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November 15, 2023

**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. 1591 – KCE CT 5, 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 5.0-megawatt AC battery energy storage facility located at Village Hill Road, Stafford (Parcel No. 71-6) and Willington (Parcel No. 52-001-00), Connecticut, and associated electrical interconnection. Council Interrogatories to Petitioner.**

Dear Ms. Bachman:

I am writing on behalf of my client, KCE CT 5, LLC, in connection with the above-referenced Petition. With this letter, I am enclosing the original and fifteen copies of the Responses to the Interrogatories issued by the Council October 25, 2023, along with all exhibits for these responses. In addition, I have electronically filed a Motion for Protective Order and affidavit in support of that order with you earlier today in connection with KCE CT 5, LLC's response to Interrogatory Number 4, requesting information regarding the project's costs.

Should you have any questions concerning this submittal, please contact me at your convenience. I certify that copies of this submittal have been submitted to all parties on the Petition's Service List as of this date.

Should you have any questions concerning this submittal, please contact me at your convenience.

Sincerely,

Lee D. Hoffman  
Enclosures

**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| <b>PETITION NO. 1591 – KCE CT 5, 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 5.0-megawatt AC battery energy storage facility located at Village Hill Road, Stafford (Parcel No. 71-6) and Willington (Parcel No. 52-001-00), Connecticut, and associated electrical interconnection. Council Interrogatories to Petitioner.</b> | <b>Petition No. 1591</b> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>November 15, 2023</b> |

Petitioner KCE CT 5, LLC (“KCE”) hereby submits the following responses to the Interrogatories that were directed to KCE by the Connecticut Siting Council (“Council”) on October 25, 2023.

**Project Development**

1. **Has KCE CT 5, LLC (KCE) received any comments since the Petition was submitted to the Council? If yes, summarize the comments and how they were addressed.**

Aside from the CEQ comment letter already submitted to the Council, no additional comments or questions have been received since the submission of the Petition.

2. **Referencing Petition Exhibit M, Town of Stafford outreach, a potential public information meeting is mentioned. Did the Town of Stafford or Town of Willington request a public information meeting? If yes, where and when was it held?**

Neither the Town of Willington nor the Town of Stafford (collectively, the “Towns”) have requested a public hearing or public information meeting. KCE continues to be in communication with the Towns and has extended an open offer to participate in additional meetings should they be desired.

3. **If the project is approved, identify all permits necessary for construction and operation and which entity will hold the permit(s)?**

The following permits are anticipated to be necessary for the construction and/or operation of the Project:

- Building Permits from the Towns;
- Electrical Permits from the Towns;

- Connecticut Department of Energy and Environmental Protection (“CT DEEP”) General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (“General Permit”); and
- Council approval.

It is anticipated that KCE will be the entity that holds these permits.

4. **What is the estimated cost of the project? How are costs recovered? Is the energy being purchased at market rates?**

KCE objects to this interrogatory to the extent it seeks information that is beyond the scope of a petition to declaratory ruling as provided for under the Public Utility Environmental Standards Act, Conn. Gen. Stat. §16-50g, *et seq.* (“PUESA”). In addition, KCE believes that its cost information consists of trade secrets that are protected from disclosure under Connecticut’s Freedom of Information Act, Conn Gen. Stat. §1-200 *et seq* (“FOIA”). Subject to the foregoing objection, KCE replies that it has provided the Council with a Motion for Protective Order, accompanying Affidavit of Taylor Quarles, which was sent to the Council in a separate filing and contains an answer responsive to this interrogatory.

5. **Referencing Petition p. 2, was the project selected for the state Energy Storage Solutions Program? If yes, when was the project selected and what program incentives apply to the project?**

The Project is a proposed stand-alone energy storage system that will participate in wholesale energy, capacity and frequency regulation markets. The Energy Storage Solutions (“ESS”) Program is a program meant to incentivize storage residential, commercial and industrial customers to consider adding storage at their homes or businesses with application to retail customers. As such, the ESS program in its current form does not appear to be applicable to the proposed Project, and KCE has not sought to participate in the program.

6. **What is the term of the agreement for KCE to provide energy storage, and with which entity? If the facility operates beyond the terms of such agreement, will KCE decommission the facility or seek other revenue mechanisms?**

KCE objects to this interrogatory to the extent it seeks information that is beyond the scope of a petition to declaratory ruling as provided for under PUESA. Subject to the foregoing objection, KCE states that the project does not currently have an agreement with any entity to provide energy storage, however, KCE plans to participate in an anticipated Public Utilities Regulatory Authority (“PURA”) program that is anticipated to incentivize front-of-the-meter, distribution-connected, medium scale (<20MW) energy storage projects. Additionally, KCE participated in the ISO-NE Forward Capacity Auction (“FCA”) 17 winning capacity supply obligations (“CSOs”) for the capacity year 2026-27 and intends to participate in FCA 18 to maintain CSOs for 2027-2028. KCE will continue to participate to maintain CSOs in subsequent capacity years. KCE may also participate in the energy only markets and the frequency regulation markets as different needs and market

opportunities are present. Because there is no agreement in place, the second question in Interrogatory Number 6 does not apply to this Project.

7. **If KCE transfers the facility to another entity, would KCE provide the Council with a written agreement as to the entity responsible for any outstanding conditions of the Declaratory Ruling and quarterly assessment charges under CGS §16-50v(b)(2) that may be associated with this facility, including contact information for the individual acting on behalf of the transferee?**

If KCE transfers to another entity, KCE will provide notice of the entity responsible for management and operations of the Project and any outstanding conditions of the Declaratory Ruling and said entity's contact information.

#### **Proposed Site**

8. **Submit a map clearly depicting the boundaries of the battery energy storage facility site and the boundaries of the host parcel(s). Under Regulations of Connecticut State Agencies (RCSA) §16-50j-2a(29), "Site" means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located.**

Please refer to the attached **Exhibit A**, Sheet C-2.0-4.0.

