



March 9, 2023

Consumer Affairs Office  
Minnesota Public Utilities Commission  
121 7th Place East, Suite 350  
St. Paul, MN 55101

**Re: Docket No. E999/CI-22-600, I/M/O a Commission Investigation into the Potential Role of Third-Party Aggregation of Retail Customers, Comments of Sunrun Inc.**

Sunrun Inc. (“Sunrun”) respectfully submits the following comments regarding the above referenced matter pursuant to the Notice for Public Comment (“Notice”) issued December 9, 2022 by the Minnesota Public Utilities Commission (“Commission”). Sunrun is the nation’s leading provider of residential solar, battery storage and energy services, serving over 760,000 customers in 19 states plus Puerto Rico and Washington DC. Sunrun has a networked solar capacity of 5.4 GW, with over 47,000 solar and battery systems installed nationwide. Sunrun customers are providing grid resilience and support in twelve aggregated home battery programs across California, Hawaii, New York, Massachusetts, and other states in the Northeast,<sup>1</sup> including successfully launching the first residential virtual power plant in a wholesale market.<sup>2</sup> Sunrun supports policies that promote consumer choice and expand customer access to distributed energy resources (“DERs”) through efficient, innovative market solutions. We urge the Commission to adopt policy frameworks to ensure third-party aggregators of retail customer DERs are permitted to participate in organized wholesale markets *and* retail market programs.

**1. Should the Commission permit aggregators of retail customers to bid demand response into organized markets?**

Yes. Demand response helps lower electricity rates, reduce reliance on fossil fuels, improve reliability and resiliency, and provide other grid and ratepayer benefits. Allowing third-party aggregators of retail customers to bid demand response into the organized markets unlocks additional value for retail customers and increases the resource base available to provide ratepayer savings.

Sunrun urges the Commission to refrain from adopting rules that would restrict third-party aggregator participation in wholesale market demand response programs. Moreover, in addition to ensuring wholesale market participation pathways remain available for demand response programs, there are no current pathways currently DERs to aggregate and provide export

---

<sup>1</sup> Sunrun, Press Releases, *Sunrun Stands Ready to Support the Nation’s Stressed Energy Grid*, <https://investors.sunrun.com/news-events/press-releases/detail/262/sunrun-stands-ready-to-support-the-nations-stressed>.  
<sup>2</sup> Sunrun, Press Releases, *Sunrun Activates Nation’s First Residential Virtual Power Plant in Wholesale Market*, <https://investors.sunrun.com/news-events/press-releases/detail/273/sunrun-activates-nations-first-residential-virtual-power>.

capacity services in the wholesale market. We strongly urge the Commission to also require utilities to implement retail market load management programs for third-party aggregators of customer-sited/behind-the-meter DERs (i.e., solar and battery storage). We discuss retail market programs opportunities in greater detail in response to Question 2 below, but provide additional comments here on the value that third-party aggregators provide in both wholesale and retail market programs, as well as the importance of expanding load management programs to leverage the ability of DERs to provide both traditional demand response (i.e., reducing the customer's load), as well as providing energy to the grid (i.e., reducing demand for grid delivered energy).

Third-party aggregators are non-utility entities that manage the enrollment, operation, customer value proposition and other aspects of program participation for a portfolio of participating customer and third-party owned DERs, including demand response resources. Aggregators may be the battery manufacturer or third-party owner of the battery, an inverter manufacturer, or other third-party entity. The ability to aggregate customer DERs leverages the collective capacity of the aggregator's fleet of resources as a "virtual power plant" ("VPP") capable of responding reliably in a coordinated fashion to meet a particular grid need or needs. The aggregator model allows the aggregator to diversify the performance risk across its fleet of participating resources and provides a simple participation pathway for small customers who otherwise would not be able to participate on their own.

Permitting third-party aggregator participation leverages core competencies of non-utility entities and reduces administrative burdens for the utility and grid operator. Instead of interfacing with thousands of individual customers, the grid operator can interface with a small number of aggregators, who in turn manage the communication, telemetry, asset operation, customer value proposition, and other program participation elements for the customer. This fosters competition and business model innovation and importantly reduces costs for ratepayers.

