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July 14, 2023

Melanie A. Bachman, Esq.  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

Re: Petition of Endurant Energy for a Declaratory Ruling, Pursuant to Connecticut General Statutes §4-176 and §16-50k, for the Proposed Construction, Maintenance and Operation of a 4.9-megawatt Battery Energy Storage System to be Located at 508 North Colony Street, Meriden, Connecticut, and Associated Electrical Interconnection

Dear Ms. Bachman:

Pursuant to Connecticut General Statutes Sections 4-176 and 16-50k(a), Endurant Energy hereby submits to the Connecticut Siting Council a Petition for a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is necessary for the construction, operation and maintenance of a 4.9-megawatt ("MW") Battery Energy Storage System including associated equipment and related site improvements located at 508 North Colony Street, Meriden, Connecticut.

Should you have any questions regarding this filing, please do not hesitate to contact me.

Very truly yours,



Bruce L. McDermott

Enclosure

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STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL

Petition of Endurant Energy for a Declaratory Ruling, : Petition No. \_\_\_\_  
Pursuant to Connecticut General Statutes §4-176 and :  
§16-50k, for the Proposed Construction, Maintenance :  
and Operation of a 4.9-megawatt Battery Energy :  
Storage System to be Located at 508 North Colony :  
Street, Meriden, Connecticut, and Associated Electrical :  
Interconnection. : July 14, 2023

Petition for Declaratory Ruling of Endurant Energy

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## I. INTRODUCTION

Pursuant to Section 16-50k and Section 4-176(a) of the Connecticut General Statutes ("CGS") and Section 16-50j-38 et seq. of the Regulations of Connecticut State Agencies ("RCSA"), Endurant Energy ("Endurant") requests that the Connecticut Siting Council ("Council") issue a Declaratory Ruling that a Certificate of Environmental Compatibility and Public Need ("Certificate") is not required for Endurant's proposed location, construction, operation and maintenance of a 4.9-megawatt ("MW") Battery Energy Storage System ("BESS"), a 13.8kV electrical interconnection, and associated equipment (together, the "Project") at 508 North Colony Street in Meriden, Connecticut (the "Property") the "Petition").

As discussed more fully in this Petition, the construction, operation and maintenance of the Project satisfy the statutory elements of CGS § 16-50k and will not have a substantial adverse environmental effect. Accordingly, this Petition should be approved by the Council.

### A. ENDURANT

Endurant designs, finances, builds, constructs, owns, operates, and maintains BESS projects. Endurant is a subsidiary of LS Power, which has developed, constructed, managed and acquired more than 46,000MW of competitive power generation and over 680 miles of transmission infrastructure, for which it has raised \$50 billion in debt and equity financing, including some of the largest BESS projects in the United States.

Endurant has developed distributed energy and battery storage systems for nearly twenty years, including the first MW-scale, distribution-connected BESS projects in the nation's most dense and technically complex distribution system, New York City. Endurant did so in collaboration with the State of New York and Consolidated Edison (ConEdison) under a pilot program, the REV Demonstration Projects, which is similar to the Connecticut Energy Storage Solutions Program (ESSP). These first-of-their-kind projects resulted in several industry-setting milestones, including the first projects to secure "Letters of No Objection" from the New York City Fire Department, permits and allowances from the NYC Department of Buildings, and interconnection approval from ConEdison.

Endurant has executed similar projects in the State of Connecticut including five separate fuel cell projects for Bloom Energy and a fuel cell based microgrid for the City of Hartford.

All correspondence and/or communications regarding this Petition should be addressed to:

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A copy of all such correspondence or communications should also be sent to Endurant's attorney:

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## II. CONSISTENCY WITH STATE ENERGY POLICY

### A. ENERGY STORAGE SOLUTIONS PROGRAM

In June 2021, the Connecticut General Assembly passed *Public Act No. 21-53, An Act Concerning Energy Storage*. The Act directs the CT Public Utilities Regulatory Authority (“PURA” or the “Authority”), in coordination with the Department of Energy and Environmental Protection (“CT DEEP”) and the CT Green Bank (“CTGB”), to initiate a proceeding to develop and implement programs and associated funding mechanisms for electric energy storage resources. When undertaking this proceeding, the Authority was instructed to consider a rate design to incentivize the accelerated adoption of electric energy storage technologies such as BESS in a way that leverages the value of such technologies to achieve the goals of the legislation. One of the principal goals of the legislation is to unlock the benefits that energy storage technologies deliver to ratepayers.

Consequently, in connection with Public Act 21-53, *An Act Concerning Energy Storage*, PURA issued a final decision in Docket No. 17-12-03RE03, *PURA Investigation into Distribution System Planning of the Electric Distribution Companies – Electric Storage*, establishing a statewide electric storage program, known as the “Energy Storage Solutions Program” or “ESSP”. In the Final Decision in Docket No. 17-12-03RE03, PURA explicitly created electric storage deployment targets for commercial and industrial (C&I) energy users and established an incentive structure to promote non-residential customer participation in the ESSP.

The Project at the center of this Petition is one of the C&I projects that was selected and approved by the Authority.

## **B. PROJECT PURPOSE**

The purpose of the proposed Project is to provide value to the site host, Accel International Holdings, LLC (“Accel”), and the surrounding community through lower electricity costs, enhanced grid resiliency, and to “maximize the long-term environmental benefits of electric storage by reducing emissions associated with fossil-based peaking generation.” (ESSP Program Manual, January 20, 2023).

The BESS will be connected behind the customer’s electric utility meter, which will allow the facility to run on battery power during peak demand times, alleviating grid congestion. That is, the BESS will be used for demand response and demand management to lower the site host’s electric bills, and to allow for load shifting that enables the customer to use less expensive off-peak power during the daytime peak hours. The energy market’s natural time of use pricing difference means the battery will charge throughout the night. As required by the ESSP guidelines, the BESS will operate in parallel with the grid, and can also export power into the utility distribution system, delivering valuable “peaking power” during peak demand times when excess supply is most needed to balance the network. As energy markets mature, the BESS will be able to provide additional ancillary services to the grid, incrementally increasing its value to all ratepayers over its 10-year life.