9. **Referencing Petition p. 4, what are the benefits of the proposed site location given that it is in a rural area? For example, is the proposed site located within a "load pocket" or on the "grid edge"?**

Electrically, the Project is located at an area on the distribution network with appropriate charging and injection capacity to allow a project of this size to operate. Additionally, there are other intermittent generation resources operating and in the queue within the Project's vicinity. The location of the Project will support the rural location of the grid allowing current and future planned renewable generation. Electricity use in the area will evolve with greater penetration of electric heat pumps and electric vehicles, which will increase rural load and shifting time of day use. The Project will be able to indirectly benefit the system due to its ability to draw from resources that may be generating at a time of low demand and then make the energy available during periods of high demand. As a stand-alone facility, the Project will be able to provide this benefit for a variety of generation resources, which provides greater flexibility for the system.

10. **Is the site, or any portion of the host parcel, part of the Public Act 490 Program? If so, how does the municipal land use code classify the parcel(s)? How would the project affect the use classification?**

No portion of the host parcel is in the PA 490 Program. A portion of the parcel was previously designated as open space, but that classification expired in 2019 and was not renewed.

11. **Is it possible to construct the Battery Energy Storage Facility (BESF) in the eastern portion of the host parcel or adjacent to Blair Road?**

The western portion of the property near Blair Road is characterized by a steep slope that is not able to host this type of project. The Project is located in a relatively flat area as close to Blair Road as possible, reducing the need for a longer interconnecting powerline. The Project's location was also chosen to avoid impacts to wetlands and water resources. The chosen location is not being utilized by the landowners. The landowners have agricultural operations on the eastern part of the property and if the project were constructed at this location, it would conflict with the agricultural uses. Locating the property in the eastern area would increase the distance for the interconnecting powerline, locate the Project in an area where a large wetland would be between the Project and point of interconnect, and would disrupt the current agricultural uses on the property.

12. **Referencing Petition Exhibit C and Exhibit G of the Petition, if the facility is approved, would notice of the property leases and associated abutting property owner noise waiver be recorded on the respective municipal land records? Is the noise waiver coextensive with the lease term or useful life of the facility?**

KCE has a valid land lease and access easement allowing full site control for the Project, both of which have already been recorded on the municipal land records. The Project does not anticipate needing to record the noise waiver on land records, however, it is willing to do so if the Council so requires it.

#### **Energy Output**

13. **Referencing Petition p. 4, once the BESF is dispatched, for what minimum duration would energy be supplied? Is the minimum duration based on operational or market characteristics?**

KCE uses automation software that allows the BESS to continually track and respond to electricity market needs and opportunities. The Project will be monitored 24 hours a day and as appropriate, manual overrides may be conducted. The duration of charge and discharge activities will be aligned with the duration of an energy market event and the available resources within the BESS.

The Project is not subject to any contract with dispatch obligations. The Project will be operated by KCE's Remote Operation Center to respond to market signals and opportunities. Dispatch will be conducted in response to these opportunities. Any variation of this may occur in response to capacity supply obligations instructions received by ISO-NE, or if and when the Project chooses to enter into a contract with an entity to provide specific services. Any such contact will include terms and requirements for dispatch management.

14. **What distribution system benefits (ex. resiliency of critical infrastructure, reliability of the electric system, etc.) would be provided by the facility? How does the facility meet the objectives of the state Energy Storage Solutions program?**

As stated above, the ESS program as described on the program's webpage is meant to serve residential and commercial customers and is not applicable to this Project. See, <https://energystoragect.com>. The Project does provide benefits at a electricity market wholesale level as envisioned by Public Act 21-53, which includes incentivizing front of the meter ("FTM") projects on the distribution network. The Project is being developed in response to the State's goals as an FTM project on an Eversource 23kV distribution circuit. The Project is located at an area on the distribution network with appropriate charging and injection capacity to allow a Project of this size to operate. Intermittent generation resources are expected to continue to expand in this area, while electricity load profiles evolve with greater penetration of electric heating and transportation. The Project will be able to indirectly benefit the system due to its ability to draw from resources that may be generating at a time of low demand and then make the energy available during periods of high demand. As a stand-alone facility, the BESS will be able to provide this benefit for a variety of generation resources, which provides greater flexibility for the system.

15. **Is the facility required to reserve any battery storage capability for backup power? Where would the backup power be used and by whom?**

KCE is not currently under contract to provide backup power to a specific entity. The Project has participated in the ISO-NE Capacity Market, and currently has 5 MW of capacity supply obligations that KCE plans to maintain in future years. The Project will need to be operated in a manner in which it can respond to capacity demand periods per ISO-NE market rules.

16. **Can the facility operate between 0 and 5 MW? Would each module be dispatched based on need?**

The facility can charge and discharge between 0 and 4.9 MW. The energy management system ("EMS") divides the total QSE/ISO power setpoint between each power-conversion-system ("PCS") evenly or in a manner that would allow the plant to discharge evenly.

17. **Would the facility recharge during off-peak hours? Explain.**

The BESS will recharge at optimal market periods, in other words, when the cost of electricity is the lowest because of low demand and high supply periods. These are typically off-peak periods.

Additionally, the results of Eversource's interconnection studies may limit the Project's charge periods so as not to coincide with periods when the infrastructure used by the Project is under high stress. If Eversource concludes that this is required, such time of day limitations will be included in the interconnection agreement. These periods for allowed charging will likely coincide with off-peak periods.

18. **Is the 5 MW AC output based on the point of electrical interconnection?**

Yes, the Project's location has been selected due to system capacity availability data from Eversource, and further consultation and study performed in cooperation with Eversource to identify the capacity of the system at this location. KCE determined that 5 MW was the appropriate size for the Project at this location.

19. **Referencing Petition p. 5, approximately how much of the battery export capacity will be held in reserve to prolong the battery life?**

The Project has been designed with approximately 13 MWh of excess energy to cover electrical loss, to prevent a full depletion of batteries, and to cover degradation loss over the system's life. A full depletion of batteries would cause batteries to degrade faster, would cause voltage regulation issues on the MV bus, and thus also on the HV bus, and would cause setpoint deviation issues. Batteries also degrade over time. To meet POI energy requirements throughout the Project's life, KCE maintains additional energy storage. In four to five years, KCE will add or replace batteries to maintain contracted energy capacity. For example, during initial battery plant installation, KCE may only install 10 containers. In five years, KCE will install an additional container. In five more years (on year 10), KCE will install one more container, for a total of 12 containers. KCE's analysis concludes that amount of energy will satisfy a project with an estimated 20-year life.