Traditional demand response programs compensate customers for reducing the customer's load. DERs - particularly battery storage - can provide even greater capacity value by reducing customer load and providing energy back to the grid, further reducing demand for grid supplied energy. DERs have multiple use capabilities that allow them to provide other grid services, such as capacity and ancillary grid services, when the appropriate market structures are available. Currently, most focus on DERs have centered around retail net-energy metering constructs. While these programs provide the essential foundation for customer adoption of solar and battery storage solutions, the ability to participate in other programs - e.g., wholesale market programs created by ISOs/RTOs and retail market programs created by state commissions - unlocks additional value for the customer and creates critical pathways to leverage DERs to their full potential to provide ratepayers savings and meet critical clean energy goals.

With respect to wholesale market participation opportunities, third-party aggregators are successfully operating retail customer-sited DERs as capacity resources in other organized markets. For example, during the 2022 summer peak season, thousands of Sunrun’s retail solar+battery storage systems managed collectively as a VPP aggregation provided over 1.8 GWh of energy to the ISO-NE grid.

These VPP resources helped reduce overall energy demand and energy costs across the region, improved resilience and relieved stress on the region’s energy grid, and reduced reliance on fossil fuels and associated emissions.<sup>3</sup> However, because the Midcontinent System Operator (“MISO”) does not allow for aggregated DERs to compete in a similar way, we urge the Commission to consider retail market solutions and DER program creation to reduce supply capacity constraints, increase reliability and resilience, and lower costs for ratepayers. We discuss retail market opportunities to leverage the capacity and other benefits of customer-sited DERs through demand response and other retail programs in response to Question 2 below.

## **2. Should the Commission require rate-regulated electric utilities to create tariffs allowing third-party aggregators to participate in utility demand response programs?**

Yes. Sunrun recommends the Commission adopt tariff-based frameworks for customer-sited DERs to participate in retail market load management programs through third-party aggregators. Commissions across the country are adopting bring-your-own-device and similar aggregated DER program frameworks to provide these types of grid services. These programs are customer-friendly, administratively simple frameworks that the Commission can adopt and require utilities to implement in the near term.

Moreover, while utility load management programs have traditionally defined demand response as limited to reducing customer consumption, customer-sited solar and battery storage systems allow the customer to reduce consumption *and* provide energy back to the grid to further reduce demand for grid delivered energy. Sunrun urges the Commission to adopt customer programs to leverage load reduction *and* energy export capabilities of battery storage.

Attachment A to these comments provides a list of over 20 programs adopted in 11 states. These programs unlock additional value for the participating customer, reduce cost for ratepayers, and provide other benefits, such as emissions reduction, reduced reliance on fossil fuels, and improved reliability and resilience. These types of programs are increasingly being adopted by commissions across the country and offer a model framework for adoption in Minnesota.

---

<sup>3</sup> See Fischer, Anne, *Sunrun completes successful residential virtual power plant in New England*, PV Magazine (Oct. 12, 2022) available at <https://pv-magazine-usa.com/2022/10/12/sunrun-completes-successful-residential-virtual-power-plant-in-new-england/>.

For example, the Hawaiian Electric Companies' Battery Bonus Program provides an upfront payment plus ongoing monthly payments to participating customers to operate their battery storage systems to reduce demand during the evening peak period. Participating customers discharge their batteries to (a) offset their own consumption, and (b) export any additional capacity to support the grid.<sup>4</sup> The Massachusetts ConnectedSolutions program operates similarly to take advantage of the battery storage system's ability to both reduce customer load and provide additional energy to the grid, thus maximizing the DER system's full capacity value at the time of greatest grid need.<sup>5</sup>

Core program design elements that we urge the Commission to incorporate in an aggregated DER retail load management program include:

- Eligibility requirements (e.g., approved customer or third-party owned devices)
- Program duration (e.g., 5 years, 10 years)
- Payment structure (e.g., upfront payment, monthly payment, hybrid)
- Performance payment (e.g., \$/kW of committed capacity on pay-for-performance basis)
- Maximum number of events (e.g., per month, season, or year)
- Event duration (e.g., 2 hours)
- Time period during which events may occur (e.g., 3:00 p.m. - 7:00 p.m.)
- Notification of event (e.g., 24 hours prior to event)
- Participation requirements and options (e.g., participate through a third-party aggregator)

In addition, we emphasize the importance of ensuring that program rules do not preclude a resource participating in one grid service program from participating in another program, so long as the DER is capable of providing distinct service value in each program.

