

Program Materials for Connected Solutions for Small Scale Batteries

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Summary

ConnectedSolutions incentivizes customers to curtail their energy when demand on the New England electric grid is forecasted to be at its peak, known as Demand Response. Customers are compensated on a pay-for-performance basis for the average kW they curtail during dispatch events over the summer season and/or winter season.

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	No
<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 		

Participation Through an Approved Battery Integrator

To participate in the program, the customer needs to have a battery storage system controlled by an approved inverter manufacturer. The approved inverter manufacturers are Enphase, Generac (formerly Pika Energy), SolarEdge, Outback Connected to Sonnen, and Tesla. The battery integrators 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 (Eversource or National Grid). During a demand response event, the battery will be remotely discharged without the customer's active participation. The discharge will be barely noticeable, if at all, by customers.

Incentive Payment Process

Incentive payments for summer performance will be made in October, November, or December of 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 other party depending on the selection made on the CUSTOMER INCENTIVE PAYMENT OPTIONS section of the customer application. Some installers or other parties may offer their customers an upfront discount on the customer battery system in exchange for the customer selecting that their performance incentives are sent to that party. Such negotiations are between the customer and their installer or other party.



Number of Events

Summer Season

Discharge events in the summer season are called to coincide not only with the ISO-NE (Independent System Operator of New England) peak hour, but also with 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 mitigate 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 mitigate 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 or Eversource 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 or Eversource electric service monthly bill has a line for “Energy Efficiency Prgms”, are eligible for this program. Customers in Unitil service territory are not able to participate currently.¹

To be eligible of this program, the battery storage system must be considered a behind-the-meter (BTM) asset. BTM means a facility that serves an on-site load other than parasitic load or station load utilized to operate the facility.

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’s Program Administrator by 11:59 p.m. on May 31 of that year. Customers can still enroll after May 31 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 a customer to ensure they receive their full incentive for the winter season, the customer’s application must be received by the customer’s 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

¹ Unitil customers should contact their program administrator customer support to learn more.



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 **ConnectedSolutions** program will remain in the program year over year until they provide written notice to their inverter manufacturer 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.

No Transfer of Enrollment

Enrollment in **ConnectedSolutions** 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 **ConnectedSolutions**, they must apply and participate 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 inverter which controls their battery storage 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 inverter manufacturer or installer are responsible for maintaining the customer's battery storage system so that it can respond to dispatch events. The incentives in this program are calculated using the actual performance (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 or be unable to properly report performance, 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 inverter manufacturer or installer should consider the possibility of smaller than anticipated incentive due to poor performance of their battery systems before enrolling in the **ConnectedSolutions** 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 weekends or weekdays. Events will not be called on the following holidays.

Dispatch Season	Holiday	Typical 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 DR Events Before Large 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 demand response 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 across all events 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 minus the baseline as described below.

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 four demand response events over the whole summer. In reality, summer dispatch seasons have many more events.

Event	Performed Curtailment Amount
Event 1	2 kW
Event 2	3 kW
Event 3	3 kW
Event 4	0 kW



The customers average performance over the summer would be:

$$\text{Average Season Performance} = \frac{2kW + 3kW + 3kW + 0kW}{4} = 2.0kW$$

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

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

Baseline:

To calculate a customer’s performance during a demand response event, it is necessary to calculate what a customer’s battery system typically discharges in order to estimate what the discharge would have been if no demand response event was called.

ISO-NE uses a similar last 10-of-10 model in their active demand response programs. This method looks at the customer’s last 10 similar days. Similar days are of the same day type (weekday or weekend) that are not holidays and where no Residential Battery DR event from the program administrators was called.

Example of baseline set by battery system discharges in the 10 similar days before a DR event

Time Interval	10 similar days before event	...	2 similar days before event	holiday	weekend	weekend	Day of another DR event	1 similar day before event	Customer's Baseline
4pm – 7pm	2kW		3kW	Not counted in average				4kW	3kW

There is no baseline adjustment based on event day discharge for the residential battery measure.

Demand Response Performance

Performance is calculated by subtracting the battery system’s baseline from the average discharge from the battery system during the demand response event.

Example of an event day performance:

Time Interval	Event Day Discharge	Customer's Baseline	Event Day Performance
4pm – 7pm	5kW	3kW	Performance = Event Day - Baseline 2kW = 5kW – 3kW



If the battery system discharged less power during the event than the baseline period, the system will be given a 0 kW performance for that event. If a customer opts out of an event or has some communication or other issue that prevents them from discharging during an event, they will be given a 0 kW performance for that event. These will affect the customer's average performance and incentive.

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

5-Year Summer Incentive Lock

The customer's per-kW summer incentive level is set for new installations for the first 5 consecutive years that the customer is in the program. New installations are defined as any installations in which the customer has submitted a completed interconnection application and it was received by the Program Administrator after 7/28/2020. Even if the incentive rate for new customers in the program changes during the first 5 years of the customer's participation, the summer incentive rate for that customer will remain the same. After the 5th year of participation, the customer will receive the incentive rate (if any) offered by the Program Administrator at that point in time.

The customer's per-kW winter incentive level, if any, will be set annually by the Program Administrator.

These terms apply as of the date of these program materials. Terms of previous program materials will apply to customers who enrolled under those previous materials.

Co-Participation in ISO-NE Demand Resource Programs

One of the benefits of the **ConnectedSolutions** 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 **ConnectedSolutions** and any ISO-NE program that would cause the customer's curtailment in the **ConnectedSolutions** program to be reconstituted in the ICR, because this would negate one of the core goals of **ConnectedSolutions**.

Co-Participation in SMART

Customers may co-participate in SMART (Solar Massachusetts Renewable Target) Program and **ConnectedSolutions**. 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 or participating in a demand response program. **ConnectedSolutions** is an approved demand response program for purposes of this SMART requirement, and therefore, **ConnectedSolutions** customers do not need to fulfill the 52 complete cycle equivalent discharges per year. The Program Administrators are not responsible for payments or changes in eligibility associated with the SMART program. For more information, please see Section 5 of 225 CMR 20.00: SOLAR MASSACHUSETTS RENEWABLE TARGET (SMART) PROGRAM. By enrolling in Connected Solutions, the customer and their vendor agrees to allow the customer's PA to share



Connected Solutions enrollment with the Department of Environmental Resources (DOER) for the purpose of certifying the fulfillment of the SMART operational requirements.

Co-Participation in Net Metering

Customers may co-participate in Net Metering and **ConnectedSolutions**. Net Metering provides an incentive for electricity generated from renewable sources, like solar PV and wind turbines.

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.

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 **ConnectedSolutions**. The SMART Program and the investment tax credit (ITC), also known as the federal solar tax credit, may 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 **ConnectedSolutions** events even if it causes their batteries to export to the grid. The battery system’s performance is bounded by what is established in their approved interconnection agreement.

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**. If the customer will be discharging electricity to the grid, they must go through the normal interconnection process. The battery system’s performance is bounded by what is established in their approved interconnection agreement.

Enrollment Process

To enroll in the program, the customer must complete a **ConnectedSolutions** application. This form is available on the Mass Save website. The customer’s battery manufacturer is responsible for submitting the customer’s application to the customer’s Program Administrator and registering the inverter into the battery control platform, if any.

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.



Terms and Conditions

These program materials and participation in **Connected**Solutions are pursuant to and subject to the Terms and Conditions in effect for customer applications at the time that the application is approved by the Program Administrator. See the **Connected**Solutions application for more details.