TCORS
ATTORNEYS
Tobin, Carberry, O'Malley, Riley & Selinger, P.C.

43 Broad Street | P.O. Box 58
New London, CT 06320-0058
Tel: (860) 447-0335
Fax: (860) 442-3469
www.tcors.com

September 13, 2024

Via Electronic Mail and Hand Delivery
Melanie Bachman
Executive Director / Staff Attorney
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Petition No. 1623 - HQCA Energy Solutions, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes § 4-176 and § 16-50k, for the proposed construction, maintenance and operation of a 3.92-megawatt AC battery energy storage facility located at 40 Norwich Road, Waterford, Connecticut and associated interconnection

Dear Ms. Bachman:

I am writing on behalf of my client HQCA Energy Solutions, LLC ("HQCA") in connection with the above-captioned Petition. Enclosed please find the answers and supporting Attachment Exhibits provided by HQCA in response to the Interrogatories posed by the Connecticut Siting Council on June 4, 2024. Also included herewith is a supplement to the initial Petition No. 1623 memorandum.

The electronic version of the above described documents have been sent via email to your attention.

Please do not hesitate to contact me with any questions or concerns regarding this submission.

Sincerely,

Mark J. Cook, Esq.

Enclosures

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

HQCA ENERGY SOLUTIONS, LLC PETITION FOR A DECLARATORY RULING, PURSUANT TO CONNECTICUT GENERAL STATUTES §4-176 AND §16-50k, FOR THE PROPOSED CONSTRUCTION, MAINTENANCE AND OPERATION OF A 3.92-MEGAWATT AC BATTERY ENERGY STORAGE FACILITY LOCATED AT 40 NORWICH ROAD, WATERFORD, CONNECTICUT, AND ASSOCIATED ELECTRICAL INTERCONNECTION	)	PETITION NO. 1623 SEPTEMBER 13, 2024

I. SUPPLEMENT

A. Supplemental Information Regarding Change In Equipment

On August 20, 2024, the Connecticut Siting Council (the "Council") granted additional time for HQCA Energy Solutions, LLC ("HQCA" or the "Petitioner") to provide responses to the Council Interrogatories to Petitioner Nos. 1-65 ("Interrogatory Nos. 1-65") for the battery energy storage facility ("BESF") proposed in the above-captioned petition. Petitioner explained in its request for additional time that due to the change in equipment, due diligence for a new sound report would need to be undertaken and a new sound report would need to be finalized. Changes to the site plans and supporting documents would also need to be finalized due to the change in equipment. Those changes have now been made to the site plans and supporting documents and the new sound report has now been finalized. All updated information is submitted with this Response to Interrogatory Nos. 1-65 and this supplement to the Petitioner's memorandum dated March 27, 2024 (the "Supplement").

Petitioner intends to utilize Tesla Megapack 2 XL BESF equipment ("MP2XL"). Please see Supplement Attachment A for Tesla Megapack 2 XL Datasheet in place of the initially planned Sungrow ST2752UX-US BESF equipment.

The change in manufacturer equipment however does not change the fact that the construction, operation, and maintenance of the HQCA BESF utilizing the MP2XL equipment ("HQCA BESF" or the "Project") will similarly satisfy the statutory elements of General Statutes of Connecticut ("Conn. Gen. Stat.") § 16-50k and will not have a substantial adverse environmental effect.

If specific information is not addressed in this Supplement, the information provided in Petitioner's initial memorandum dated March 27, 2024 applies.

B. The Benefits of the HQCA BESF Remain the Same

The HQCA BESF will still provide benefits at the electricity market wholesale-level, as envisioned by Public Act 21-53, which incentivizes front-of-the-meter ("FTM") projects on the distribution network that can help improve grid consistency and reliance by supplying saved electricity during high peak demand times, helping to avoid numerous brownouts or power failures. The Project will continue to provide grid reliance by making saved electricity available during an outage or supplementing the supply of electricity when that supply is temporarily interrupted due to large introductions of, or removals of electricity from high-volume users.

C. HQCA BESF Description Including Change In Equipment

Petitioner was informed that the originally proposed Sungrow battery energy storage equipment will be discontinued. As a result, Petitioner has chosen to utilize the MP2XL battery energy storage equipment. Please see Supplement Attachment A; see also Supplement Attachment B.