For example, the Massachusetts ConnectedSolutions program permits customers to participate in multiple grid service programs and "stack" the value derived from each. In other words, as long as the DER is capable of providing a unique service and value under different programs, the customer may enroll, participate, and receive compensation for participating in each program.<sup>6</sup> A concrete example of this in practice, customers who participate in ConnectedSolutions (a retail market program), may also participate in the ISO-NE forward capacity market (a wholesale market program). The ConnectedSolutions program sets forth specific rules for co-participation to ensure that participating resources are not being compensated twice for the same service through separate programs.<sup>7</sup> Stacking values not only maximizes the resources on the grid today, but also reduces the cost of devices like batteries to ensure increased equitable access within

---

<sup>4</sup> See Hawaiian Electric, Customer Renewable Program, Battery Bonus <https://www.hawaiianelectric.com/products-and-services/customer-renewable-programs/rooftop-solar/battery-bonus>.

<sup>5</sup> MassSaves, Program Materials for ConnectedSolutions for Small Scale Batteries *available at* <https://www.masssave.com/-/media/Files/PDFs/Save/Residential/connectedsolution-batteries/MA-Resi-Battery-Program-Materials-August-2021.pdf>.

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

communities and families impacted most by outages and grid reliability costs. For example, research determined that communities in Minneapolis - Northside and Southside Green Zones – which areas with low-wealth individuals and communities of color have a higher incidence of long-duration outages than other Xcel customers in Hennepin County (between 59% and 85% increased incidence) and in Xcel’s overall service territory (between 32% and 35% increased incidence).<sup>8</sup> The Commission may consider similar participation parameters to maximize the ratepayer savings from customers participating in multiple DER programs, while establishing guardrails to ensure against double compensation for the same service.

### **3. Should the Commission verify or certify aggregators of retail customers for demand response or distributed energy resources before they are permitted to operate, and if so, how?**

The Commission may find it reasonable to develop a third-party aggregator verification process to verify the technical and other capabilities necessary to perform aggregator functions. Aggregator verification requirements should be developed by the Commission and reflect the technical capabilities needed to provide the grid services the aggregator will provide pursuant to the retail or wholesale program (e.g., dispatch customer-batteries for peak load reduction service). In developing technical requirements for aggregators, the Commission may consider requirements for aggregators to demonstrate the ability to:

- Receive advance notification of grid event through the program approved communication protocols, such as OpenADR, IEEE 2030.5, API, or email.
- Dispatch enrolled customer DERs within prescribed event time periods.
- Electronically submit customer enrollment information to utility.
- Electronically transmit DER performance data to utility for performance verification and payment settlement.

The role of utilities in this process should be limited to verifying and onboarding the aggregator in accordance with the Commission adopted rules. Correspondingly, utilities should be required to have the capabilities and processes in place to enable efficient onboarding and utilization of aggregator services. Moreover, as described in response to Question 1 above, the third-party aggregator model fosters competition and business model innovation and reduces costs for ratepayers. This principle applies for aggregators participating in retail markets as well as wholesale markets. Accordingly, the Commission should ensure that the utility does not act as a “gatekeeper” whereby it is in a position to stymie competition by preventing otherwise eligible third-party aggregators from participating in these programs.

---

<sup>8</sup> Minnesota Public Utilities Commission Docket No. E002/GR-21-630; Exhibit JSC-6 at 21

#### **4. Are any additional consumer protections necessary if aggregators of retail customers are permitted to operate?**

The Commission may find it reasonable to develop disclosure requirements for aggregators participating in utility offered retail programs. While aggregator customer agreements will likely already include much of this information, Sunrun supports the adoption of simple, standardized forms to provide customers pertinent information about key terms of their aggregator agreement and participation in an easily readable and simple format. Additionally, some states like Illinois<sup>9</sup> and New York<sup>10</sup> require customer disclosure forms for all distributed generation providers, and the Commission could adapt these types of requirements for distributed generation providers as well as for third-party aggregators in Minnesota.

We also urge the Commission to clarify that third-party financed or third-party owned systems (i.e., where a third-party developer owns the solar and battery storage equipment and leases it to the customer behind-the-meter for a period of time) may participate in net metering and grid service programs (such as retail aggregated DER programs and wholesale demand response). Clarifying that customers may participate through third-party owned systems promotes customer choice, expands access to customers without the financial means to purchase and own a system themselves, and ensures production and performance of DERs. This is critical to facilitate the deployment and operation of DERs in aggregated DER programs, VPP programs, or similar programs through third-party aggregators.

Respectfully submitted,

Amy Heart

Amy Heart

Vice President, Public Policy

Sunrun Inc.