20. **Would KCE participate in any other ISO-NE markets (ex. ancillary services)?**

KCE objects to this interrogatory to the extent it seeks information that is beyond the scope of a petition to declaratory ruling as provided for under PUESA. Subject to the foregoing objection, KCE states that the KCE will seek to participate in all applicable energy markets to maximize the Project's benefits, while taking care to balance the best opportunities with the available BESS resources and necessary commitments required by any market segment.

21. **How is the proposed facility consistent with the objectives of the state Conservation & Load Management Plan?**

Similar to the ESS Program, The Conservation and Load Management Plan ("C&LM Plan") is an energy efficiency and demand management investment plan that develops programs and initiatives to help Connecticut residents and businesses become more energy efficient. The activities outlined in this plan are directly related to residential, commercial, and industrial energy customers and users. The Project or any stand-alone BESS participating in wholesale energy markets cannot directly participate in this program. However, the benefits provided by this Project described above address the same needs and goals of the C&LM Plan, which include shifting energy demand periods and servicing system load.

### Proposed Facility and Associated Equipment

22. **Referencing Petition p. 3 and Tab A – Sheet C-2.0, provide the dimensions (e.g. length, width and height) of the equipment (excluding the control house) that would be installed on each equipment pad.**

The following represents the major components' sizes: Battery Container: 30.512' x 8.596' x 5.577'; 19.875' x 9.501' x 7.999'; MV Transformer: 19.875' x 9.501' x 7.999'. These dimensions are subject to change upon final material selection.

### Interconnection

23. **Why does the point of interconnection occur on Blair Road rather than Village Hill Road? If there is not enough capacity on the existing distribution line on Village Hill Road, what measures would be necessary to increase capacity?**

The power line on Blair Hill Road is a 23kV line with sufficient hosting capacity to allow the injection of electricity from the Project. The power line on Village Hill Road, by contrast, is a 13.8KV line with only 500kW of hosting capacity, and thus cannot accommodate the Project.

24. **Referencing Petition pp. 3-5, estimate the number of poles required to extend the interconnection line to Blair Road. What is the expected approximate height of the utility poles above ground level after installation? Besides the interconnection line, would any of the proposed poles support attached equipment?**

Typically, the height of the utility poles above ground level is approximately 39 feet, however, the height will be determined by Eversource in its discretion as part of the interconnection process. Eversource will likely match the height of the existing utility poles along Blair Road. The proposed configuration with 3 poles at POI is typical for Eversource's connection of a solar generation facility and is based on their design requirements for electrical service, however, Eversource may require a different number of poles for an energy storage facility. It is anticipated that in addition to the 3 poles for interconnection equipment, that 4 distribution poles for overhead lines will be needed to connect the proposed facility to the interconnection poles.

25. **Is the existing electrical distribution on Blair Road three-phase, or would it have to be upgraded from single-phase to three-phase?**

Circuit 15M3 on Blair Hill Road is a 3 phase, 23kV line with sufficient capacity to accommodate the Project. Based on preliminary results from the Eversource System Studies, no powerline reconductor upgrades are expected.

26. **Referencing Petition p. 4, what is the status of the system impact study with Eversource? Is it anticipated the battery manufacturer/model will change based on the interconnection agreement?**



The distribution system impact study is complete, and the transmission level system impact study is in process with expected completion prior to the end of the year. Upon completion of the transmission level study, the Project will elect whether to enter into the 75 day facility study, upon completion of which an interconnection agreement will be tendered. However, KCE may also have the option to waive the facility study and request an interconnection agreement be tendered. Completion of the full process is expected in Q2 2024. At this time no equipment modifications are being considered, however KCE reserves the right to change equipment if necessary.

27. **Referencing Petition p. 3, subject to the final impact study and related design, would the facility be able to automatically disconnect from the grid in the event of a fault or other electrical disturbance? Explain.**

Once the Project is operational, it will be continually monitored 24/7 by a remote operations control center (“ROCC”). The Project will be equipped with Battery Management Software (“BMS”), which shall inform automated procedures and personnel through supervisory control and data acquisition (“SCADA”) systems. The BMS has the ability to disconnect the battery from the grid in case of a fault or abnormal performance indication.

**Public Safety**

28. **What specific codes and standards apply to battery storage facilities? Which version of the National Electrical Code would the Project be designed for?**

Currently, the 2022 Connecticut State Building Code applies to projects with permit applications filed from October 1, 2022 until present. The 2022 Connecticut State Building Code (“SBC”) is based on the International Code Council’s widely-adopted 2021 International Codes and applies to projects with permit applications filed from October 1, 2022. The 2022 SBC adopts the 2020 National Electrical Code (NFPA 70). With that said, the 2023 edition of the NEC was issued by the NFPA Standards Council on August 12, 2022. The effective date of September 1, 2022 is when it officially became available for federal, state, county, and municipal governmental entities to update their electrical installation regulations. The Project will comply with the most updated code applicable at the time of filing for its local building permits, expected in Q2 of 2024. *See, <https://portal.ct.gov/DAS/Office-of-State-Building-Inspector/Connecticut-State-Building-Code/Regulations>.*