While the MP2XL unit is similar to the Sungrow equipment in form and function, one of the differences is each MP2XL unit will be a 4-hour unit, which refers to the maximum number of hours of output before needing to recharge. One other difference is that each MP2XL is capable

of storing 3,916kW and 15,664kWh. The adjustment to 3.92MW was due to the new equipment. Four (4) MP2XL units will allow the HQCA BESF to have a total power capacity of 3.92MW AC and will allow for the storage of up to 15.7 megawatt hours (MWh). Please see Supplement Attachment B – Updated site plans reflecting the change in BESF equipment and a change in the location and configuration of the fenced BESF.

Eversource has completed its Interconnection Design Review to finalize the interconnection design for the HQCA 3.92MW BESF. Based on the determinations made as a result of the Interconnection Design Review, Petitioner does not expect any major changes to the finalized interconnection design from what is depicted in Supplement Attachment B.

1. The HQCA BESF will consist of:

(i) Four (4) MP2XL liquid cooled battery energy storage units placed on poured concrete pads;

- Each MP2XL unit measures 28'-11"W x 5'-5"D x 9'-2"H. An MP2XL unit is less wide than a Sungrow unit by 1'-9" and narrower than a Sungrow unit by 2". And the MP2XL unit is just 8" taller than a Sungrow unit.

- Each MP2XL includes one (1) electrical cabinet including the MP2XL AC circuit breaker;

- Each MP2XL also includes a thermal management system ("TMS") which utilizes liquid-cooling to maintain temperature for optimal performance.

(ii) One (1) medium-voltage transformer;

(iii) One (1) AC MV switch board;

(iv) One (1) surge arrestor;

(v) One (1) Overhead interconnection cable;

(vi) One (1) aluminum uniblend PVC high speed communications cable (if cellular network coverage not sufficient);

(vii) Twelve (12') feet tall chain-link, green-slatted fence with twelve (12') feet tall sound mitigation barrier (Acoustifence) with locked gate.

The HQCA BESF will not exceed 9' 2", excluding the new utility pole(s) that may be required for interconnection to ther existing utility pole on Norwich Road.

The dimensions of the reconfigured HQCA BESF fenced area will be 4,356 square feet.

The HQCA BESF design including the MP2XL equipment continues to align with this Council's White Paper as security at the facility will be very similar to methods employed for transmission substations, which include the use of a locked security fence. The Project will comply with the State compliance regulations as described under "Compliance" on page four of the Connecticut Siting Council's White Paper on the Security of Siting Energy Facilities, published October 8, 2009.

D. MP2XL Charge / Load / Dispatch / Recharge

Comparable to the Sungrow equipment, the HQCA BESF can charge and discharge between 0.0 MW and 3.92MW. Also comparable to the rates of the Sungrow equipment, the HQCA BESS Facility can fully recharge in 4.0 hours but this rate can vary depending on the discharge schedule mandated by the utility. Year over year as the batteries approach replacement age, this rate may change.

Similar to the Sungrow equipment, the HQCA BESF is a Front of Meter facility and has no associated net load. As a result, the HQCA BESF will not reserve any battery storage capability for back-up power.

The HQCA BESF remains an energy storage system and not an energy generation system and as a result it does not have typical ramp rates compared to other forms of conventional generation. Also comparable to the Sungrow equipment, the HQCA BESF is capable of changing from a full 3.92MW charge to 3.92MW discharge in approximately less than one second.

Similar to the Sungrow equipment, all HQCA BESF battery storage units will be dispatched simultaneously and can operate at any value between 3.92MW charge and 3.92MW discharge. All HQCA BESF units respond together to keep degradation equal across all HQCA BESF battery storage units.

Information previously provided regarding the Sungrow batteries' anticipated life, annual degradation, and cost of replacement remains the same regarding the MP2XL batteries.

E. Consultation and Outreach

In line with the substantive communication and outreach HQCA has had with Town of Waterford officials, HQCA provided an update to Town officials regarding the change in equipment by providing updated equipment specifications, updated site plans, as well as the finalized Sound Analysis Report.