225 Bush St., Suite #1400

San Francisco, CA 94104

Email: amy.heart@sunrun.com

---

<sup>9</sup> Disclosure forms required to be an Illinois Approved Vendor, and required for system purchase, lease or PPA, as well as community solar subscribers. Forms can be found at: <https://illinoisabp.com/program-resources/#tab-91071>.

<sup>10</sup> Disclosure forms required to be a Distributed Energy Resource provider in New York include registration and Standard Customer Disclosure Statement forms. Forms can be found at: [https://www3.dps.ny.gov/W/PSCWeb.nsf/ca7cd46b41e6d01f0525685800545955/eab5a735e908b9fe8525822f0050a299/\\$FILE/New%20York%20Generation%20System%20Disclosure%20Form%2012.29.2020.docx](https://www3.dps.ny.gov/W/PSCWeb.nsf/ca7cd46b41e6d01f0525685800545955/eab5a735e908b9fe8525822f0050a299/$FILE/New%20York%20Generation%20System%20Disclosure%20Form%2012.29.2020.docx).

**ATTACHMENT A**  
**Aggregated Distributed Energy Resources, Virtual Power Plants, and Bring-Your-Own-Device Programs as of January 2023**

State	Utility	Program	Compensation	Call Window
Arizona <sup>11</sup>	Arizona Public Service (APS)	Residential Energy Storage Pilot	This pilot provided a \$500/kW upfront performance payment with total available payment of \$2,500-\$3,750 per home (lower payment for providing data only, higher for providing data and allowing APS to manage battery). 10-year program commitment. *Pilot program filled and closed as of January 2023.	1-4 hours; 6-9 PM (non-holiday weekdays) or 9AM – 9PM (weekends/holidays)
California <sup>12</sup>	Pacific Gas & Electric, Southern CA Edison, San Diego Gas & Electric	Distribution Investment and Deferral Framework Partnership Pilot	Tiered payment structure based on value of distribution infrastructure avoided or deferred by use of DERs.	TBD
California <sup>13</sup>	Pacific Gas & Electric, Southern CA Edison, San Diego Gas & Electric	Demand Response Auction Mechanism	Pay-as-bid solicitation issued by each IOU for monthly DR capacity. Winning bidders required to bid aggregated DR directly into the CAISO market. IOUs acquire capacity & receive resource adequacy credit, but have no claim to the revenues that bidders may receive from the energy market.	

<sup>11</sup> Arizona Public Service Commission, Docket No. E-01345A-19-0148, Decision No. 77762, p. 7 (Oct. 2, 2020). *See also* <https://www.solareedge.com/us/aps-residential-program>.

<sup>12</sup> Pacific Gas & Electric, Distribution Investment and Deferral Framework Partnership Pilot, *available at* [https://www.pge.com/en\\_US/for-our-business-partners/energy-supply/electric-rfo/wholesale-electric-power-procurement/didf-partnership-pilot.page](https://www.pge.com/en_US/for-our-business-partners/energy-supply/electric-rfo/wholesale-electric-power-procurement/didf-partnership-pilot.page); *see also* California Public Utilities Commission, Decision 21-02-006 (Feb. 11, 2021) *available at* [https://www.pge.com/pge\\_global/common/pdfs/for-our-business-partners/energy-supply/electric-rfo/wholesale-electric-power-procurement/DIDF%20Partnership%20Pilot/365628213.PDF](https://www.pge.com/pge_global/common/pdfs/for-our-business-partners/energy-supply/electric-rfo/wholesale-electric-power-procurement/DIDF%20Partnership%20Pilot/365628213.PDF).

<sup>13</sup> California Public Utilities Commission, Decision 19-12-040 (Dec. 23, 2019), *available at* <https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M322/K796/322796293.PDF>. *See also*, Pacific Gas & Electric, 2022 Demand Response Auction Mechanism (DRAM), *available at* [https://www.pge.com/en\\_US/large-business/save-energy-and-money/energy-management-programs/demand-response-programs/2022-demand-response/2022-demand-response-auction-mechanism.page?WT.mc\\_id=Vanity\\_dram](https://www.pge.com/en_US/large-business/save-energy-and-money/energy-management-programs/demand-response-programs/2022-demand-response/2022-demand-response-auction-mechanism.page?WT.mc_id=Vanity_dram).