## **C. PROJECT BENEFITS**

The Project is an enabling technology for the grid’s transition to renewable energy. The BESS will charge from the grid at night when electricity prices are lower. The BESS will return that electricity to the grid when electricity prices are high, the sun is not shining, the wind is not blowing, or peak electric demand necessitates a reliance on carbon-intensive fossil fuel generation sources (coal or natural gas based “peaker plants”).

The Project will be one of the first critical assets to participate in the ESSP and, as part of that program’s target for a large, distributed portfolio, the Project will deliver the following benefits recognized by the Authority in Docket No. 17-12-03RE03:

- (1) **Economic Benefits:** The Project will allow the host site, Accel International, to realize lower net energy costs through the battery’s demand management, capacity charge management, time-of-use energy shifting, and revenue share operations.

On a macro scale, the Project will be an integral part of the ESSP economic goals of lowering the grid’s peak demand, lowering ratepayer costs by relieving some peak grid

capacity and transmission charges, adding capacity during times that it is needed that will allow electric utilities to avoid or delay expensive distribution infrastructure upgrade costs, increasing business operation “uptimes” through avoided outages and grid instability induced facility disruptions, enabling the integration of cheaper renewable energy resources like solar PV, and avoiding the healthcare and economic productivity costs associated with higher polluting power generation resources.

(2) **Resiliency Benefits:** For the host site, the Project will provide fast-acting backup power during utility grid outages for up to several hours, allowing Accel to maintain operations during shorter outages and avoiding grid-transients and harmonic distortions that may cause the facility’s industrial production equipment to trip. It also provides time for transition to traditional backup power resources (e.g., emergency generators) more effectively and without the combustion of additional fuel. On the utility scale, the Project will assist in maintaining the stability and efficient operation of the electric grid by providing peaking capacity and balancing services including reserve capacity, frequency regulation, voltage support, and harmonic distortion power curing. Stress relief also means improved system reliability. BESS’ modern power electronics systems allow grid balancing and stabilization services within milliseconds preserving the safe, efficient operation of the grid. As a larger portion of the grid’s energy is composed of intermittent renewable resources (such as solar and wind), distributed energy storage systems can help “smooth” the surge and lull of voltage, frequency and harmonic distortions that are inherent with the rapid integration of renewable energy systems.

(3) **Environmental Benefits:** Under the ESSP, BESS are used as localized peaking power suppliers. As such, BESS will help reduce air quality impacts of high emitting peaker plants which are called-on as resources of last resort during peak demand times. Further, to achieve its renewable energy goals, Connecticut is relying in part on the installation of a substantial amount of energy storage to balance the grid and “smooth” the intermittent output of solar and wind generation resources. The adoption of renewable power can only happen effectively with energy storage to assist the grid in accommodating the added resources. Locally, the host site’s environmental footprint will improve since the BESS will charge at night when the ISO-NE’s power supply is comprised of a higher percentage of non-carbon-based resources, and then discharge that energy to serve the facility and grid during peak demand hours when the high emitting, least efficient, fossil fuel-based peaker plants are typically used.

The result is overall positive net value to the host and all ratepayers as sought in the PURA and CT Green Bank’s Energy Storage Solutions Program.



### III. PROJECT DESCRIPTION

Designed in accordance with ESSP’s Program Manual,<sup>1</sup> and with input and guidance from Eversource Energy, the Project consists of a 4.9MW/9.8MWh BESS to be installed at the site. Endurant is securing final quotes from battery vendors pre-approved by the ESSP Program Administrators to supply the battery equipment.

