

Appendix C: New Technology Application



## NEW TECHNOLOGY APPLICATION

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Energy Storage Solutions is overseen by the Public Utilities Regulatory Authority (PURA), is paid for by ratepayers, and is administered by the Connecticut Green Bank, Eversource, and United Illuminating (Program Administrators).

**ALL SUBMITTED INFORMATION IS PUBLIC RECORD  
DO NOT SUBMIT ANY PROPRIETARY OR CONFIDENTIAL INFORMATION**

## Section 1 – Introduction

Thank you for your interest in Connecticut Energy Storage Solutions (Program). **The New Technology Application (NTA) is for the qualification of complete Battery Energy Storage Systems (BESS<sup>43</sup>) in the Program.** The resulting approval to the Eligible Equipment List will be for a battery and inverter combination that holds all necessary UL certifications and has a means of communicating with the Distributed Energy Resource Management System (DERMS) associated with the BESS's target customer sector. A complete Glossary of Terms is provided at the end of this document.

Additionally, this application may also be used for **BESS Aggregators** who wish to become Eligible to integrate with the DERMS to enroll existing Eligible Equipment in the Active Dispatch portion of Energy Storage Solutions for qualified customers. See the current Program Manual for more information, available at [energystorageCT.com/contractor-resources](http://energystorageCT.com/contractor-resources).

NTAs submitted for a battery only (with no inverter listed or integrated) or for an inverter only (with no battery listed) will be rejected. The intent of this document is to qualify **complete BESS** for use in Energy Storage Solutions. **Applications are to be submitted on a per-UL 9540 listing basis.** If a BESS holds multiple UL 9540 listings for multiple configurations, you must submit an additional application per UL listing.

Before completing this Application, first confirm if the BESS is already eligible by visiting [energystoragect.com/submitted\\_ess\\_system\\_status\\_list/](http://energystoragect.com/submitted_ess_system_status_list/). If the equipment is not on the Eligible Equipment List or requires revision, follow these steps:

1. **Complete this Application:**
  - Approval will be based on your responses. Make certain to answer ALL required and applicable questions.
2. **Obtain and attach all UL certifications from Nationally Recognized Testing Laboratories (NRTL)<sup>44</sup>, where applicable.** The following UL listings are required for Eligible Equipment status:
  - UL 1973
  - UL 1741 SA (with reference to IEEE 1547-2018 2nd ed.)
  - UL 9540<sup>45</sup>
3. **Obtain and attach all product data specification sheets, where applicable.**
4. **Submit the Application and supporting documents** at [energystoragect.com/new-technologies-request-application/](http://energystoragect.com/new-technologies-request-application/).

**ALL BESS, BESS OPERATORS AND BESS AGGREGATORS MUST BE ABLE TO COMMUNICATE WITH THE APPLICABLE DISTRIBUTED ENERGY RESOURCE MANAGEMENT SYSTEM (DERMS) PLATFORM TO RECEIVE FINAL APPROVAL.**

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<sup>43</sup> See definition in Section 6 – Glossary of Terms

<sup>44</sup> Program Administrators reserve the right to request additional and new certifications as they become available in the markets. All certifications must be current.

<sup>45</sup> Battery Energy Storage Systems which passed all inspection requirements prior to the adoption of the 2021 International Fire Code do not require UL 9540 Certification.

## Section 2 – Applicant (Required)

APPLICANT COMPANY INFORMATION			
Applicant Company Name			
Applicant Contact Name			
Applicant Company Address			
		<i>Street, City, State, Zip</i>	
Contact Phone		Contact Email	
Target Customer Class	<input type="checkbox"/> Residential <input type="checkbox"/> Commercial & Industrial (C&I) <input type="checkbox"/> Both		
What is Applicant Company's role in deploying BESS? (Select all that apply)			
<input type="checkbox"/> BESS Aggregator <input type="checkbox"/> BESS Operator <input type="checkbox"/> BESS OEM <input type="checkbox"/> Inverter OEM <input type="checkbox"/> Battery OEM <input type="checkbox"/> Other (describe)			
Other role:			
Applicant Company Description			

### Section 3 – BESS Equipment (not required for BESS Aggregators)

**Note:** If you are applying for a BESS with multiple size or inverter configurations, all configurations must be included under the same UL 9540 listing. If any configuration is part of another UL 9540 listing, you must submit separate applications for those configurations.

Complete the section below for the **battery** portion of the BESS.

BATTERY INFORMATION			
Battery Manufacturer Company Name			
Contact Name			
Contact Email			
Contact Phone			
Battery Model(s)			
Battery Nameplate Power (kW)			
Battery Nameplate Energy Capacity (kWh)			
Battery Maximum Continuous Discharge Rate (kW)			
Battery Nominal Voltage (VAC)			
Battery Round Trip Efficiency (%)			
Battery Warranty Term (Years)			
Battery model(s) certified to UL 1973?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, expected date:	
Battery model(s) commercially available?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, expected date	
Additional notes (if applicable)			

Complete the section below for the **inverter** portion of the BESS.