State	Utility	Program	Compensation	Call Window
California <sup>14</sup>	Pacific Gas & Electric, Southern CA Edison, San Diego Gas & Electric	Emergency Load Reduction Program	\$2/kWh for every kWh of electricity consumption the customer reduces voluntarily during an ELRP event.	1-5 hours between 4-9PM; May to October. Up to 60 hours per year.
California <sup>15</sup>	Pacific Gas & Electric, Southern CA Edison, San Diego Gas & Electric	Demand Side Grid Support Program	<p>Option 1 - Energy Payment Only \$2/kWh of verified incremental load reduction provided during a dispatch period.</p> <p>Option 2 - Standby &amp; Energy Payment: \$2/kWh of verified incremental load reduction provided during a dispatch period + \$0.25/kWh standby payment for each hour or portion where the committed load reduction during standby period is not dispatched.</p> <p>Option 3 - Capacity Payment &amp; Bid: Monthly capacity payments up to \$76.50/kW-year: \$10.50/kW (June), \$17.50/kW (July), \$18.50/kW (August), \$19.50/kW (Sept.), \$10.50/kW (Oct). Resources must be registered as proxy DR and bid into CAISO day-ahead market in 4 consecutive hours (4-9 PM) at rate no greater than \$0.50/kWh during each participating month until dispatched the maximum 20 hours/month or 60 hours/year.</p>	<p>4-9 PM (7 days a week), June - October</p> <p>Options 1 &amp; 2- Dispatch events 1-5 hours.</p> <p>Option 3 - Dispatch events maximum of 4 hours.</p>

<sup>14</sup> California Public Utilities Commission, Emergency Load Reduction Program, available at <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/demand-response-dr/emergency-load-reduction-program>.

<sup>15</sup> California Energy Commission, Demand Side Grid Support (DSGS) Program Guidelines - First Edition (Aug. 2022), available at <https://www.energy.ca.gov/publications/2022/demand-side-grid-support-dsgs-program-first-edition>.



State	Utility	Program	Compensation	Call Window
California <sup>16</sup>	SMUD	My Energy Optimizer Program	<u>Partner Level</u> \$150/kWh up to \$1,500  <u>Partner+ Level</u>	<u>Partner Level</u> Summer months only; peak period window & duration undefined  <u>Partner+ Level</u> Year-round, peak period window & duration undefined
Colorado <sup>17</sup>	Xcel	Battery Connect	\$1,250 upfront payment in exchange for discharge of up to 80% of battery energy up to 100 times per year. *In 2023, terms are being updated to include increased upfront payment and lower battery commitment. (See 21A-0625EG)	Year-round, 1-4 hours; no specific window but generally afternoon and early evening.
Connecticut <sup>18</sup>	Eversource	Connected Solutions – Targeted Seasonal	\$225/kW-summer (avg. per peak event), locked in for five years.	3 hours, between 2-7 PM, June 1 – Sept. 30, between 30-60 events per season
Connecticut <sup>19</sup>	Eversource UI	Energy Storage Solutions (ESS) Program for Homes	<u>Enrollment Payment:</u> \$200/kWh (Standard), \$300/kWh (Underserved), \$400/kWh (Low-Income) for 10-year commitment.  <u>Performance Payment:</u> \$200/kW (summer), \$25/kW (winter), based on average kW-AC contribution during the season, determined by actual system performance during called events.	<u>Passive Dispatch:</u> 5 hours (3-8 PM), weekdays June-Aug. Passive events canceled when an active event is called.  <u>Active Dispatch:</u> 1-3 hours (12-9 PM), June 1 - Sept. 30, 30-60 events per summer season.

<sup>16</sup> SMUD, Battery Storage for Homeowners, available at <https://www.smud.org/en/Going-Green/Battery-storage/Homeowner>.

<sup>17</sup> Xcel Energy Colorado. Battery Connect, available at <https://co.my.xcelenergy.com/s/renewable/battery-connect>.

<sup>18</sup> Eversource Connecticut. Application for Connected Solutions: Small Scale Batteries, available at <https://www.eversource.com/content/ct-c/residential/save-money-energy/manage-energy-costs-usage/demand-response/battery-storage-demand-response>.

<sup>19</sup> Energy Storage Solutions - Contractor Resources, Program Manual (Jan. 1, 2023), available at: <https://energystoragect.com/contractor-resources/>.