#### A. SITE

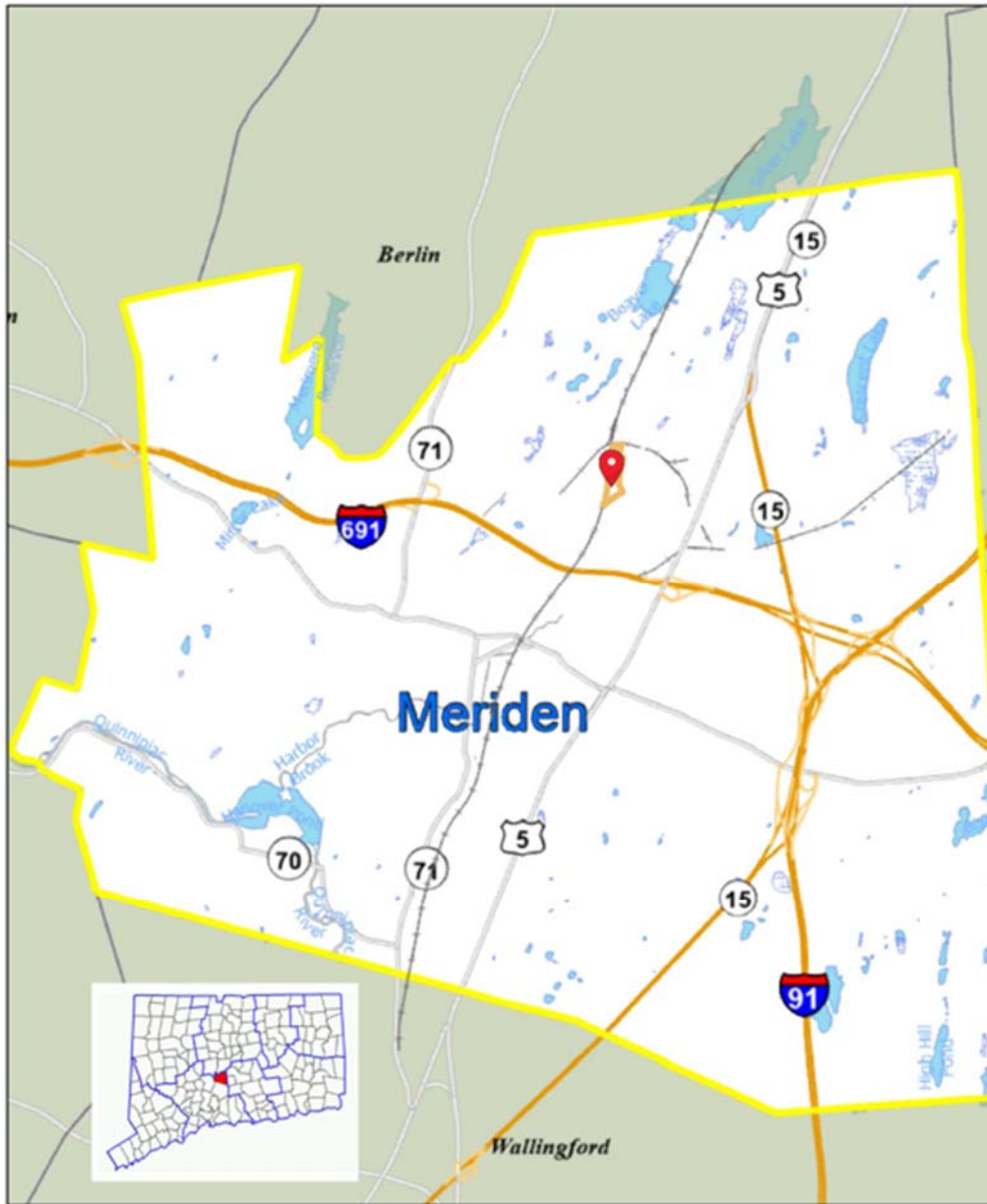
The Project will be located at a manufacturing facility operated by Accel in Meriden, CT. Accel is a producer and manufacturer of silver-plated, nickel-plated and tin-plated copper and copper alloys for the wire and cable market, with a production facility located at 508 North Colony Street in Meriden and shown on Figure 1. Accel operates heavy equipment to produce wire and cabling products within the approximately 165,000 square-foot manufacturing facility (the “Facility”).

The footprint of the Project including setbacks will be approximately 6,000 square feet, located mostly on a paved section of the property (the “Site”). The Site is zoned as M-3 Industrial. Most of the Project Site is existing impervious paved surface (parking lots), with adjacent sections of lawn, shrubs, and trees. The BESS containers will be installed on concrete pads within a fenced area that is eight feet tall and includes industry-standard and OEM-prescribed setbacks.

The Site is accessed by an existing paved drive to the south of the Facility, off North Colony Street. Figure 2 depicts plan and elevation views of the Site. Figure 3 depicts the Project equipment overlain on an aerial view.

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<sup>1</sup> [https://energystoragect.com/wp-content/uploads/2023/06/ESS-Program-Manual\\_Updated-6.23.2023\\_CLEAN.pdf](https://energystoragect.com/wp-content/uploads/2023/06/ESS-Program-Manual_Updated-6.23.2023_CLEAN.pdf)




 CITY OF MERIDEN  
900 Southington, MI Department  
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CITY OF MERIDEN, CT GIS  
508 NO COLONY ST

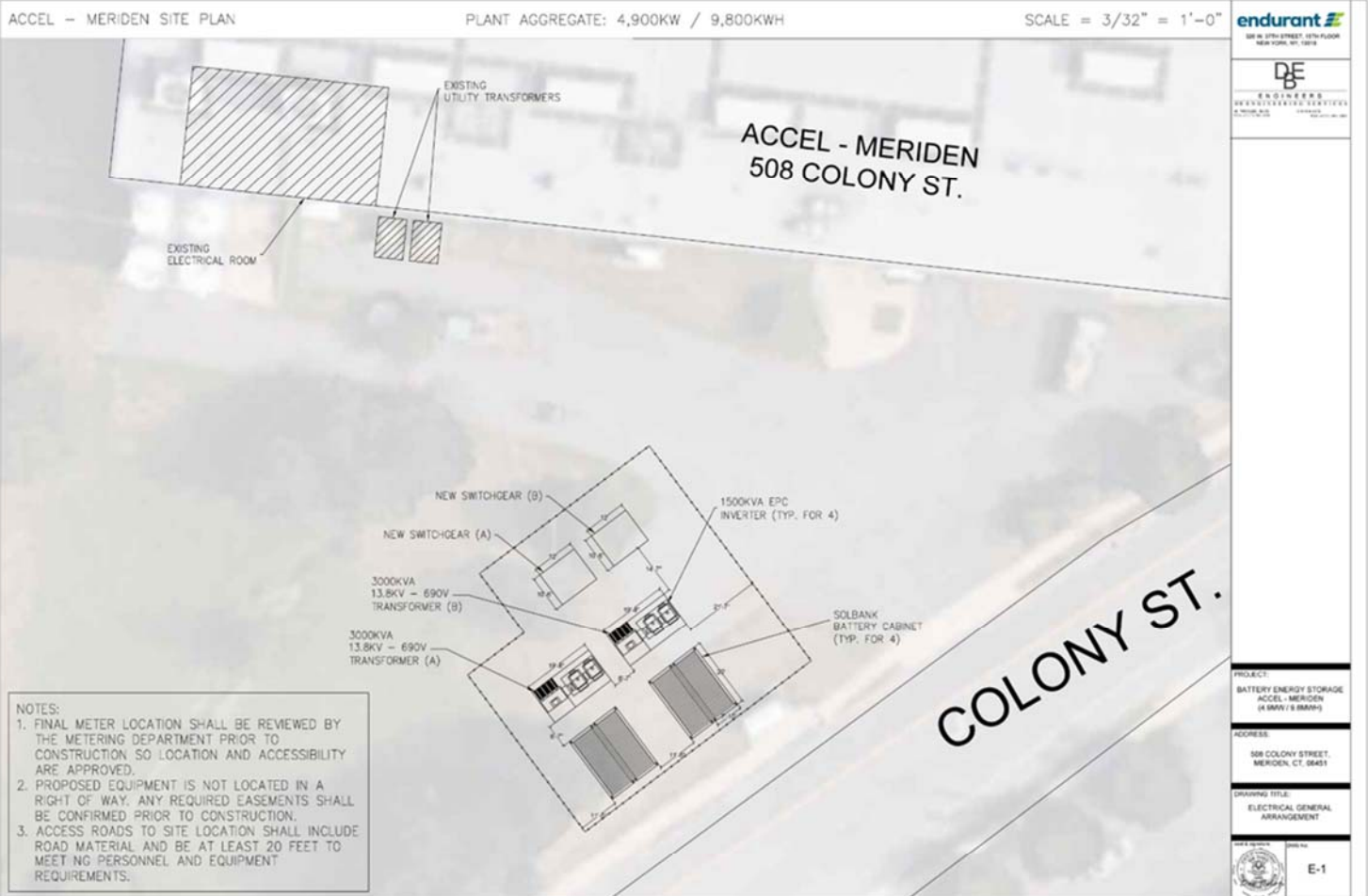
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Date: 6/28/2023