INVERTER INFORMATION			
Inverter and Battery are integrated as a single model		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Inverter Manufacturer Company Name			
Contact Name			
Contact Email			
Contact Phone			
Inverter Model(s)			
Inverter Nameplate Power (kW)			
Inverter Phase		<input type="checkbox"/> Single Phase <input type="checkbox"/> Multi Phase	
Inverter Output Voltage (V)			
Inverter Maximum Continuous Current (A)			
Inverter Maximum Continuous Power (VA)			
Inverter Warranty Term (Years)			
Inverter model(s) received UL 1741 SA?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, expected date:	
Inverter model(s) commercially available?	<input type="checkbox"/> Yes <input type="checkbox"/> No	If no, expected date:	
Additional notes (if applicable)			

Complete the section below for the BESS. **The BESS is defined as the combination of the above Battery(s) and Inverter(s).** UL 9540 Certification is required for any BESS being installed after the CT Department of Administrative Services adopted the 2021 International Fire Code.<sup>46</sup>

BESS INFORMATION	
BESS is certified to UL 9540?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If no, please explain reason and estimated timeline for UL 9540 certification:	

## Section 4 – BESS Operator or Aggregator and DERMS Communication (Required)

Provide information about the **BESS Operator or Aggregator** by completing the section below. The BESS Operator is the entity responsible for connecting the BESS equipment to the relevant DERMS provider. The BESS Aggregator is the entity responsible for the coordination of BESS participating in Active dispatch events within the Program, working as an intermediary between the DERMS and the BESS Operator.

The **BESS Operator** is often the inverter manufacturer but can also be a third-party integrator such as a developer or owner-operator.

If the Applicant Company only manufactures batteries and the BESS utilizes an inverter made by a different company, you may need to coordinate with the inverter manufacturer to complete this section.

This section will determine if the BESS:

1. Is capable of transmitting data to its respective DERMS platform,
2. Can meet Passive Dispatch requirements, **and**
3. Meets UL 9540 safety certification requirements.

BESS OPERATOR INFORMATION	
BESS Operator or Aggregator Company Name	
Contact Name	
Contact Email	
Please list all <b>complete</b> DERMS integrations	<b>Communication Protocol</b>
<i>Ex: EnergyHub</i>	<i>Ex: OpenADR</i>

<sup>46</sup> Battery Energy Storage Systems which passed all inspection requirements prior to the adoption of the 2021 International Fire Code do not require UL 9540 Certification.

Does BESS Operator, Aggregator, or other party charge a Vendor Fee <sup>47</sup> ?	<input type="checkbox"/> Yes <input type="checkbox"/> No
If yes, describe fee and structure:	

COMMUNICATION CRITERIA	
1. Can the BESS Operator or Aggregator receive a control signal from a DERMS and pass that control signal to the BESS at the customer site?	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. As part of the control signal, can the BESS Operator or Aggregator communicate customer name, site address, utility account number, battery OEM, device universal unique identifier (UUID), and BESS kW and kWh capacities?	<input type="checkbox"/> Yes <input type="checkbox"/> No
3. As part of the control signal, can the BESS Operator or Aggregator communicate start time, end time, and magnitude of discharge on a per-event basis for each BESS?	<input type="checkbox"/> Yes <input type="checkbox"/> No
4. Does BESS Operator or Aggregator offer an outage protection mode? (i.e., mode that prevents the battery from discharging in anticipation of a severe weather event or outage possibility?)	<input type="checkbox"/> Yes <input type="checkbox"/> No
5. If you answered Yes to 4 above, describe outage protection mode:	

<sup>47</sup> See definition in Section 6 – Glossary of Terms

6. If you answered Yes to 4 above, can the BESS Operator or Aggregator communicate information about individual instances of BESSs entering an outage protection mode to the DERMS? If yes, describe:	
7. Can the system dispatch and cancel/override an event if it receives notification from a DERMS provider?	<input type="checkbox"/> Yes <input type="checkbox"/> No
8. Is the BESS Operator or Aggregator willing to commit to developing and maintaining a communication pathway at their own expense to the DERMS platform through an API integration?	<input type="checkbox"/> Yes <input type="checkbox"/> No
9. Is the BESS Operator or Aggregator capable of integrating using Open ADR Protocol?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
10. <b>If you answered No to 9 above</b> , describe the resources you have available to commit to integration with the applicable DERMS, along with estimated timeline for integration:	



## TELEMETRY REQUIREMENTS

1. Does the BESS Operator or Aggregator maintain cloud storage of telemetry data?

Yes  No

If so, describe:

2. At what interval does the BESS Operator or Aggregator maintain telemetry data? (i.e. 15 minutes, 1 hour, 1 day, etc.). The Program requires a 15-minute interval, at minimum.