In addition, continuing to work closely with the Town of Waterford Fire Marshal through every step of the design, construction, and operation process, HQCA also provided information and discussed the change in equipment as well as the MP2XL Emergency Response Guide with the Town's Fire Marshal. Please see Supplement Attachment A and Supplement Attachment C).

F. Environment - Air And Water Quality Standards

The change in equipment has not changed the fact that the HQCA BESF will meet the air and water quality standards of the Department of Energy and Environmental Protection and will not have a substantial adverse environmental effect.

1. Air

The HQCA BESF will not emit any harmful emissions during operation and therefore will comport with and will not require permitting under Conn. Gen. Stat. Chapter 446c.

2. Water

As discussed in Petitioner's memorandum dated March 27, 2024**,** the HQCA BESF will not impact water resources, will not impact the existing groundwater quality, nor will it materially impact the existing drainage or stormwater discharge.

The HQCA BESF remains outside any special FEMA flood zones. Please see Supplement Attachment B, Sheet E501 for a map depicting the HQCA BESF's location in a FEMA Flood Zone X.

The HQCA BESF does not use water for standard operations. The Facility's liquid cooling system only requires an initial fill-up of water but then recycles the same water for the liquid cooling process.

The HQCA BESF continues to be unmanned and does not require sewer services.

The HQCA BESF will be constructed within an area of less than one acre of land and as a result, the project will not require a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities under Conn. Gen. Stat. § 22a-430b. Total disturbance of land area by the HQCA BESS Facility is estimated at approximately 6,000 square feet with a proposed limit of disturbance of 0.23 of an acre. The small portion of access way on the Host Parcel and the areas encompassing the concrete equipment pads within the fence will be gravel. As a result, no effects to drainage patterns or storm water discharges are anticipated. HQCA will implement sedimentation and erosion controls during construction in accordance with

the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as indicated on the site plans and the civil plans submitted as Supplement Attachment J.

The HQCA BESF is designed to maintain existing topography and mimic existing drainage patterns to the maximum extents feasible. Under existing conditions, runoff from the Project Area generally flows in a south / southwesterly direction towards the existing man-made drainage trench located on the adjacent property to the south.

Final grading and erosion and sedimentation control designs will prevent pooling around the HQCA BESF and will mimic existing drainage patterns to the maximum extents feasible. As a result, no effects to drainage patterns or storm water discharges are anticipated.

3. Sound

Petitioner has taken several steps to not only meet Regulations of Connecticut State Agencies ("Regs. Conn. Agencies") § 22a-69-1 *et seq.*, but to come well under such thresholds for all receptor properties except one, and the BESF meets State Class A thresholds at that particular receptor as detailed in the Sound Analysis Report attached hereto as Supplement Attachment H.

A. Petitioner Utilized the Stricter Standards in Completing Its Sound Analysis Report

Although the host parcel is zoned commercial, the proposed land will be utilized for utility purposes which falls under Regs. Conn. Agencies. § 22a-69-3.5 – Class C standards. However, to be conservative, the stricter Class B emitter standards were applied to Petitioner's proposed BESF in Petitioner's sound analysis report.

Additionally, while the Unite Cerebral Palsy of Eastern, CT ("UCP") property to the immediate north is also zoned commercial, the property also functions as a daytime health services facility. Pursuant to Regs. Conn. Agencies. § 22a-69-2.3, the daytime Class A standards under Regs. Conn. Agencies. § 22a-69-3.5 were utilized for the UCP property.

B. BESF Relocated Further Away From Residential Properties

Petitioner relocated its proposed BESF further east from its originally proposed location in order to increase the distance between the BESF and the residential properties to the west and northwest.

C. Mitigation Barrier on All Four Sides of BESF Fence

Petitioner proposes installing twelve (12') feet high mitigation barrier on the interior of all four sides of the twelve (12') feet high BESF chain link and green-slatted fence. This action not only allows compliance with Regs. Conn. Agencies § 22a-69-1 *et seq.* but resulting sound produced from the HQCA BESF will be well under such thresholds for all but one receptor property and the referenced one receptor property meets State thresholds.

Petitioner is proposing mitigation barrier on the east, north, and south sides of the BESF fence even though those receptor measurements meet State requirements with no mitigation. This action results in measurements well under State requirements.