State	Utility	Program	Compensation	Call Window
				1-3 hours (12-9 PM), Nov. 1 - March 31, 1-5 events per winter season.
Connecticut <sup>20</sup>	Eversource UI	Energy Storage Solutions (ESS) Program for Businesses	<p><u>Enrollment Payment:</u> \$200/kWh (Small Commercial), \$175/kWh (Medium Commercial), \$100/kWh (Large Commercial) for 10-year commitment.</p> <p><u>Performance Payment:</u> \$200/kW (summer), \$25/kW (winter), based on average kW-AC contribution during the season, determined by actual system performance during called events.</p>	<p><u>Passive Dispatch:</u> 5 hours (3-8 PM), weekdays June-Aug. Passive events are canceled on days active event is called.</p> <p><u>Active Dispatch:</u> 1-3 hours between 12-9 PM, June 1 - Sept. 30, 30-60 events per summer season.</p> <p>1-3 hours between 12-9 PM, Nov. 1 - March 31, 1-5 events per winter season.</p>
Hawaii <sup>21</sup>	Hawaiian Electric Companies	Scheduled Dispatch Program / Battery Bonus Program	50 MW cap on Oahu. Upfront payment of \$850/kW for first 15 MW, \$750/kW for next 15 MW, and \$500/kW for last 20 MW. 15 MW cap on Maui with upfront payment \$850/kW for the entire 15 MW cap. Monthly credit of \$5/kW. Non-NEM customers receive fixed bill credit equivalent to retail rate for electricity exported during dispatch period.	Daily 2-hour dispatch as determined by utility between peak window of 6:00 -8:30 PM

<sup>20</sup> Energy Storage Solutions - Contractor Resources, Program Manual (Jan. 1, 2023), available at: <https://energystoragect.com/contractor-resources/>.

<sup>21</sup> Hawaiian Electric Company, Customer Renewable Programs – Battery Bonus, available at <https://www.hawaiianelectric.com/products-and-services/customer-renewable-programs/rooftop-solar/battery-bonus>.

State	Utility	Program	Compensation	Call Window
Hawaii <sup>22</sup>	Hawaiian Electric Companies	Bring Your Own Device	<p>BYOD Level 1: Scheduled Capacity Load Reduction Service; BYOD Level 2: Remote Dispatch Capacity Load Reduction Service; and BYOD Level 3: (a) Remote Dispatch Capacity Load Reduction Service and (b) Capacity Load Build Service. Program commitment of 10 years.</p> <p>*Compensation for each level consisting of an upfront payment and monthly payment is currently under development along with final program participation parameters. Program launch: August 14, 2023.</p>	<p>Level 1: Daily 2-hour dispatch in window selected by customer from utility options. Level 2: 1-2 hour dispatch; minimum 24-hour day-ahead notice; up to 156 events/year. May opt out of up to 3 events. Level 3: 2-4 hour dispatch with minimum 24-hour day-ahead notice for up to 365 events per year.</p>
Massachusetts <sup>23</sup>	National Grid, Cape Light Compact	Connected Solutions – Residential	\$275/kW-summer, locked in for five years.	3 hours, between 2-7 PM, June 1 – Sept. 30, between 30-60 events per season
Massachusetts <sup>24</sup>	Eversource	Connected Solutions – Residential	\$225/kW-summer, locked in for five years.	3 hours, between 2-7 PM, June 1 – Sept. 30, between 30-60 events per season

<sup>22</sup> Docket No. 2019-0323, Decision and Order No. 38681 (Oct. 30, 2022), Order No. 38787 (Dec. 22, 2022).

<sup>23</sup> National Grid Massachusetts. Program Materials for Connected Solutions for Small Scale Batteries, *available at* [https://www.nationalgridus.com/media/pdfs/resi-ways-to-save/ma\\_resi\\_battery\\_program\\_materials.pdf](https://www.nationalgridus.com/media/pdfs/resi-ways-to-save/ma_resi_battery_program_materials.pdf).

<sup>24</sup> Eversource Massachusetts East. Application for ConnectedSolutions: Small Scale Batteries, *available at* <https://www.eversource.com/content/ema-c/residential/save-money-energy/energy-efficiency-programs/demand-response/battery-storage-demand-response>.

