 10kW. Please see section 18.02 of DPU Order 17-10-A under "Cap Exempt Facility". The 10kW cap only applies to the inverter nameplate capacity of the solar system, not the combined solar plus storage system nameplate capacity. So, the combined solar plus storage system inverter nameplate capacity may exceed 10kW, and the facility will still be eligible for net metering credits as long as the solar inverter nameplate capacity does not exceed 10kW.

Exporting Power to the Electrical Grid

Renewable Energy Plus Storage

Customers with interconnected renewable energy systems, such as solar PV and wind turbines, and energy storage systems, like batteries, may participate in Connected Solutions. The SMART Program and the investment tax credit (ITC), also known as the federal solar tax credit, provide added incentives for energy storage systems that are charged by renewable energy systems. Additionally, customers may only export the power from energy storage systems to the electrical grid if the storage systems are charged by applicable renewable energy systems. This allows customers to discharge their batteries during Connected Solutions events even if it causes their batteries to export to the grid.

If the energy storage system is not charged by a renewable energy system, it may not export to the grid. The energy storage system could still be used to participate in Connected Solutions, but the discharge rate of the energy storage system is limited to the instantaneous power consumption of the customer's facility.



Storage Only Systems

Customers who don't have a renewable energy system but do have an energy storage system that charges from the electricity grid may participate in ConnectedSolutions. However, the discharge rate of the energy storage system is limited to the instantaneous power consumption of the customer's facility. The customer may not export power to the electrical grid. If the customer's power draw is higher than the energy storage system maximum discharge rate at the times when demand response events are called, this inability to export to the grid will not affect the customer incentive level.

Reloading Effect – Recharging Energy Storage Systems with Renewable Energy Systems

There are several benefits of charging energy storage systems with renewable energy systems. The SMART Program energy storage system adder requires that energy storage systems be charged by a solar system. The ITC also has requirements around charging from applicable renewable energy systems. Exporting power to the electrical grid is only permitted for battery systems that are charged by electricity from interconnected renewable energy systems. Charging an energy storage system exclusively with a customer's renewable energy system may limit a customer's performance in ConnectedSolutions if the battery storage system is not fully recharged (reloaded) between demand response events.

Energy storage systems that participate in Daily Dispatch have the option of sending state-of-charge information to the customer's program administrator so that the customer's energy storage system can be monitored. If energy storage systems provide state-of-charge information to the customer's program administrator, the customer's program administrator may take the SoC under consideration when deciding to call an event. If the energy storage system is not fully charged, this may impact the customer's average performance. It is the customer's responsibility to size their renewable energy system and renewable energy system so that the energy storage system can be recharged in time to participate in Connected Solutions.

Enrollment Process

To enroll in the program, the customer or their implementer must complete an application form. This form is available on the MassSave website. Alternatively, the customer may complete a ConnectedSolutions application form provided by their battery vendor.

Testing

A performance test event is not planned in this program. However, the Program Administrators may elect to run communication tests to ensure all notification processes are functioning.