The Project will conform with all electrical codes as standards listed in the following table:

| <b>Applicable Code</b>               | <b>Component Part Covered</b> | <b>Description</b> |
|--------------------------------------|-------------------------------|--------------------|
| 2022 Connecticut State Building Code | Whole System                  |                    |
| 2020 International Fire Code (IFC)   | Whole System                  |                    |

|                                                 |                             |                                                                                                                             |
|-------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| 2021 International Building Code (IBC)          | Whole System                |                                                                                                                             |
| National Fire Protection Association (NFPA) 855 | Whole System                | Standard for the Installation of Stationary Systems                                                                         |
| UL 9540                                         | Whole System                | Requirements for installation, providing appropriate instruction manuals                                                    |
| NFPA70                                          | Whole System                | Benchmark for safe electrical design, installation, and inspection                                                          |
| NFPA70e                                         | Whole System                | Workplace injuries and fatalities due to shock, electrocution, arc flash, and arc blast, and assists in complying with OSHA |
| UL 9540A                                        | Battery Rack + enclosure    | Installation ventilation requirements; fire protection (integral or external); Fire service strategy                        |
| UL 1973                                         | Battery Rack                | Test ability to withstand fire from the outside and inside of BESS without cascading between modules                        |
| UL 1741                                         | Inverter                    | Inverters capable of managing grid reliability functions.                                                                   |
| UL 1642                                         | Battery Cell                | Reduce the risk of fire or explosion and for the responder when dealing with damaged product                                |
| UL 2054                                         | Battery Cell                | Type of plastic, wall thickness, amount of non-UL qualified material used, etc                                              |
| IEC 62281                                       | Battery Cell Transportation | Safe transport as hazardous material                                                                                        |

29. **Identify the code/standard and section that addresses the minimum fence height for the BESF.**

Per Connecticut’s Building Code Chapter 52 – 52.1.15 “Security of Installations”, an ESS must be secured against unauthorized entry and safeguarded in an approved manner. *See also*, NFPA 855:4.3.8.1.

Per the 2020 NFPA 70 portion of the 2022 CT State Building Code, for installations other than equipment as described in 110.31(D), a wall, screen, or fence shall be used to enclose an outdoor electrical installation to deter access by persons who are not qualified. A fence shall not be less than 2.1 m (7 ft) in height or a combination of 1.8 m (6 ft) or more of fence fabric and a 300 mm (1 ft) or more extension utilizing three or more strands of barbed wire or equivalent. For more information, *see*, <https://up.codes/viewer/connecticut/nfpa-70-2020/chapter/1/general#110.31>.

30. **Is a gap proposed between the bottom of the fence and grade. What animal deterrents are in place for small animals, such as nesting birds, chewing rodents, etc.?**

The Project's design follows recent solar development practices that include a 6-inch gap at the bottom of the fence to allow for the passage of small animals. KCE prefers to have the fence secured to the ground to deter any pests from entering. Additionally, the BESS containers/enclosures are designed to prevent small animals from entering the containers where they may chew or cause damage. NDDDB has been consulted for this Project and is not requesting a gap in the perimeter fence. The site plans have been adjusted to reflect this and specifically, the detail for the chain link fence on Sheet C-5.0. Please see Exhibit A.

31. **Referencing Petition p. 14, KCE recommends a fire containment strategy until the fire is exhausted. What is the typical duration of a battery fire before it self-extinguishes? If one battery caught fire, can it easily spread to adjacent batteries? Explain.**

The system is designed to include different compartments to prevent a fire from spreading to other portions of the system as demonstrated through equipment stress and fire testing.

The system equipment proposed by KCE passes UL 9540A. In order to pass UL 9540A, no propagation may occur between a cell that has been ignited and the other system unit cells. A typical duration of a BESS fire should be no more than two days, assuming the containment strategy is applied as prescribed.

32. **Referencing Petition p. 14, the battery units would have fused sprinkler heads for fire safety but the use of the sprinkler system is not recommended. Identify the guidance that recommends that the sprinkler system should not be used. What specific issues arose from use of this system? Will KCE permanently disable the system to prevent accidental use by first responders?**

Recommendations are to avoid the application of water directly to the exterior of an affected BESS enclosure, as the use of water can cause a battery fire to appear extinguished when it is not and cause complications with runoff. This is consistent with the attached guidance from the International Association of Fire Chiefs and the ACP First Responders Guide. Please see **Exhibit B**.

Defensive firefighting tactics are recommended, with water being applied to nearby exposures for cooling, as necessary. Any hoseline operations should be limited to hose and master stream application from outside of the construction perimeter as far back as the hose and stream ranges allow. The decision to provide thermal cooling via hoselines should be

made in coordination with KCE, local emergency responders, and any other required subject matter experts.

The use of water as the primary agent removes the concerns with run off from fire chemical agents. In all instances, however, power shut down and isolation involving any high voltage feeder lines must be confirmed before any defensive measures are taken involving application of water to the site.

BESS technology is relatively new and system safety is evolving and improving. Introducing water inside the battery containers has proven to provide no advantage during a fire event. Training with local emergency responders will reinforce this information. The training will include the guidance for emergency responders to remain outside the fence area. Because connection to the sprinkler systems requires entering the fenced area, this practice will avoid any use of the systems by error.

KCE will continue to coordinate with local emergency responders to refine the emergency response plan, and to initiate training for local responders prior to construction with the best available procedures and recommendations at that time and with additional trainings as the Project progresses.

33. **In the event that such sprinkler heads are activated, would the ground surrounding the proposed facility be graded such that any sprinkler water flow would be directed away from wetlands?**

The sprinkler heads will not be activated. Use of the sprinkler heads requires the emergency responders to perform duties that would go specifically against training, including entering the facility fence line, connecting their equipment to the sprinkler system on the container, and releasing water from the fire department sources. Use of sprinkler systems is not an easy error to make, it would take many decisions and steps during which trained professionals would be able to arrest the improper actions. Local emergency responders will be trained with proper procedures, all of which include not entering the fence line and not attempting to connect to the sprinkler system. Trainings will be held prior to construction, prior to operations, and annually thereafter with written procedures included.

34. **Referencing Petition p. 14, if a battery canister is on fire, water is recommended to cool adjacent battery containers. What would be the result of water suppression overspray on the burning battery container?**

The main concern with directly spraying over a burning container is that the water may put out the visible flame temporarily but can create the environment for reignition at a much less opportune time (e.g. when personnel or combustible materials are around).

The water, acting as a coolant, flows or evaporates away, while not fully removing the heat source and only suppresses the visible symptoms of a thermal runaway. Unless the water can cool all the cells, down to their cores, below the thermal threshold and remove whatever heat source is present, the live cells will heat back up and undergo thermal runaway again. When internally introducing water to containers, an electrical short may occur because

conductive liquids are directed away from appropriate routes and thereby exacerbate the fire.