	<p>Battery Energy Storage System Accel International 508 North Colony Street Meriden, Connecticut</p>	<p>Figure 1 Site Location</p>
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	<p>Battery Energy Storage System Accel International 508 North Colony Street Meriden, Connecticut</p>	<p>Figure 2 Plan View and Site Elevation View</p>
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**endurant** 

**DE**  
 ENGINEERS  
 REGISTERED PROFESSIONAL ENGINEERS  
 STATE OF CONNECTICUT

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PROJECT:  
 BATTERY ENERGY STORAGE  
 ACCEL - MERIDEN  
 (A 690V / 8.8MWH)

ADDRESS:  
 508 COLONY STREET,  
 MERIDEN, CT 06461

DRAWING TITLE:  
 ELECTRICAL GENERAL  
 ARRANGEMENT

DATE OF PUBLICATION: 08/05/2024  
 SHEET NO.: E-1



## **B. PROJECT DESCRIPTION**

All battery systems under consideration for the Project comply with latest UL, IEEE, and National Fire Protection Association (“NFPA”), testing regimes, and specifications, including UL 9540A. The installation will include four fully containerized, UL certified and NFPA 855 compliant lithium-ion battery modules, external inverters, transformers, and switchgear.

Currently, the Project will use Canadian Solar Inc. (“CSI”) Energy Storage SolBank 0.5P lithium iron phosphate (LiFePO<sub>4</sub>) chemistry-based battery modules with liquid cooling, humidity control, and an active balancing Battery Management System. The battery modules will export DC electricity to an EPC power converter, which are UL 1741 listed and UL 1547 compliant for interconnecting and islanding capability, which will convert the electricity to AC, and step the voltage up to 13.8kV before connecting to the utility distribution network’s 13.8kV feeder.

The sample specification sheet in Appendix A provides the technical details on the proposed battery modules for the battery system. The final battery system’s make and model may change to accommodate The Connecticut Light and Power Company dba Eversource (Eversource) feedback and supply chain constraints, but the core technology presented in this Petition will be the same.

The Project term is for 10 years, with the ability to extend thereafter. The battery capacity will degrade naturally without augmentation or capacity maintenance unless market and economic conditions change to make that option desirable. In year 10, the battery cells may be replenished with newer cells to increase the system’s capacity, but this will depend on the health of the battery system at that time and cost of capacity maintenance. The BESS’ internal monitoring systems will allow Endurant to monitor and diagnose the health of each cell individually over time.

## **C. INTERCONNECTION**

The Project is in the final stages of the interconnection process with Eversource. The Project filed an interconnect request on June 17, 2022 with Eversource and has been assigned project number INT-63089. A project Feasibility Study Agreement was executed on January 4, 2023, and an Impact Study Agreement was executed on March 20, 2023, with results expected shortly. The Interconnect Agreement is pending with project completion anticipated for Q1 or Q2 2024.

The Project will electrically interconnect to the utility's 13.8kV distribution feeder on Colony Street via an underground conduit. Upon a grid fault or outage, the system will disconnect from the grid to provide resilient power to the host Facility ("island mode"). When power services have resumed, the Facility will reconnect to the grid to maintain normal, "blue sky" operations.

#### **D. MUNICIPAL/LOCAL INPUT AND COMMUNITY OUTREACH**

Endurant Energy, in partnership with its subcontractor, Berkshire Environmental Consultants, contacted and spoke with the City of Meriden municipal officials, including the Meriden City Manager. Detailed logs of the contacts with local authorities about the project are presented in Appendix B.

Among the topics discussed with the city were zoning requirements, building, electrical and mechanical permit requirements, fire plan review, and permitting procedures with the City of Meriden Department of Planning and Enforcement. The Meriden Zoning Map with the Project identified is shown in Appendix C. The Meriden Inland Wetland Agent reviewed the Property and Project Site location and confirmed that the Project is not located in a wetland, floodplain, or Upland Review area.

The City of Meriden Fire Marshal and Chief of the Meriden Fire Department were contacted and were provided information about the project. A meeting was held with the Fire Marshal and Fire Chief to review the project and to discuss the fire safety systems of the BESS, the detection and fire alarm systems, incident response, and fire department concerns and equipment needs. The Fire Department input has been used in the development of emergency plans and Endurant will continue to work with the Fire Department to provide support through training resources once the system is installed.

