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November 3, 2020

Village of Warwick Planning Board
77 Main Street
Warwick, NY 10990

Att: James Patterson, Chairman

**RE: CONVERGENT ENERGY AND POWER – BATTERY ENERGY STORAGE FACILITY
28 CHURCH STREET
SECTION 28, BLOCK 2, LOT 10
JOB # 1802.58**

Dear Mr. Patterson and Planning Board Members:

We have reviewed the following documents submitted for the Convergent Energy and Power application:

- Cover letter from ERS Engineering Consultants, PC, dated 10/27/20
- Site Plans prepared by ERS (2 sheets), revised 9/10/20
- Full Environmental Assessment Form, Part 1, signed 10/29/20, and Part 2 (blank)
- Emergency Response Plan, dated September 14, 2020
- Decommissioning Plan, dated September 28, 2020.

We provide the following review comments:

1. With respect to the proposed use, Building Inspector Boris Rudzinski has responded that the facility is an allowed use, subject to the receipt of correspondence from Orange & Rockland Utilities that the facility will be utilized for public use.
2. Fire Chief Schweikart has indicated that he has no concerns regarding the proposed facilities.
3. Information has been added to Sheet 2 of the site plans regarding electrical services, including new underground and above-ground facilities.
 - a. The utility pole numbers should be updated in the enlarged plan at the bottom of the sheet.
 - b. We note typographical errors with “auxiliary”, “transmission”, and “gravel”.
 - c. Section 3.1.1 of the Emergency Response Plan mentions that the facility will be equipped with flood lighting. The location, height, and illumination characteristics of the proposed lighting fixtures should be provided.
4. The Emergency Response Plan provides detailed information that addresses many concerns that the Planning Board has raised. Section 4.4 mentions that during an evacuation, people “must rendezvous at a Meeting Point (location to be determined)”. We recommend that the meeting point be established and added to the plan. We note several typographical errors, as shown in the attached pages.

Convergent Energy and Power – Battery Energy Storage Facility

5. The cost of decommissioning should be established, and a bond provided in an acceptable form to the Village.
6. Sufficient information has been provided for review of the Environmental Assessment Form.

Sincerely,

Engineering & Surveying Properties, PC, Village Engineers


David A. Getz, P.E.

cc: file

Robert Dickover

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- ii. Isolate the surrounding area and keep unauthorized individuals away.
- iii. Monitor for oil runoff and redirect runoff away from surface water and drainage ditches.
- iv. Monitor the transformers for possible fumes and oil releases, staying upwind and consider evacuating downwind for at least 100 feet.
- v. Remain alert for potential transformer explosions.
- vi. A smaller fire can be suppressed using Carbon Dioxide which has a class C rating to 100,000 volts.
 - i. Dry Chemical is not recommended as it offers no cooling. Transformer failures are persistent because the internal fault/arc retains heat in the windings and surrounding metal keeping oil above its autoignition temperature.
 - ii. For a larger fire, a 25' standoff distance is required, agents should be applied using a combo nozzle (bubble cup) employing a 30-degree fog pattern, no straight streams.

4.2.3 Medical Emergency

In the event of a medical emergency within the BESS facility, the NOC should be notified. Depending on the severity, local emergency responders will be requested. See Section 5.2, Table 2 for contact information of medical emergency responders.

4.2.4 Chemical Spill

Chemical spills can potentially come from three major sources: battery electrolyte, transformer oil or HVAC condensate. Spills are highly unlikely and remote monitoring and periodic facility inspections during routine maintenance of the BESS facility are adequate to recognize them in a timely manner. Once identified, spills will be cleaned up by Convergent's designated maintenance contractor for the project under the direction of Convergent's designated Project Manager / Site Manager. Any required risk mitigating actions have been taken by Convergent personnel in the design of the facility. It should be noted that all electrical insulating oil used at the site is free of PCBs.

4.2.5 Unauthorized Access

Personnel visiting the BESS facility will only do so with the express consent of the NOC, and Convergent will be notified to their expected presence at the facility in advance of arrival.

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- a. The Heat or Smoke detectors in the storage unit could detect a fire and initiate de-energization.
- b. The Stat-X aerosol fire suppression system is activated to contain the fire until firefighters arrive.
- c. The affected storage unit and associated reservoir inverter unit would be automatically de-energized by the control system. As a precaution and depending on the severity of the incident, adjacent storage units (up to the entire system) may be de-energized as a precaution.
- d. Non-essential personnel should evacuate the affected area.
- e. The BESS should be shut down physically by emergency responders if safely possible. The BESS can be shutdown automatically by the Emergency Stop System. Emergency responders should locate the E-stop, which will be marked as such and highlighted on emergency response documents.
- f. Any area surrounding the BESS facility (outside of the BESS perimeter) that has been affected by a battery fire could be cooled by blanketing with low velocity water stream or water fog.
- g. The site shall be periodically monitored by Convergent for re-ignition for a 24 hours.
- h. Cabinet doors should not be opened by any emergency response personnel, including the Warwick Fire Department until a thorough analysis has been done by GE and there is no indication of raising temperatures inside the container.
- i. Due to the composition of gases vented during a Li-ion battery fire, the air in the surrounding area of the facility should be considered potentially corrosive, toxic, and/or flammable.
- j. Batteries which are exposed to excessive heat beyond their recommended temperature range are at risk for explosion. During thermal decomposition from a fire, chlorine, hydrogen chloride, and sulphur dioxide can be formed. Thus, it is of utmost importance that responders do not enter the BESS perimeter during a fire.
- k. It is recommended that full PPE including SCBA gear should be worn by any Warwick Fire Department personnel responding to a fire event at the BESS facility.

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O&R	Emergency Gas Hotline	800.533.5325
OTHER	Orange County Emergency Management Office	845.615.0400

Table 2: Local Emergency Contact List

6 SYSTEM SAFETY CONSIDERSTIONS

The proposed GE BESS safety features and Battery Management Systems (BMS) work together to help protect against common industrial battery failure modes due to abuse, damage or other external factors. These protections are evaluated with a comprehensive Safety Risk Assessment for the equipment and designed to meet applicable UL, NEC, and NFPA standards.

The LI-ion batteries are sourced from Tier-1 suppliers with products that have a track record of utilizing technology and components that renders the likelihood of a safety event low. Such an event could be isolated by the module cabinets, rack assemblies, and steel shell of the storage unit. However, the system design requires at least 10 feet of separation from the adjacent cabinets and intentional setback from native fuels to provide a buffer for minimizing the likelihood of engaging materials beyond the site boundaries.

A key aspect in battery safety is adhering to the recommended operating practices. If safe operating limits are exceeded, the BMS are designed to isolate the affected batteries and racks from the system. The BMS continues to monitor operating conditions and will return the battery to service when conditions warrant availability.

Potential hazard sources are identified and discussed as follows.

6.1 Voltage

The BESS is expected to operate in the range of 500VDC to 1500VDC. The National Fire Protection Agency's (NFPA) standard 70E on electrical safety in the workplace establishes a limited approach boundary for unqualified workers at 3.3'. This boundary is observed in