35. **Would firewater or other runoff from a battery fire be considered hazardous and require cleanup by a hazardous materials response contractor?**

Please refer to the answer contained in question 32. The use of water as the primary agent removes the concerns with run off from fire chemical agents. Use of water only on the surrounding structures and environment prevents the contaminated runoff from any chemicals associated with the BESS and HVAC system.

36. **Referencing Petition p. 14, what layers of protection will be included to prevent “Thermal Runaway?” For example, please respond to the following:**

The first and most important line of defense for Thermal Runaway is the 24/7 ROCC monitoring using the BMS. The system is equipped to detect anomalies and ensure appropriate personal are notified in response to an emergent condition. As needed controls are designed to allow isolated modules, individual containers or the full system to be shut down remotely. Each ESS enclosure is equipped with:

- Two (2) heat detectors per enclosure
- Two (2) smoke detectors per enclosure
- Two (2) combustible gas detector

In the event a fire is detected, the Fire Alarm Control Panel (“FACP”) shall send Alarm and Trouble signals to the Central Station which shall then be relayed to the local fire department dispatch station.

Training for local emergency responders prior to systems operation will be provided with a full review of these systems and guidance for the appropriate approach, use and actions. An initial training will be provided prior to construction, prior to commissioning, and once more, prior to operation.

a. **Would explosion vent panels be installed on the top of the battery energy storage system?**

Each ST2752UX-US unit is equipped with an exhaust ventilation system designed in accordance with NFPA 69 to remove flammable gases released during a potential battery failure from the enclosure before explosive limits can be reached. The system consists of two (2) 100 CFM fans (200 CFM total) per compartment and is triggered by the included gas detectors upon detection of 10% % lower flammability limit (“LFL”) of the volume of the enclosure.

It is standard on Explosion Prevention Systems to remove flammable off-gases during thermal runaway and maintain levels below 25% of the LFL of the volume of the enclosure.

- b. **Would a fast-acting gaseous agent system be installed to potentially put any Class C fire out before it can turn into a Class B fire that involves the battery cells?**

Fire suppression agents are not recommended for use with the systems. Comprehensive study and testing has proven that water is the best agent for controlling and preventing spread of any fire event as indicated above.

- c. **Would thermal imaging be employed?**

Thermal imaging is not used by the BMS.

37. **What type of media and/or specialized equipment would be necessary to extinguish a battery storage/electrical component fire? Specifically, based on any history of fires at installed battery systems, is there specialized firefighting equipment necessary to extinguish a Lithium-ion battery fire?**

The use of water as the primary agent removes the concerns with run off from fire chemical agents. Use of water on the surrounding structures and environment only prevents the contaminated runoff from any chemicals associated with the BESS and HVAC system.

38. **Is the proposed access road designed to accommodate fire response vehicles?**

VHB has performed an analysis with a standard ladder fire truck turning template on the existing/proposed access route from Village Hill Road to the proposed battery facility. The results suggest that this vehicle would be able to navigate the route with minimal clearing of the existing path through the woods, as already proposed on the site plans.

39. **Referring to Petition Exhibit J, Emergency Response Plan (ERP) p. 6, what type of training will the Emergency Response Coordinator have regarding fire response? What entity conducts the training and to what standard?**

KCE has already initiated discussions with the local fire department, provided an overview of current best practices, and provided copies of the preliminary Emergency Operations Plan (“EOP”) for comment. KCE will continue to work with the local fire department and emergency responders to refine this plan prior to construction. Per Section 1, 5. *Preparation and Planning*, KCE will provide training to local fire departments and emergency responders for all scenario response protocols. Please also refer to the responses to questions 40 and 41.

40. **Would KCE dispatch personnel to the BESF in the event of a fire? Where would KCE personnel be located that can respond to site emergencies? Do first responders have to wait on-site for KCE personnel to arrive before beginning emergency response measures?**

In the event of a fire, KCE will mobilize personnel to the site as described in the EOP Annex H. Mobilization will be led by a regional operations manager, whose location will be determined when KCE has approved projects ready for construction in New England.

Additionally, personnel from the BESS provider would be mobilized to advise on response, investigate the incident, and provide guidance for remediation following the event. KCE will provide multiple trainings to local emergency responders during initial construction and commissioning of the BESS. Such training will be updated and repeated annually pursuant to the NFPA 855 code.

41. **Would placards be installed at the facility to alert emergency responders as to how to extinguish a fire, the fire media to be used, and contact numbers to operators of the BESF? If yes, provide detail. If no, explain why such measures are not necessary.**

A standard UN placard will be affixed to the containers. Telephone and emergency contact numbers will be provided on the project fence and gate. The Project's battery containers will have the placard of UN3536, 9. This is for lithium batteries installed in a cargo transport unit.

The US DOT ERG or Emergency Response Guidebook is the definitive guide used by emergency response in responding to chemical spills. It contains tables for Isolation and Protection Distances for spills of various chemicals. It does not have a listing for lithium as this is not the chemical of concern. The ERG includes listings for hydrogen fluoride, which is the most prominent chemical of concern.

KCE will provide local emergency responders with training in fires involving lithium ion batteries and their potential generation of hydrogen fluoride gas. Emergency response instruction will be directly provided and documented in a handbook provided to emergency responders. KCE will provide multiple trainings to local emergency responders during initial construction and commissioning of the BESS. Such training and documentation will be updated when appropriate and repeated annually pursuant to the NFPA 855 code.

42. **Referring to Petition Exhibit J, ERP p. 16 it states “a copy of this plan [ERP] shall be located at each facility”. Where would the ERP be located? How would first responders identify its location?**

A copy of the EOP will be located in the Safety Documents Box on the exterior of the fence near the entry gate. Local emergency responders will be provided with copy of the plan to keep at their own facilities to avoid the need for identifying the location at the BESS during an emergency event, and trainings will be provided prior to operations and annually.