#### **E. PUBLIC NOTICE AND COMMUNITY OUTREACH**

Endurant has provided notice of this Petition via certificate of mailing to all persons and appropriate municipal officials and governmental agencies to whom notice is required to be given pursuant to RCSA § 16-50j-40(a).<sup>2</sup> Notices have been given to property owners within 250 feet of the Property boundary, and are identified in Appendix D as are a map indicating the abutter properties and a sample copy of the notice letters.

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<sup>2</sup> RCSA § 16-50j-40(a) in part provides: "Prior to submitting a petition for a declaratory ruling to the Council, the petitioner shall, where applicable, provide notice to each person other than the petitioner appearing of record as an owner of property which abuts the proposed primary or alternative sites of the proposed facility, each person appearing of record as an owner of the property or properties on which the primary or alternative proposed facility is to be located, and the appropriate municipal officials and government agencies...The term "appropriate municipal officials and government agencies" means, in the case of a facility required to be approved by declaratory ruling, the same officials and agencies to be noticed in the application for a certificate under Section 16-50l of the Connecticut General Statutes...".

#### **IV. NO SUBSTANTIAL ADVERSE ENVIRONMENTAL EFFECT**

The Project will have no substantial adverse environmental effect. Battery systems do not store or contain fuel, e.g., hydrocarbon fuels, which can cause environmental impacts. Further, the BESS will not generate regulated air emissions, will not have an adverse impact on water resources or stormwater runoff, and will not impact endangered species.

##### **A. AIR QUALITY**

Battery storage systems do not produce any air emissions of criteria air pollutants and/or hazardous air pollutants regulated by the Clean Air Act and Chapter 446c – Air Pollution Control of the Connecticut General Statutes because the system does not combust fuel or use any volatile organic compounds or other chemical pollutants that would be released to the atmosphere during normal operation. As such, an air permit is not required for the construction or operation of the battery system.

The liquid coolant system used for cooling battery cells uses a glycol-based coolant. The air-cooling system, used for electrical component cooling, uses HFC-134a refrigerant. Both cooling systems are closed loop with no emissions released during routine operations. R134a is a non-ozone depleting hydrofluorocarbon (HFC). It was one of the first refrigerants developed to replace CFCs which are ozone depleting substances (ODS) and has a lower environmental impact potential than other refrigerants. The project is required to use licensed HVAC contractors trained to minimize or eliminate risks during maintenance activities.

During construction, short-term fugitive particulates and emissions from diesel exhaust may result from soil handling and construction vehicles. Fugitive particulate emissions from soil handling will be limited since soil disturbance is expected to be minimal with no significant storage piles. Additionally, construction vehicles will be expected to comply with CT DEEP idling requirements and operate only as needed. Therefore, any emissions resulting from their operation will also be minimal. If necessary to control fugitive dust, water spray will be used during construction.

##### **B. WATER QUALITY IMPACTS**

###### *1. Wetlands and Watercourses*

The Project Site does not contain wetland soils and is not in a wetland delineated area. Seasonal depression wetlands also known as vernal pools are not present on the site. The determination that there are no wetland soils at the Project location was verified by the Inland Wetlands Agent for the City of Meriden. There is a constructed site drainage ditch at the southern end of the Property. This ditch is identified as a short watercourse on the wetland

map. This drainage is for site surface water management and is approximately 100 feet from the battery system installation. The BESS installation will not impact this drainage system. GIS wetland overlay on the site is shown in Appendix C. Based on the foregoing, the Project is not expected to negatively impact any wetlands or watercourses.

## *2. Aquifer Protection Areas*

There are no aquifer protection areas at the Project location. The CT DEEP Water Quality Classification Map, which delineates aquifer protection areas relative to the Project location, is shown in Appendix C. The Groundwater Class at the location of the Project is Class GB. Class GB designated uses are industrial process water and cooling waters. Baseflow for hydraulically connected waterbodies and use is presumed not suitable for human consumption without treatment. The Project has no normal operating processes that will impact groundwater or surface water. During a fire emergency, firewater may be generated as a part of response activities, however the overall approach of response is not water deluge of the batteries, but to allow self-extinguishing, and to use water to control impacts on adjacent structures to prevent spread. Fire response and firewater management are discussed in the Safety section of this Petition.

## *3. FEMA Flood Zones*

A review of the Federal Emergency Management Agency's ("FEMA") National Flood Insurance Program flood mapping data revealed that the Project location is not within a Flood Zone. The FEMA flood hazard area and the approximate footprint of the energy storage system is shown in Appendix C.

## *4. Stormwater*

The area of site disturbance for the Project is less than one acre and will not require a CT DEEP General Permit for Discharge of Stormwater and Dewatering Wastewaters for Construction Activities. The battery system is contained within a weather resistant enclosure, and as such, there is no stormwater contact with the battery system components.

## **C. WASTE**

During the Site clearing and construction phases, construction debris and other solid waste will be generated and managed by Endurant and its construction contractor. No hazardous waste is expected to be generated during the construction phase, unless there are small equipment leaks from vehicles. Any vehicle fluid leak will be managed in accordance with the applicable CT DEEP requirements.

During normal operations, the only waste products that will be generated by the Project



will be the result of maintenance activities, such as coolant and refrigerant change out or maintenance product usage. The servicing of the HVAC system will be contracted to a registered HVAC servicing company. Maintenance activities are expected to occur semi-annually. Refrigerant changeouts would typically be recycled. The R134a change out would be closed piped to a recovery tank. Any waste oils or lubricants will be collected and managed in accordance with CT DEEP regulations. Occasional vehicle or truck traffic on the site for maintenance activities may result in vehicle fluid leak which will be managed in accordance with the applicable CT DEEP requirements.

#### D. HAZARDOUS MATERIALS

An inventory of hazardous materials expected to be onsite during construction and during normal operations, is presented in Table 1 below. The exact products to be used will be determined during construction and installation. Representative Safety Data Sheets for comparable products are contained in Appendix E for reference. There will be no fuel or hazardous material storage at the Project site, beyond the quantities contained in equipment.