State	Utility	Program	Compensation	Call Window
Massachusetts <sup>25,26</sup>	Eversource, Cape Light Compact	Connected Solutions – Daily Dispatch (Commercial)	\$200/kW for dispatch on a daily basis (summer only), locked in for five years.	2-3 hours, between 2-7 PM, June 1 – Sept. 30, between 30-60 events per season
Massachusetts <sup>27</sup>	Eversource, Cape Light Compact	Connected Solutions – Targeted Dispatch (Commercial)	\$100/kW-summer	3 hours, between 2-7 PM, June 1 – Sept. 30, up to 8 events
Massachusetts <sup>28</sup>	Unitil, National Grid	Connected Solutions – Targeted Dispatch (Commercial)	\$35/kW-summer; \$10/kW weekend bonus.	3 hours, between 2-7 PM, June 1 – Sept. 30, between 1-8 events per season
New Hampshire <sup>29</sup>	Unitil	Connected Solutions – Targeted Dispatch Pilot (Commercial)	\$35/kW-summer	3 hours, between 2-7 PM, June 1 – Sept. 30
New Hampshire <sup>30</sup>	Eversource	Connected Solutions – Daily Dispatch (Commercial)	\$200/kW for dispatch on a daily basis (summer only), locked in for five years.	2-3 hours, between 2-7 PM (non-holiday weekdays), June 1 – Sept. 30, up to 60 events per season

<sup>25</sup> Eversource Massachusetts East Program Materials for Connected Solutions for Commercial / Industrial Customers, *available at* <https://www.eversource.com/content/ema-c/business/save-money-energy/manage-energy-costs-usage/demand-response>; Cape Light Compact, Program Materials for Connected Solutions for Commercial / Industrial Customers, *available at* <https://www.capelightcompact.org/business/commercial-connectedsolutions/>.

<sup>26</sup> Unitil, Program Materials for Connected Solutions for Commercial / Industrial Customers, *available at* <https://unitil.com/sites/default/files/2022-05/CI-DemandResponse-ProgramMaterials-Unitil-FINAL-04-04-2022.pdf>; National Grid, Program Materials for Connected Solutions for Commercial / Industrial Customers, *available at* <https://www.nationalgridus.com/MA-Business/Energy-Saving-Programs/ConnectedSolutions>.

<sup>27</sup> Eversource Massachusetts East Program Materials for Connected Solutions for Commercial / Industrial Customers, *available at* <https://www.eversource.com/content/ema-c/business/save-money-energy/manage-energy-costs-usage/demand-response>; Cape Light Compact, Program Materials for Connected Solutions for Commercial / Industrial Customers, *available at* <https://www.capelightcompact.org/business/commercial-connectedsolutions/>.

<sup>28</sup> *Id.*

<sup>29</sup> Unitil, Program Materials for Connected Solutions for Commercial / Industrial Customers, Appendix A, *available at* [https://unitil.com/sites/default/files/2022-04/CI-DemandResponse-ProgramMaterials-Unitil-FINAL-04-04-2022\\_0.pdf](https://unitil.com/sites/default/files/2022-04/CI-DemandResponse-ProgramMaterials-Unitil-FINAL-04-04-2022_0.pdf).

<sup>30</sup> Eversource New Hampshire Program Materials for Connected Solutions for Commercial / Industrial Customers, *available at* <https://www.eversource.com/content/ema-c/business/save-money-energy/manage-energy-costs-usage/demand-response>.

State	Utility	Program	Compensation	Call Window
New Hampshire <sup>31</sup>	Eversource	Connected Solutions – Targeted Dispatch (Commercial)	\$100/kW-summer	3 hours, between 2-7 PM (non-holiday weekdays), June 1 – Sept. 30, up to 8 events per season
New York <sup>32</sup>	Consolidated Edison NY	Commercial Demand Response Programs	\$/kW-month capacity reservation payment (May – September) differentiated by location & number of event calls per peak season. Rates may change annually. Minor \$/kWh payment during events.	4+ hours, May 1 – Sept. 30
New York <sup>33,34</sup>	PSEG LI	Dynamic Load Management Tariff: Commercial System Relief Program (CSRP) and Distribution Load Relief Program (DLRP)	\$/kW per monthly capacity reservation payment and \$/kWh performance payment for load relief. <sup>35,36</sup>	Up to 4 hours on weekdays, May 1 - Sept. 30 (CSRP)  4-6 hours, May 1 - Sept. 30. Load relief is not required between 12-6 AM. (DLRP)
Rhode Island <sup>37</sup>	Rhode Island Energy	Connected Solutions – Residential	\$400/kW-summer season (avg. per peak event), locked in for five years.	3 hours, between 2-7 PM, June 1 – Sept. 30, no more than 60 events per season

<sup>31</sup> Eversource New Hampshire East Program Materials for Connected Solutions for Commercial / Industrial Customers.