43. **Referring to Petition Exhibit J, ERP p. 29 and Petition Exhibit A, Project Site Plans, identify the location of the fire department staging area.**

KCE will provide training for the local fire department during which proper staging areas will be identified. The clearing for construction within the buffer surrounding the fence line will allow adequate space for staging areas.

44. **Referring to Petition Exhibit J, ERP p. 29, what role does the battery supplier have in fire emergency response? What procedures would be followed if the battery supplier is not available?**

The battery supplier, as well as KCE, will provide guidance, both remotely and on-site as appropriate, regarding the incident as it develops. KCE will work with the battery supplier to review alarms and other data available to evaluate the current conditions within the battery enclosures, take the appropriate operational action steps (if not already completed automatically by system design), and will determine when it is considered safe to access a battery enclosure after a fire event is reported. The local first responders should take up defensive firefighting positions outside of the facility fence as recommended in KCE's EOP and should not enter the facility or open an enclosure without guidance from KCE and/or the battery supplier.

45. **Referring to Petition Exhibit J, ERP p. 32,**

- a. **would smoke from the fire be considered hazardous and require notification to local and/or state authorities besides fire personnel? If yes, list the authorities / and local and state entities.**

In the event of a fire, KCE will notify and cooperate with local emergency responders and fire safety authorities. In recent BESS fire incidents, monitored results concluded that gases released are similar to "fires involving materials such as sofas, mattresses, or office furniture". Please see the attached **Exhibit C**.

- b. **Would smoke require area residences to stay in place or evacuate? If yes, who would determine if these actions are necessary?**

The fire marshal has the ultimate authority for making decisions for orders to shelter in place or evacuate. Per the IAFC guidance on fire response, persons should maintain a safe distance from the unit involve. Typically for large commercial systems, this distance is at least 300'. The nearest residence is greater than 700 feet from the Project. Please see the attached **Exhibit D**.

46. **Referring to Petition Exhibit J, ERP p. 49, the NOTICE box states**

***“If the battery container is equipped with a fire engine and a combustible gas engine, check the state of the ship type switch in the engine. If any ship type switch is in the off position, move it to the off position”.***

**Define the terms “fire engine”, “combustible gas engine” and “ship type switch”. Clarify the required action in the last sentence.**

Upon review and requests for clarification from Sungrow, it appears as though this may be an error caused by document translation. Sungrow has recently updated the document with removal of this language. Please see the updated manual attached hereto as **Exhibit E**, which removes the references to fire engine and combustible gas engine throughout the document.

47. **What are the industry Best Management Practices for Electric and Magnetic Fields at battery storage facilities?**



BESS EMF emissions are expected to be similar to those of transmission substations with respect to 60-Hz magnetic fields, whereas the sources inside the facility are not generally substantial sources of 60-Hz magnetic fields outside the facility. The transmission and distribution lines entering and exiting the facility are the dominant sources of EMF at the property line and beyond. In the case of the Project, the generation tie line that is connecting the Project to the point of interconnect on Blair Hill Rd has the same 23kV rating as the existing road side line and will not create any greater level of EMF than already exists at this location or across most areas of the state.

Because EMF is expected to be minimal at the site and due to the lack of evidence that this is a significant issue according to studies performed by the World Health Organization, there are no industry BMPs for EMF.

48. **Referencing Petition Exhibit B - Liquid Cooling Energy Storage System, the transformers would have either mineral oil or “degradable oil upon request.” What type of oil will be specified? How much oil will each transformer hold, and will there be alarms (such as low-level oil alarms) that can alert monitors of a leak?**

FR3 is a dielectric heat transfer fluid made from 100% vegetable oil for use in electrical transformers and other electrical equipment. FR3 provides improved fire safety over mineral oils. FR3 is readily biodegradable with over 99% biodegradation within 28 days. FR3 is non-hazardous and non-toxic in soil and water. The FR3-filled medium voltage transformers are equipped with port sensors that include a low oil level trip and alarm when oil drops below the minimum level required, which would alert the operations team to potential issues and to perform a visual inspection. Under normal operating conditions there should not be any release to the environment. However, in the case of an accidental release to the environment, the appropriate spill response measures will be taken as per the site specific SPCC plan to ensure that any FR3/Oil that escapes is appropriately mitigated in accordance with said plan. These measures will help to mitigate the potential for the FR3/Oil from entering any catch basins, wetlands, or streams in the area. Any FR3 that infiltrates soils onsite is biodegradable, non-hazardous, non-toxic and will be cleaned up in accordance with the site specific SPCC plan. Any FR3 on impervious surfaces will properly be cleaned up in accordance with the site specific SPCC plan. All soiled absorbent materials and collected FR3 will be disposed of in accordance with all State and Federal regulations and the site specific SPCC Plan.

49. **Referencing Petition Exhibit G – Acoustic Analysis,**
- a. **Will the system generate noise during charging of the facility, discharge of the facility, neutral conditions (i.e. neither charging nor discharging), or all three?**  

The system will generate sound during charge, discharge, and in a steady maintenance state at varying levels.
  - b. **Was the modeling performed for the worst-case scenario, and does such scenario also take into account any fans for the cooling system? Explain.**

The sound level modeling represents the worst-case scenario, including fans, for the Project which includes all 12 battery container systems operating at full load with the liquid-cooling system also running at full capacity. The PCS were modeled under reduced noise operation. “Reduced noise operation” data were provided by the manufacturer and can be achieved by reducing PCS power and cooling fan operations. This lowers sound levels by approximately 8 dBA, represents worst-case conditions, and was used in the sound level analysis for this project. The project will be operated within the parameters of the sound modeling.

c. **What mitigation methods can be employed to reduce the sound level at the north property boundary to meet applicable Department of Energy and Environmental Protection (DEEP) Noise Standards?**

Given the fact that the worst-case modeling that was completed, and that the affected neighbor, Jason Zieger and the Town of Stafford have been informed and have granted a noise waiver to the Project, KCE believes that further mitigation at this location is unwarranted. However, KCE submits that real world data should be collected. To that end, KCE submits that once the Project is constructed, KCE proposes that it conduct a noise study each year for three years, and survey Mr. Zieger for impacts to his property from the Project. If measured data demonstrates an exceedance and Mr. Zieger requests that mitigation measures be employed, KCE can provide the Council with alternatives for limiting sound levels at the northern boundary, most likely in the form of a wall to dissipate noise.