Table 1: Hazardous Material Inventory

<b>NORMAL OPERATIONS</b>		
<i>Product</i>	<i>Use</i>	<i>Approx. Quantity On-Site</i>
<b>Air cooling system refrigerant – HFC - 134a</b>	HVAC cooling of battery electrical equipment	35.3 lbs per BESS container
<b>Liquid cooling system – glycol-based coolant</b>	Cooling of battery cells	84.8 gal per BESS container
<b>Transformer Oil</b>	Electrical Insulating oil	Approx 500 gal per transformer
<b>Lithium-Ion Electrolyte</b>	Storage of electrical energy	48 gal per BESS container

<b>SITE PREPARATION AND CONSTRUCTION</b>		
<i>Product</i>	<i>Use</i>	<i>Quantity On-Site</i>
<b>Construction Vehicle Fluids</b>	Fuel, oil, hydraulic and other oils used in site vehicles, and heavy equipment used during installation.	Variable

#### E. WILDLIFE AND HABITAT

The CT DEEP Natural Diversity Database (“NDDDB”) maps general locations of endangered, threatened, and special concern species as well as rare natural communities. A review of the CT DEEP NDDDB indicated that no population of state endangered, threatened, or special

concern species, and no critical habitats are documented within or in close proximity to the Project area. Given that the Project is not expected to impact any state-listed species, consultation with CT DEEP's NDDDB relating to construction of the Project is not required. The Project Site is not in or adjacent to the State's Protected Wildlife Management Areas, such as the Sessions Woods, Nod Brook, or Belding Wildlife Management Areas. The CT DEEP NDDDB map, identifying the Project location is presented in Appendix F.

The Endangered Species Act, 16 U.S.C. § 1531 et seq. (ESA) protects federally threatened and endangered wildlife. Listed species and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries). The USFWS Information for Planning and Conservation (IPaC) tool was used to identify potentially affected listed species and their habitat. The Northern Long-eared Bat (*Myotis septentrionalis*, endangered species) and Monarch Butterfly (*Danaus plexippus*, candidate species) were identified. The IPaC report indicates that there is no Critical Habitat within the vicinity of the Project area for either species. A printout of the report is provided in Appendix F.

#### **F. PRIME FARMLAND AND CORE FOREST RESOURCES**

As illustrated in Appendix C, the Soil Survey of the State of Connecticut map (2008) indicates that soils are unit #307 Urban Land. The General Soil Map of Connecticut (1978) indicates it is map unit #19, Holyoke-Wethersfield-Cheshire: Reddish, gently sloping to steep, well drained and somewhat excessively drained shallow soils over bedrock and deep well drained soils with a firm or friable substratum; on uplands. The original soil is glacial till (dense, unsorted material) with lenses of stratified material. Map unit is identified as Qgm (Quaternary ground moraine).

None of the soils in the site area are mapped as prime farmland or farmland soils of statewide importance, or Core Forest. As such, construction of the Project will not impact Prime Farmland or Core Forest resources.

#### **G. NOISE ANALYSIS**

Cavanaugh Tocci Associates has evaluated the environmental sound impact associated with the proposed Project. This evaluation's objectives were to define the acoustic design goals based on applicable noise regulations and to estimate and evaluate the acoustic impact of the proposed project in the surrounding community.

Based on Cavanaugh Tocci's review of the project description and the BESS and inverter noise study reports, sound produced by the proposed BESS Project will comply with the most stringent requirements of the state and local noise regulations. Furthermore, the firm

concluded that the sound emitted by the Project will not produce a noticeable impact on the acoustic environment and will not have an unreasonable adverse effect at any surrounding properties.

The complete Facility Sound Assessment is in Appendix G.

#### **H. VISUAL IMPACT / SCENIC VALUES**

The Project will be on an existing manufacturing facility location, set in an industrial and commercial area. The Project will be enclosed in a securely fenced area, and natural slats will be interwoven into the fencing material to screen the equipment installed within the fenced area. Due to the proximity of the system and fenced area to North Colony Street, and a public bus route shelter, a row of plantings will be installed to further screen the equipment. The City of Meriden Director of Planning, Development and Enforcement has indicated that the proposed screening of the system is acceptable.

As the Project is being added to an existing industrially developed property in an industrial and commercial area, it will not create a substantial change in the visual and aesthetic characteristics of the Project area. Further, the Project equipment is consistent in design and aesthetic with the uses at the existing facility.

#### **I. CULTURAL RESOURCES / HISTORICAL VALUES**

The Project will not have any adverse effects on the state's historic or archaeological resources.

A search in the National Register of Historic Places ("NRHP") map revealed that there is one (1) NRHP listed property within a half mile of the Site - Solomon Goffe House. See Figure 11 in Appendix H. The NRHP property will not be directly impacted by the Project due to intervening structures. Further, the height of the Project will not exceed the height of nearby buildings.

A request was made to the Connecticut State Historic Preservation Office ("SHPO") regarding the Project's effect on historic, architectural or archaeological resources listed on or eligible for the NRHP. A copy of SHPO's response will be provided to the Council upon becoming available.

### **V. PROJECT CONSTRUCTION, OPERATION, MAINTENANCE AND DECOMMISSIONING**

#### **A. CONSTRUCTION**

The on-site construction phase will commence when the Interconnection Agreement is executed, and the Siting Council's approval has been obtained. Endurant anticipates that by Q4

2023 advanced engineering design work will be completed, final permits will be secured, and equipment purchase orders will be placed. On-site activities will begin in Q1-Q2 2024. On-site construction is anticipated to take no more than six months.

