STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD

In re: Petition of Energy Storage	**:**	
Resources, LLC for a Jurisdictional	**:**	**Docket No. SB-2019-02**
Determination Pursuant to	**:**	
R.I. Gen. Laws § 42-35-8	**:**	

ENERGY FACILITY SITING BOARD'S
FIRST SET OF RECORD REQUESTS TO
ENERGY STORAGE RESOURCES, LLC

EFSB RECORD REQUEST NO. 1-1:

Page 3 of the Petition states the following (please note the emphasis added below is different from the emphasis added in the Petition):

> The rule expressly provides that a facility that is able to generate at least 40 megawatts of **electricity** is considered a 'major energy facility and is subject to the EFSB jurisdiction.

Which, if either or both, of the following sentences make sense?

a. The rule expressly provides that a facility that is able to generate at least 40 megawatts of **electrical energy** is considered a 'major energy facility and is subject to the EFSB jurisdiction

b. The rule expressly provides that a facility that is able to generate at least 40 megawatts of **electrical power** is considered a 'major energy facility and is subject to the EFSB jurisdiction

RESPONSE NO. 1-1:

The Petition was quoting the direct language of the Energy Facility Siting Act. The Act does not distinguish or define "power" and "energy."

Response prepared by or under the supervision of
Alex Fraenkel

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EFSB RECORD REQUEST NO. 1-2:

Referencing the Petitioner's response in EFSB 2-7 that the facility does note store power, is the facility capable of **generating** at least 40 MW of power?

RESPONSE NO. 1-2:

No. As noted in Petitioner's response to EFSB 2-4, The facility is not capable of bringing energy into existence, thus the facility cannot generate.

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EFSB DATA RECORD REQUEST NO. 1-3:

Referencing the Petitioner's response in EFSB 2-8 that the facility can discharge at a different and higher power than it charges, is the facility capable for example, of charging at 30 MW for six hours and then able to discharge at a rate of 180 MW for approximately one hour? If so, would approximately 150 MW of power have been generated? If not, where would have the approximately 150 MW of power come from, since it was not previously stored in the facility per the Petitioner's response to EFSB 2-7?

RESPONSE NO. 1-3:

As noted in the final sentence of the Petitioner's response to EFSB 2-8, "[t]he facility's ability to charge and discharge at variable power ratings for different durations will be governed by how much energy is stored in the facility at the specific time interval." The rate of charging does not have a direct correlation to the discharge rate and discharging at a higher rate is not generation. The energy would have been generated by a different resource on the electricity system at a previous time.

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EFSB DATA RECORD REQUEST NO. 1-4:

Referencing the Petitioner's response to EFSB 1-6, why isn't the process of reclaiming energy as electricity generation?

RESPONSE NO. 1-4:

As noted in the NY Siting Board summary, "… to the extent electrical energy storage involves the reconversion of another form of energy back to electricity, it is still distinguished from electrical generation by the fact that the energy stored was previously electric energy generated elsewhere."

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EFSB RECORD REQUEST NO. 1-5:

Please provide recent and public accounts, if any can be found, of explosions or other catastrophic events at storage facilities similar to the proposed project.

RESPONSE NO. 1-5:

The article linked here provides an overview of a fire which took place in Arizona in April, 2019: https://www.renewableenergyworld.com/2019/04/23/aps-battery-energy-storage-facility-explosion-injures-four-firefighters-industry-investigates/#gref

Several learnings came out of an investigation into the fire which will be taken into account in the future as industry standards develop:

a) Emergency Response Plan. Manufacturer must provide an emergency response plan to detail appropriate responses under varying conditions.

b) Training: All potential first responders need to be trained on the battery system, battery safety, and the emergency response plan. This includes substation techs, trouble men, utility BESS maintenance personnel, and the local fire department(s).
   - Collect signatures to document who attended and completed the training.
   - Video-record trainings, so that techs, maintenance staff, and T-men that were hired later would still have access. Make training mandatory for all applicable employees.
   - Require software training modules to be furnished by manufacturer, for annual re-certifications and refreshers of utility personnel on first-response training.

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c) Critical Alarms and Monitoring. For each BESS, utility, owner, and manufacturer must work together to identify which critical alarms need to be monitored. Critical Alarms list typically includes:
    - Low voltage, high voltage, ground fault, low current, high current, fire detection, breaker operation, activation of fire suppression, and loss of comms.
    - Loss of communications is particularly important. There must be a mechanism by which a heartbeat and pulse between systems is recorded so that utility is notified if the primary comm pathway has been lost.
    - Owner must also have a 24/7 network operations center (NOC) that provides independent 24/7 monitoring, and is available for discussion at any point with the utility DOC.

d) Secondary Alarms and Monitoring:
    - Owner responsible for monitoring all secondary alarms (any alarm that is not a critical alarm). Email and page alerts are sent to utility BESS maintenance personnel on all secondary alerts.

e) Redundant Alarm Monitoring and Control: Require redundant comm pathways for the critical alarms and control. Cellular can be one pathway (provided by utility). A 2nd pathway can be included via radio or fiber, depending on availability (provided by utility). The third pathway to be provided via a secure portal through the vendor's independent communication pathway and environment.

f) Internal Design:
    - No overhead metals that can melt during a fire and cause cascading short circuits and runaway (such as aluminum).
    - System must have intelligence and capability to identify faulty cells and isolate them from charging/discharging
    - Fire detection and fire suppression required
    - Inverters UL 1741 SA certified
    - Units shall be UL 9540 certified

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