### **Environmental Effects and Mitigation Measures**

50. **Are there any wells on the site or in the vicinity of the site? If so, how would KCE protect the wells and/or water quality from potential construction and operational impacts?**

While it is anticipated that the nearby residences are served by private wells based upon a review of Connecticut Department of Health (“CTDPH”) Public Water Supply Map, there are no known wells in close proximity to the proposed battery facility and the battery facility is sited approximately 750 feet from the nearest residence. Notwithstanding that fact, KCE intends to meet the State’s stormwater quality standards for the Project and will apply for a General Permit.

51. **Referencing Petition Exhibit E, Geotechnical Report, Figure 1 (test location plan) is not legible. Provide a legible copy.**

Please see the attached Exhibit F.

52. **Referencing Petition p. 8, four acres of trees would be removed to develop the BESF. Would core forest be impacted from the proposed tree clearing? What methodology/resources were used to determine core forest impact?**

The site is located within an area mapped as core forest based on CT DEEP's Forestland Habitat Impact Mapping Tool. This tool was used to determine core forest impacts. *See*, <https://hub.arcgis.com/maps/f9175844f49b4385a6096bcd200ad931/explore?location=41.938066%2C-72.297441%2C16.06>.

53. **Referencing Petition Exhibit M, the March 23, 2023 pre-application meeting with DEEP described 1 to 1.5 acres of tree clearing for the site. What project site changes occurred since the meeting that increased the amount of clearing to 4 acres?**

No project changes have occurred. The two numbers refer to different areas of clearing. The 1.5 acres of clearing will be for facility itself. The total project footprint, including the interconnection route, facility, and access road will require 4 acres of clearing total.

54. **Revise Site Plan C-3 to show contours and grading along the proposed access drive, grading within the compound, tree clearing limits for the compound, access drive and utility line, location of vernal pools, and complete boundaries of the wetland delineation.**

Site Plan Sheet C-3 has been revised to add additional existing and proposed grading contours as requested, as well as adding the two (2) delineated vernal pool locations (and their accompanying 100-foot vernal pool envelopes) to the site plans as well. Please see the attached Exhibit A. Generally, no regrading is proposed within the interconnection corridor, the battery facility, or the existing/proposed access road and existing site grades will remain. The battery containers have been designed to be parallel to the existing contours to minimize earthwork needed. Lastly, anticipated tree clearing limits have been added to Sheet C-2.0 for the interconnection corridor. A de minimis amount of tree clearing is anticipated along the existing access path and the exact extent of clearing needed cannot be determined until an EPC is engaged who will construct the Project and have knowledge of which vehicles will be used.

55. **Referencing Petition p. 9, which DEEP Division was consulted regarding the stream crossing? Are bottomless culverts proposed for the intermittent stream crossings? Does the proposed culvert crossing conform to DEEP's Stream Crossing Guidelines?**

Subsequent to the pre-application meeting with the CT DEEP concierge team, a smaller group met with Bianca Beland of CT DEEP's Land and Water Resources Division on June 21, 2023, to discuss the proposed crossing location and approaches to access road design that would balance protection of the resource with the Project's requirements. The current design incorporates the topics discussed during this meeting. In accordance with CT DEEP Stream Crossing Guidelines, bottomless culverts are not required for intermittent stream crossings, and not proposed for this site. The proposed culvert conforms to CT DEEP's Stream Crossing Guidelines.

56. **Referring to Petition Figure 5 and Petition Exhibit D, was the southwestern portion of the host parcel surveyed for vernal pools/wetlands?**

Yes, the southwestern portion of the host parcel was surveyed multiple times during the wetland delineation and vernal pool survey efforts. This portion of the site consists of regenerating forest in upland.

57. **Referring to Petition Exhibit D, the Wetland and Watercourse Report.**

- a. **Blue-spotted salamander egg masses were identified within Vernal Pool 1. Are blue-spotted salamanders a State-listed species? If yes, what is their classification?**

Yes, blue-spotted salamanders are state-listed as a species of special concern.

- b. **What salamander mitigation measures could be implemented at the site?**

Prior to construction, the Project could install silt fence and conduct a preconstruction sweep of the fencing to relocate any amphibians outside of the work area. The silt fence will exclude blue spotted salamander and other amphibians from the work area during construction.

- c. **Provide a vernal pool habitat assessment (pre and post construction) in accordance with methodology provided in the U.S. Army Corps of Engineers Vernal Pool Best Management Practices.**

Please refer to the attached **Exhibit G**. Exhibit G shows pre and post construction conditions within the 750-foot critical terrestrial habitat (“CTH”) and 100-foot vernal pool envelope, as defined in the USACE Vernal Pool Best Management Practices guidance document. The Project will occupy approximately 2.8% of the CTH of VP-CWF-1 and approximately 1.6% of the CTH of VP-CWF-2. No impacts are proposed within the 100-foot vernal pool envelope for either pool observed in the survey area.

- d. **What is the average dispersal range from a vernal pool to an upland area for the blue spotted salamander?**

The Massachusetts Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program has data that suggests that blue spotted salamanders can migrate up to 100 meters (328 feet) from their breeding wetland. The CT DEEP does not provide a dispersal range for blue-spotted salamanders, however, guidance indicates that they tend to inhabit red maple swamps, similar to the wetland mapped within the survey area.

- e. **What is the distance of the proposed BESF and access drive to the two identified vernal pools?**

The proposed facility, at its fence line, is approximately 684 feet from VP-CWF-2, within which blue spotted salamanders have been observed. The proposed access road is approximately 235 feet from the vernal pool at its closest point.

The proposed facility, at its fence line, is approximately 490 feet from VP-CWF-01, within which blue spotted salamanders have been observed. The proposed access road is approximately 369 feet from the vernal pool at its closest point.