The Project will require minimal construction or disruption to the existing site since the site is already developed. No land clearing or tree removal is required. Initial site work will include installation of a construction fence to shield most site activities, excavation, installation of below ground conduits and pouring concrete pads. Trenches to accommodate the laying of new conduit will be dug from the BESS site to the Facility's electrical room where the BESS will be connected to the distribution infrastructure. This excavation and grading phase is minimally disruptive and will be coordinated with the site host to minimize operational impacts. The installation of the major battery equipment is also expected to have minimal environmental impact. Pre-packaged containerized modules will be shipped to the Site from the production facility and will be dropped onto the poured concrete pads and connected via the newly laid conduit to the distribution infrastructure. Once installed, the battery system will be commissioned, tested, and activated for commercial operation. Commercial operation is expected prior to the 2025 ESSP program season, scheduled to start June 1, 2025.

#### **B. TRAFFIC/PUBLIC TRANSPORTATION**

During the construction phase of the Project, there will be minimal impact on traffic on North Colony Street. There will be a short-term small increase in the number of construction vehicles and equipment coming onto the Accel Property from North Colony Street. The driveway and parking area on the property is large enough to accommodate the staging and parking of any construction vehicles or heavy equipment needed for site work and construction activities. In addition, on-site traffic controls will be utilized to minimize any impact to typical traffic patterns and the City of Meriden Police Department will be notified prior to delivery of the equipment. Once installation is completed, the only additional traffic will be during periodic equipment inspection and routine maintenance activity.

The Accel property is along a City of Meriden bus route, and a bus stop shelter is about 30 feet from the Project. Endurant contacted the Operations Manager at North East Transportation Company to discuss the Project and the proximity to the bus shelter, and there was no concern expressed by the transit company.

The Amtrak Hartford Line runs along the Accel western property boundary. The railroad tracks are about 235 feet from the battery system. Endurant believes that the distance between the railroad tracks and the Project precludes any possible equipment impact to the battery system or battery incident impact to the railroad.

### **C. FAA DETERMINATIONS**

There are two airfields in Meriden: the Meriden Wallingford Hospital (KCT95) and the Meriden Markham Airfield (MMK). The Meriden Wallingford Hospital Helipad is located 0.5 miles from the Project. The Meriden Markham Airfield is located 3.25 miles from the Project.

The FAA Obstruction Evaluation Tool was used to assess Notification Criteria for the permanent battery positioning and for the temporary use of a mobile construction crane during the project's construction phase. Based on the data entered for the site location, site elevation and structure height for each scenario, the results indicated that the Notice Criteria under Part 77 were not exceeded for either scenario. This Notice Criteria Tool outputs are presented in Appendix I.

### **D. OPERATIONS**

During “blue sky conditions,” i.e., normal grid operations, the battery energy storage system will operate to provide peak demand management and demand response. In the summer, it will charge at night, typically from ~23:00-06:00, and discharge for 2-3 hours in the late afternoon. During shoulder and winter seasons, the BESS will charge at similar times, but discharge over a longer period to manage the site host’s peak demand charges.

During “black sky conditions,” or grid outage events, the BESS will provide resiliency and power quality services to the Facility. During grid outages, the BESS will disconnect from the grid to continuously power the Facility, operating in “island mode.” Once the grid outage is over, the BESS and Facility will reconnect to the distribution network. Even if the battery’s state of charge is low at the time of an outage, it will be sufficient to allow the Facility to continuously operate for some time, buying the staff valuable time to transfer to traditional start-up backup power resources. This is critically valuable during winter storms when backup generators may need additional startup time, and/or fuel may be inaccessible, as many Connecticut residents experienced during Winter Storm Alfred and Hurricane Sandy.

While it is operating the battery system will be remotely monitored 24/7. The Project will be equipped with Battery Management Software (BMS) that uses supervisory control and data acquisition (SCADA) systems to initiate automated procedures or response by personnel.

The Project term is 10 years, with an option to extend for additional periods. The battery system will degrade naturally without augmentation or capacity maintenance unless market and economic conditions change to make that option desirable. In year 10, the battery cells may be replenished with newer cells to increase the system’s capacity, but this will depend on

the health of the battery system at that time and cost of capacity maintenance. The BESS' internal monitoring systems will allow Endurant to monitor and diagnose the health of each cell module individually over time.

#### **E. MAINTENANCE PLAN**

Unlike rotating machines such as combustion engines or gas turbines, battery energy storage systems require little maintenance. To honor the battery warranty, the BESS suppliers require that the battery's maintenance be conducted by the battery manufacturer and its subcontractors for the full life of the project. The supplier's staff and subcontracting teams have been trained specifically on the modules and equipment installed on-site. Bi-annual planned maintenance events will occur, typically before and after the summer ESSP season to ensure the system will be fully available for that season-year.

Maintenance activities include a full checklist of items to ensure system integrity and availability for peak operation. These include a full testing of the BESS safety systems, backup power and cooling systems. The OEM Maintenance Plan will be provided by the manufacturer once the final decision is made on the equipment.

#### **F. DECOMMISSIONING PLAN**

At the end of the Project's Operation Phase, including any extensions, the Project equipment, including the battery containers, will be removed and the Site will be returned to its original condition before the battery system's installation (or as otherwise directed by the Facility owner). This will include removing the battery modules, switchgear, inverters, transformers, cabling, concrete pads, fencing, ethernet, and other infrastructure installed, and installing pavement and sod as needed. New shrubs, trees or other plants may be added as requested by the Facility owner.

The accelerating adoption of grid-scale battery energy storage systems has created new markets and business opportunities, including for recycling the battery systems. This includes an off-site deconstruction of the battery's components, isolation of its elements and raw materials (including lithium, copper, nickel, cobalt, etc.). The potential has created a wave of new companies offering battery recycling and repurposing for the types of systems being proposed as part of this Project.