<sup>32</sup> Consolidated Edison New York. Schedule for Electric Delivery Service, Rider T, *available at* <https://cdnc-dcxprod2-sitecore.azureedge.net/-/media/files/coned/documents/save-energy-money/rebates-incentives-tax-credits/smart-usage-rewards/rider-t.pdf?rev=18549e020a5541409438bcee9f77b186> and Demand Response (Rider T) Program Guidelines, *available at* <https://www.coned.com/-/media/files/coned/documents/save-energy-money/rebates-incentives-tax-credits/smart-usage-rewards/smart-usage-program-guidelines.pdf?la=en#:~:text=The%20Commercial%20System%20Relief%20Program,their%20respective%20assigned%20call%20window.&text=CSRP%20Unplanned%20Event%2C%20and%20participation%20is%20voluntary.>

<sup>33</sup> PSEG LI, Commercial System Relief Program, <https://www.psegliny.com/businessandcontractorservices/businessandcommercialsavings/csrp>.

<sup>34</sup> Long Island Power Authority, Electric Tariff, pp. 470-496, *available at*: <https://www.lipower.org/about-us/tariff/>.

<sup>35</sup> Commercial System Relief Payment amounts are available at: [https://www.lipower.org/wp-content/uploads/2016/09/Stat\\_CSRP3.pdf](https://www.lipower.org/wp-content/uploads/2016/09/Stat_CSRP3.pdf).

<sup>36</sup> Distribution Load Reduction Payment amounts are available at: [https://www.lipower.org/wp-content/uploads/2016/09/Stat\\_DLRP3.pdf](https://www.lipower.org/wp-content/uploads/2016/09/Stat_DLRP3.pdf).

<sup>37</sup> Rhode Island Energy, Residential Connected Solutions Battery Program, *available at* <https://www.rienergy.com/RI-Home/ConnectedSolutions/BatteryProgram>.

State	Utility	Program	Compensation	Call Window
Rhode Island <sup>38</sup>	Rhode Island Energy	Connected Solutions – Targeted Dispatch (Commercial)	\$35/kW-summer season (avg. per peak event), locked in for five years. Extra \$10/kW-summer for weekend events.	3 hours, 2-7 PM, from June 1 – Sept. 30, 2-8 events per season
Rhode Island <sup>39</sup>	Rhode Island Energy	Connected Solutions – Daily Dispatch	\$300/kW-summer season (avg. per peak event), locked in for five years. (Commercial)	2-3 hours June 1 – Sept. 30 (July-Aug), ~ 50 events/season
Texas <sup>40</sup>	ERCOT	Aggregated DER Pilot	80 MW system wide pilot; up 40 MW of ADERs can be used for ancillary, non-spin services. DERs aggregated through Load Serving Entities (LSEs); payment values to customers determined by LSEs.	4 hours as enrolled and called on
Vermont <sup>41</sup>	Green Mountain Power	Bring Your Own Device (Grid Charging)	Upfront payment \$850/kW, 3-hour discharge capability or \$950/kW for 4-hour discharge capability (10% event performance tolerance subject to claw back, \$100/kW adder in grid-constrained locations). 10-year commitment.	3-6 hours
Vermont <sup>42</sup>	Green Mountain Power	Bring Your Own Device (Solar Only Charging)	Up-front payment \$650/kW, 3-hour discharge capability or \$750/kW, 4-hour discharge capability (subject to claw back); \$650 for systems installed under self-consumption, additional \$100/kW in grid-constrained locations. 10-year commitment.	3-6 hours

<sup>38</sup> Rhode Island Energy, Business ConnectedSolutions Battery program, *available at* <https://www.rienergy.com/RI-Business/Energy-Saving-Programs/ConnectedSolutions>.

<sup>39</sup> National Grid, Daily Dispatch, *available at* <https://www.rienergy.com/RI-Business/Energy-Saving-Programs/Daily-Dispatch>.

<sup>40</sup> Aggregated DER ERCOT Pilot Project, Public Utility Commission of Texas, Project 53911, *available at* <https://interchange.puc.texas.gov/search/filings/?UtilityType=A&ControlNumber=53911&ItemMatch=Equal&DocumentType=ALL&SortOrder=Ascending>.

<sup>41</sup> Green Mountain Power, BYOD – Terms and Conditions, *available at* <https://greenmountainpower.com/rebates-programs/home-energy-storage/bring-your-own-device/battery-systems/>, *see also* <https://greenmountainpower.com/wp-content/uploads/2020/11/BYOD-Customer-Agreement-11-2-20.pdf>.

<sup>42</sup> Green Mountain Power, BYOD – Solar Charging Program Tariff, V.P.S.B. No. 9, *available at* <http://epuc.vermont.gov/?q=downloadfile/576554/167385>.