4. Visibility / Buffer / Screening

Each MP2XL unit is only 8" taller than the discontinued Sungrow equipment.

Petitioner has taken multiple steps to screen the proposed BESF from view:

A. Mitigation Barrier on All Four Sides of BESF Fence

Petitioner proposes installing twelve (12') feet high mitigation barrier on the interior of all four sides of the twelve (12') feet high BESF chain link and green-slatted fence. This effectively screens any view of the BESF equipment located within the BESF fenced area.

B. Petitioner Will Install Giant Green Arbor Vitae Plantings Around All Four Sides of BESF

Petitioner will install minimum thirteen (13') feet tall Giant Green Arbor Vitae plantings around the perimeter of the BESF fence. This will add to the screening the mitigation barrier provides.

G. Public Health And Safety

1. Overview

With the new MP2XL equipment, the HQCA BESF will similarly be compliant with the National Electric Code, the International Building Code, the International Fire Code, applicable National Fire Protection Association standards, and the National Electrical Safety Code all as follows, as well as all other State and local Building and Fire standards.

- 2020 National Electric Code ("NEC")

- 2021 International Building Code ("IBC")

- 2021 International Fire Code ("IFC") w/ CT 2022 Amendments

- 2023 National Fire Protection Association ("NFPA") Standard 855

- 2022 NFPA Standard 110

- 2022 NFPA Standard 111

- 2023 National Electrical Safety Code ("NESC")

A twelve (12') feet high chain link fence will be constructed around the perimeter of the HQCA BESF with a locked gate. Pursuant to the Emergency Response Guide, all of the component battery cells are sealed within the product as sub-groups within the MP2XL enclosures. Pods, or battery modules, cannot be accessed from the exterior, and are not accessible to non-qualified personnel.

H. Protections Against Thermal Runaway

1. Electrical Fault Protection

The battery modules contain DC single-use fusible links mounted directly on the battery modules. These fuses can interrupt the flow of an overcurrent in the battery module during an off-normal electrical event.

Inverter modules can quickly isolate the battery module passively or actively during an off-normal event.

Each inverter module is equipped with its own AC contactor and AC fuses.

Each MP2XL is also provided with a DC ground fault detection system. The MP2XL also contains an AC circuit breaker, with ground-fault trip settings.

2. Thermal Management System

Similar to the Sungrow equipment, the new MP2XL equipment meets UL 9540A performance criteria, which requires that no propagation may occur between a battery cell that has been ignited and the other system unit cells. The HQCA BESF will comply with the 2022 Connecticut State Fire Code Chapter 52 – Energy Storage Systems.

Also very similar to the Sungrow equipment, the MP2XL Thermal Management System ("TMS") provides a suitable operating temperature for optimal operation and helps to avoid thermal runaway by utilizing a closed-loop liquid cooling system that circulates a 50/50 mixture of ethylene glycol and water throughout the battery modules and power electronics to maintain optimum battery operating temperature. As a result, no storage capacity losses are anticipated due to ambient temperatures below freezing. The TMS can also warm the HQCA BESF equipment if ambient temperatures drop. The HQCA BESF will utilize power from the

local distribution system for said heating and cooling. The TMS works autonomously and does not require user feedback or controls to turn the cooling system on when needed.

Each MP2XL has a thermal roof located at the top of each MP2XL unit. The thermal roof contains fans and radiators that cool the 50/50 ethylene glycol-water solution. The liquid cooling system utilizes approximately 400 liters of the ethylene glycol-water solution. Refrigerant is stored separately in a sealed system. Each MP2XL has an integrated 900 liter gravity-fed secondary coolant containment basin in its enclosure in accordance with Title 40 C.F.R. 264.174. In addition, each MP2XL has a coolant reservoir level indicator that will alert qualified personnel to be dispatched for investigation.

The HQCA BESF TMS can direct the HQCA BESF Tesla Site Controller ("TSC") to immediately isolate and shutdown individual HQCA BESF battery units or the entire HQCA BESF. The HQCA BESF TSC and the HQCA GELI EMS Platform can also disconnect a battery or the entire HQCA BESF from the electric grid.