3. At what latency does the BESS Operator or Aggregator communicate telemetry data with the DERMS? (i.e. 15 minutes, 1 hour, 1 day, etc.). The Program requires a one-month latency, at most.

Additional notes on telemetry (if applicable):

**Passive Dispatch** is a requirement of the Program for customers receiving upfront incentives. The BESS Operator will be responsible for meeting the Passive Dispatch criteria.

SCHEDULING REQUIREMENTS - PASSIVE DISPATCH	
1. BESS can be pre-programmed by BESS Operator to discharge to 20% rated capacity Monday through Friday (except holidays) during the months of June, July, and August uniformly between the hours of 5PM and 8PM.	<input type="checkbox"/> Yes <input type="checkbox"/> No
If no, describe:	
2. The BESS Operator will ensure BESS discharge is regulated to an even discharge over those 3 passive dispatch hours (Available capacity – 20% of nameplate capacity)/3.	<input type="checkbox"/> Yes <input type="checkbox"/> No
If no, describe:	
3. BESS Operator can override Passive Dispatch events for BESS when Active Dispatch events are requested for those scheduled days <b>or</b> when requested by DERMS due to forecasted severe weather.	<input type="checkbox"/> Yes <input type="checkbox"/> No
If no, describe:	

## Section 5 – Application Submission

### WHAT HAPPENS NEXT?

1. After the Application and supporting documents (UL Certifications and Product Specification Sheets) are submitted, you will receive an email confirmation including an application number (NTA-#####).
2. The Program Administrators will request additional information, if necessary, and/or inform you of the decision, along with comments, to approve or deny the BESS in the Program.
3. Application resubmittal guidelines are stated in the *Program Guidelines for Energy Storage Solutions*.

Contact [energystorage@ctgreenbank.com](mailto:energystorage@ctgreenbank.com) with any questions or concerns.

## Section 6 – Glossary of Terms

TERM	DEFINITION
<b>Active Dispatch</b>	Events where a BESS dispatches energy to reduce demand during summer and winter peak periods as determined by the EDCs based on anticipated grid demand. Active Dispatch events are typically scheduled day-ahead.
<b>Aggregator</b>	Entity responsible for the coordination of the BESS with a BESS Operator to participate in dispatch events within the Program
<b>API</b>	Application Programming Interface, which is a software intermediary that allows two applications to talk to each other
<b>Eligible Equipment List</b>	The Eligible Equipment List includes equipment that has been submitted to be included in the Energy Storage Solutions program. Final approval requires the equipment to be fully of integrated with the respective DERMS platform (residential and/or commercial)
<b>BESS</b>	Battery Energy Storage System: electrical, electrochemical, mechanical and other types of energy storage technologies for systems intended to supply electrical energy. Includes battery and inverter for the purposes of this Program.
<b>BESS Aggregator</b>	Entity responsible for the coordination of BESS participating in dispatch events within the Program, working as an intermediary between the DERMS and the BESS Operator.
<b>BESS Operator</b>	Entity responsible for the coordination of the BESS participating in dispatch events within the Program
<b>DERMS</b>	The “Distributed Resource Energy Management System” is the platform utilized by the Electric Distribution Companies to notify the Battery Operators of scheduled events requiring Battery Energy Storage System actions.
<b>EDCs</b>	Electric Distribution Companies (Eversource Energy and The United Illuminating)
<b>OpenADR</b>	Open Automated Demand Response, provides a non-proprietary, open standardized demand response interface that allows electricity providers to communicate demand response signals directly to existing customers using a common language and existing communications
<b>Passive Dispatch</b>	Events where a BESS dispatches energy to reduce demand during summer peak periods. Passive Dispatch events are pre-scheduled by the Program Administrators and BESS Operators must program this event schedule into the BESS. See energystorageCT.com for complete schedule.
<b>Program</b>	Energy Storage Solutions is a program offered through the Program Administrators
<b>Program Administrators</b>	Collectively the Connecticut Green Bank, Eversource Energy, and The United Illuminating Company

<b>Round Trip Efficiency</b>	Round-trip efficiency is the percentage of electricity that can be put into storage and later retrieved
<b>UL 1741 SA</b>	Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources, Supplement A for United Laboratories 1741 – Details safety requirements applicable to a variety of equipment for use in standalone or interactive power systems
<b>UL 1973</b>	Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications – A certification standard for batteries used for energy storage with a focus on the battery’s ability to withstand simulated abuse.
<b>UL 9540</b>	Standard for Energy Storage Systems and Equipment - As specified in the National Fire Protection Association (NFPA) 855, United Laboratories 9540 certifies the safety requirements for Battery Energy Storage Systems. <b>UL 9540 certification was introduced as part of the 2021 International Fire Code and subsequently adopted by the CT Department of Administrative Services Codes and Standards Committee.</b>
<b>Vendor Fee</b>	Any fee taken by a BESS Operator or Aggregator in exchange for operating a customer’s BESS, either as a flat rate or a percentage of incentives paid.