**58. The Petition Geotechnical Report indicated the proposed stormwater basin is in an area containing soils with low permeability. Could the basin intercept and retain groundwater during times of a highwater table such as spring? What methods could be deployed to reduce the possibility of the stormwater basin from acting as a decoy pool for vernal pool obligate species?**

Based on the geotechnical findings and recent increase in rainfall frequency, it is feasible for the permanent stormwater basin to hold stormwater runoff for portions of the year. One method that could feasibly prevent wildlife from entering the basin would be to install a wildlife protection fence (E-fence or similar) along the top bank of the stormwater basin upon completion of construction. However, it should be noted that the stormwater basin is proposed to be installed approximately 700 feet away from the nearest located vernal pool.

**59. Submit photographic site documentation with notations linked to the site plans or a detailed aerial image that identify locations of site-specific and representative site features. The submission should include photographs of the site from public road(s) or publicly accessible area(s) as well as Site-specific locations depicting site features including, but not necessarily limited to, the following locations as applicable:**

**For each photo, please indicate the photo viewpoint direction and stake or flag the locations of site-specific and representative site features. Site-specific and representative site features include, but are not limited to, as applicable:**

- 1. wetlands, watercourses and vernal pools;**
- 2. forest/forest edge areas;**
- 3. agricultural soil areas;**
- 4. sloping terrain;**
- 5. proposed stormwater control features;**
- 6. nearest residences;**
- 7. Site access and interior access road(s);**
- 8. utility pads/electrical interconnection(s);**
- 9. clearing limits/property lines;**
- 10. mitigation areas; and**
- 11. any other noteworthy features relative to the Project.**

**A photolog graphic must accompany the submission, using a site plan or a detailed aerial image, depicting each numbered photograph for reference. For each photo, indicate the photo location number and viewpoint direction, and clearly identify the locations of site-specific and representative site features show (e.g., physical staking/flagging or other means of marking the subject area).**

**The submission shall be delivered electronically in a legible portable document format (PDF) with a maximum file size of <20MB. If necessary, multiple files may be submitted and clearly marked in terms of sequence.**

A photo exhibit and accompanying map of photo locations has been prepared and is attached hereto as **Exhibit H**.

### **Facility Construction**

60. **Would the proposed concrete pads be poured on site or delivered to the site? Explain.**

The EPC contractor selected to oversee the construction of the Project will choose the best method for establishing concrete pads and foundations based on the Project's 100% engineered design for construction. Any work performed on site will follow best general practices for containment and cleanup of any construction materials and methods.

61. **Quantify the amounts of cut and fill that would be required to develop the proposed facility. If there is excess cut, will this material be removed from the site or deposited on the site?**

It is anticipated that there will be minimal amounts of cut and fill required to develop the Project. It is anticipated that the total volume of cuts will be approximately 500 cubic yards. There will be an anticipated need for 350 cubic yards of fill, which will offset these cuts. The Project is currently in discussion with the landowner as to where he would like the remaining 150 cubic yards of cuts to be placed on his property.

62. **Provide a site construction phasing plan.**

Please reference **Exhibit A**, *Site Plans Civil Design*, Sheet Number C4.0, Construction Sequencing. Specific sequencing will be performed in greater detail and will be updated upon the hiring of the EPC contractor. The final sequence will be reviewed by CT DEEP as part of the stormwater General Permit application process.

63. **What methods would be employed to control erosion during construction of the interconnection route? Is a permanent road proposed along the interconnection route? If yes, provide detail.**

It is not anticipated that any grubbing required for the construction of the interconnection route. In addition, it is anticipated that tracked equipment and temporary erosion control methods, such as mats or tackifier, will be used as needed to control erosion during the construction of the interconnection route. Only a temporary road will be utilized for the construction of the interconnection route.

64. **Would blasting be required to develop the site? Has KCE determined the final design and construction methods for site development (e.g. foundations, subgrade preparation, etc.)?**

It is not anticipated that blasting will be required to construct the Project. The geotechnical report findings show that material at the site is largely sand with no likelihood of shallow bedrock. Final design for construction methods will be determined by final engineering and after hiring an EPC contractor.

### **Facility Maintenance/Decommissioning**

65. **Referring Petition p. 5, it states the battery cells may be replaced after 5 years,**

- a. **what is the anticipated life of a battery before replacement/replenishment is required?**

The anticipated life of a BESS is 20 years, or 65% SOH (overall state of health), whichever comes first. It is anticipated that 20 years will likely come first if the Project is operated as recommended. This meets industry standards. The Petition refers to augmentation every five years. In other words, the Project will add additional energy capacity to maintain contracted point-of-interconnection energy capacity over 20 years.

- b. **what is anticipated annual degradation of battery storage capacity?**

Battery storage capacity does not degrade on a linear basis. Typically, it degrades the largest in the first year and degradation decreases over time. The average annual degradation is 1.59% per year.

- c. **at what remaining battery capacity is replacement/replenishment recommended?**

Battery replacement or decommissioning is recommended at 65% SOH.

- d. **what is the estimated cost of replacement/replenishment?**

The estimated cost of replacement is the sum of the future value of batteries in \$/kWh multiplied by the amount of energy to be installed and the future value of labor and equipment to install the batteries. These costs may be negotiated ahead of time in some cases.

66. **At what time intervals would the transformers, inverters and switchgear need replacement?**

The MVT will need replacement every 10 years. The PCS (inverters/rectifiers) will need replacement every 10 years. The switchgear will also need replacement every 10 years.

67. **How frequently would site visits be required for maintenance purposes?**

Planned maintenance of the BESS is generally done twice annually. Reactive maintenance and other site visits will be conducted on an as needed basis.

68. **At what intervals would vegetation management occur within the interconnection corridor?**

The Project vegetation maintenance interval practices will be similar to those currently practiced by Eversource in Connecticut. Eversource documentation for similar interconnection corridors indicates that vegetation management occurs in 4-to-5 year cycles, with occasional mid-cycle trimming for locations that cannot wait until the normal cycle. See, <https://www.eversource.com/content/residential/about/reliability/vegetation-management/distribution-system-vegetation-management#:~:text=Our%20robust%20vegetation%20management%20programs,arborists%20and%20vegetation%20management%20professionals.>