While the MP2XL does not have smoke detectors, each MP2XL unit has the ability to remove and ventilate errant gas very early in a thermal runaway event. When this protocol is activated, overpressure vents open automatically into each MP2XL's thermal roof, permitting gases to safely exhaust through the roof of the MP2XL during a thermal event. This engineered approach is permitted by NFPA 855 §9.6.5.6.4.

When this protocol is activated, the HQCA BESF Fire Control Panel would signal the Town of Waterford Fire Department of a possible emergency event.

The HQCA BESF can also be remotely shut down and disconnected from the grid by HQCA and can be manually shut down via an external emergency stop (E-Stop) button noted

as "(N) Pad Mounted 'SWBD1' with 'DISC1'" located within the HQCA BESF. Please see Supplement Attachment B, Sheet E100.

Consistent with the guidance provided by the International Association of Fire Chiefs and American Clean Power First Responders Guide (please see Supplement Attachment D and Supplement Attachment E respectively) the MP2XL units do not require an internal or external fire suppression system, or manual fire suppression (hose lines) as the use of water can cause a battery fire to appear extinguished when it is not. Similar to the Sungrow battery equipment and most lithium-ion batteries on a commercial scale, a fire in an MP2XL battery could last for approximately forty-eight hours.

Consistent with the findings of the *American Clean Power Battery Energy Storage Safety FAQs* (Supplement Attachment F), gases released in fire events are similar to fires involving materials such as sofas, mattresses, or office furniture.

HQCA first met with the Waterford Fire Marshal on February 28, 2024. Since then, HQCA has provided the Waterford Fire Marshal with information regarding the change in equipment and the MP2XL's electrical fault protections, its Thermal Management System, and its other fire protection design features along with the MP2XL Emergency Response Guide. HQCA has also discussed the MP2XL's safety and fire protection features as well as emergency response with the Waterford Fire Marshal. HQCA will provide training to the Waterford Fire Department prior to commencing operations. HQCA will also provide a plan depicting the HQCA BESF layout and a map depicting areas of seventy-five feet (75') and three hundred thirty feet (330') from the HQCA BESF to the Waterford Fire Department.

During construction, a site-specific health and safety plan will be developed and implemented to protect the safety of construction personnel and Project staff.

I. Operations and Maintenance Plan

The change in equipment does not trigger any changes in the plan for the operation or maintenance of the HQCA BESF as previously described by Petitioner.

HQCA will conduct on-site inspections and maintenance from time to time in accordance with the manufacturers' recommendations. HQCA will maintain the BESF pursuant to all manufacturers' specifications and applicable codes and/or laws as well as all safety best practices and industry best practices. HQCA remains responsible to maintain the area within the fenced HQCA BESF area, including vegetative control, snow removal, and litter clean-up as necessary. And the property owner remains responsible for maintaining the landscaping including vegetative control, mowing, snow plowing, and litter clean-up outside the fenced HQCA BESF.

J. Construction Schedule

The Construction Schedule previously presented by Petitioner does not require modification due to the change in equipment. Site Preparation will still take approximately two to four weeks. Installation will still take approximately four to six weeks, and Commissioning will still take approximately four to six weeks.

A revised HQCA BESF Waterford Milestone Schedule is presented as follows:

Table 2 – HQCA BESS Facility – Waterford Milestones

HQCA BESS Facility - Waterford Milestones	Date Projected
Interconnection	
Impact Study Report / Interconnection Design Review	September 2024
Interconnection Agreement Executed	March 2025
Permitting	
All Approvals and Permits Secured	December 2024
Final Engineering and Design	
90% Construction Engineering Design	October 2025
90% Interconnection Engineering Design	November 2025
Procurement	
BESS Supplier Contract Awarded	June 2025

EPC Contract Awarded	August 2025
Other Major Equipment Procured	January 2026
BESS Delivered to Site	April 2026
Aux. Power Transformer Procured	September 2026
Construction	
HQCA BESS Facility - Waterford - Online	December 2026

K. Conclusion

As set forth in this Supplement, the HQCA BESF satisfies the statutory elements of Conn. Gen. Stat. § 16-50k and its construction, operation and maintenance will not have a substantial adverse environmental effect. Accordingly, this Petition should be approved by the Council.