Newer methods of more efficient battery recycling are the subject of research, including advanced development of cathode re-lithiation processes, binder removal and recovery, and black mass purification. New thermal techniques are also being developed to identify any contaminants resulting from the recycling processes themselves.

Endurant Energy intends to use the most advanced recycling and repurposing methodologies available at the end of the equipment's life if the materials cannot otherwise be reused.

## **G. SAFETY**

### *1. Site Security & Safety*

The battery system is surrounded by an 8-foot-high security fence, with locked access. The unit is in a frequently used, well-lit, parking area at the southern end of the Property. Fire Department access to the locked gate will be provided by a Knox Box or other universal key system. Personnel will not be allowed within fenced areas during normal operation and all systems will be locked out during inspection or maintenance. No fires, flames or sources of heat are allowed within the fenced area. Contractors are trained in safe work practices around electrical equipment and specifically BESS. The site and electrical room will be outfitted with proper signage designating hazards and confirmation of electrical disconnects for both the BESS and the host facility.

### *2. Fire Safety*

Safety and fire protection are designed into the Project in multiple ways.

- a. Battery Design – The battery system is designed for compliance with battery safety standards, including NFPA 855, UL 1642, UL 1973 and UL 9540A. In addition to meeting the UL 9540 standard, the system has been tested using the UL 9540A testing methodology. These tests are not pass/fail, but rather destructive tests used for evaluating the thermal runaway impacts of a BESS design including propagation, extent of gassing, explosion or fire. The UL 9540A SolBank Unit Level Test results found the following:

- No module to module or unit to unit thermal runaway propagation
- No flying debris or explosive discharge of gases during the test
- No electrical arcs or other electrical events during the test
- No external flaming observed.

- b. Detection and Alarm Systems – The BESS is equipped with combustible gas detectors to detect the most prevalent flammable/explosive off-gases from Lithium Iron Phosphate (LFP) battery cells – hydrogen (H<sub>2</sub>), carbon monoxide (CO) and methane (CH<sub>4</sub>). The system is equipped with an exhaust fan that vents flammable/explosive gases upon detection by the gas detection system. The BESS design also integrates several safety features including a temperature detector, a smoke detector, a fire alarm (audible and visual), an alarm panel and manual emergency stop buttons. For explosion protection, the BESS is equipped with combustible gas sensors, an exhaust fan and pressure balancer.
- c. Battery Management System - The Battery Management System (BMS) constantly monitors cell and pack level voltage, temperature, status of the various detectors (smoke, temperature and gas) and other parameters to ensure early detection of pre fault conditions, and immediate detection of fault events. Should any parameter exceed a permissible value, the BMS will surface appropriate alarms and take appropriate protective actions including the potential to disconnect the effected string.

### 3. *Fire Response*

There are many factors to consider in determining the appropriate response to an incident at a battery storage facility. Endurant has worked with the Meriden Fire Department to discuss fire response options and strategies, and ways the Endurant can support the Department, through information, training, and other resources. Safety of life and protection of adjacent property are the response priorities. A battery fire at the Project should be monitored for propagation to other hazards and allowed to burn itself out. First responders should not enter the fenced area other than for life safety concerns. Water may be used, at the Fire Department's discretion, to control the temperature of adjacent hazards that are not fire involved. Water has not been shown to be effective in extinguishing a lithium-ion fire but can be used to limit the potential spread of fire to adjacent structures. The Project location and configuration at the Property provide a buffer from adjacent buildings. Based on the UL 9540A testing results, and the lack of unit-to-unit propagation observed, it is expected that any fire at the Project will be contained within the affected battery module.

### 4. *Off-Gas Composition*

Battery system modules are designed to be maintained within a safe temperature range via the thermal management system which controls the internal system temperature through heating and cooling. At normal operating temperature, there is little or no off-gassing from the



batteries. In a thermal runaway or fire, elevated temperature causes off-gassing from the battery cells. Gas composition is determined by the battery’s chemistry. Off-gas from lithium iron phosphate batteries during thermal runaway or fire is generally characterized as follows:

<b>Gas Component</b>	<b>Percent (by volume)</b>
Hydrogen (H <sub>2</sub> )	48.013 %
Carbon monoxide (CO)	11.191 %
Carbon dioxide (CO <sub>2</sub> )	27.325 %
Hydrocarbons (HC)	12.999 %

The danger of these components is their ability to form an explosive mixture with air. The UL 9540A tests indicated resulting gas concentrations during thermal runaway of much less than 25% of the Lower Flammability Limit (LFL) which is the concentration at which it will reach a flammable point. A 25% LFL concentration is the first alarm trigger for the gas detectors installed in the units (50% is the next).

The systems incorporate active venting to reduce the buildup of flammable gases to mitigate hazards associated with the amount of off-gas produced. The density of any vented off-gasses will be lighter than air thus allowing them to rise and disperse and minimize the risk of creating a localized explosive atmosphere.

### *5. Emergency Planning*

Endurant has developed an Emergency Response Plan (ERP) that documents the procedures in place to prepare for and respond to an emergency at the BESS Project. The ERP delineates emergency response responsibilities of personnel and identifies mutual aid resources available by off-site responders. It also identifies training provided to site personnel in responding to emergencies and identifies drill procedures and incident investigation procedures. The ERP has been prepared as part of project planning. The plan will be updated to reflect additional site-specific input generated as part of the permitting process. A running record of changes and updates will be maintained with the plan. The ERP is provided in Appendix J.

## **VI. CONCLUSION**

For the foregoing reasons, Endurant Energy respectfully requests that the Council issue a determination, that the proposed Project as described in this Petition will not have a substantial adverse environmental effect, and therefore, that a Certificate is not required.

**APPENDIX A**

**APPENDIX B**

**APPENDIX C**

**APPENDIX D**

**APPENDIX E**

**APPENDIX F**

**APPENDIX G**



**APPENDIX H**

**APPENDIX I**

## Appendix J