DRAFT

Petition No. 1498
Bloom Energy Corporation
Americold Logistics LLC, 24 Northwest Drive
Plainville, Connecticut
Staff Report
May 20, 2022

Introduction

On March 22, 2022, the Connecticut Siting Council (Council) received a petition from Bloom Energy Corporation (Bloom) for a declaratory ruling, pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k, for the installation of a 2.0 megawatt (MW) fuel cell facility and associated equipment to be located at the Americold Logistics, LLC (Americold) building that is currently under construction at 24 Northwest Drive in Plainville, Connecticut (Petition or Project).

Bloom provided Project plans to the Town of Plainville (Town) Planner on February 22, 2022. The Town inquired about visual aspects of the fuel cell facility in the location where it is proposed. Bloom provided the Town with sample photos of completed fuel cell facilities. On April 28, 2022, the Town informed Bloom it had no additional comments on the proposed fuel cell installation.

On March 15, 2022, Bloom provided notice of the Project to abutting property owners, Town officials required state agencies and officials, and the Town of Farmington, which has boundaries within 2,500 feet of the proposed facility. No comments were received.

On March 25, 2022, the Council sent correspondence to the Towns of Plainville and Farmington stating that the Council has received the Petition and invited the municipalities to contact the Council with any questions or comments by April 21, 2022.

Also on March 25, 2022, pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40, the Council notified all state agencies listed therein, requesting comments regarding the proposed Project be submitted to the Council by April 21, 2022. No comments were received.

The Council issued interrogatories to Bloom on April 20, 2022. Bloom provided responses to the Council's interrogatories on May 4, 2022.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act, an administrative agency is required to take action on a petition within 60 days of receipt. On May 12, 2022, pursuant to CGS §4-176(e), the Council voted to set the date by which to render a decision on the Petition as no later than September 18, 2022, which is the 180-day statutory deadline for a final decision under CGS §4-176(i).

Public Benefit

The Project would be a "customer-side distributed resources" facility, as defined in CGS § 16-1(a)(49). CGS § 16a-35k establishes the State's energy policy, including the goal to "develop and utilize renewable energy resources…to the maximum practicable extent." The proposed facility is a distributed generation resource and will contribute to fulfilling the State's Renewable Portfolio Standard as a low emission Class I renewable energy source. The facility would be installed, maintained and operated by Bloom under a 6-year managed services agreement with Americold.

Neither Bloom nor Americold participated in any state or utility-sponsored renewable energy procurement programs for the Project. It is a privately funded Project.[1]

Project Site

The proposed facility is to be located on a 24-acre parcel owned by Americold. The site is zoned Restricted Industrial (RI), and it is under development for the approximately 240,000 square foot Americold warehouse building and associated parking areas and driveways. As of May 4, 2022, the exterior of Americold's warehouse building is completed. The fuel cell facility would be installed in the northeastern portion of the parcel between the Americold warehouse building and a parking area.

The surrounding area consists of commercial and industrial development to the north, south, and west. The nearest residential property line from the proposed facility is approximately 755 feet to the southeast beyond the Pequabuck River on Hardwood Road.

Proposed Project

The facility would consist of five 300-kW and two 250-kW Bloom Energy ES-5 solid oxide fuel cell Energy Servers and associated equipment, including water deionizers, telemetry cabinets, disconnect switches, a transformer and utility cabinets. The energy servers comprising the fuel cell facility would be installed in a two-row linear arrangement on an approximately 109-foot 6-inch long by 42-foot 6-inch wide asphalt service apron. A 9-foot 6-inch wide aisle would be between the two energy server rows. The height of the energy servers would not exceed 7.1 feet. See Attached Site Plan for detail.

The facility would be installed within a paved parking area. It would be accessed through a striped "no parking" space over a ramp that crosses a sidewalk. Accidental vehicle impact would be deterred by a sidewalk crossing, a six-inch high curb and an approximately 25-foot distance from the nearest parking space. The fuel cells are tamper proof and can only be accessed by essential personnel with a unique access key.

The natural gas interconnection would extend underground to the north to a gas main within Northwest Drive. Electric and data connections would extend underground to the west to a utility room inside the warehouse building. A water connection would extend underground to the west to a connection point behind the warehouse building.

The proposed facility would be a customer-side, distributed resources project, designed only to provide electricity. The proposed facility would operate in parallel with the utility grid and provide roughly 50 to 70 percent of the building's base load.[2] The facility would not operate as an emergency generating device or as part of a demand response program. Approximately 1.4 MW of capacity from the fuel cell facility would be used to provide uninterrupted power to Americold's refrigeration equipment, and the remaining 600 kW would be consumed by Americold for its operations. The interconnection application was submitted to Eversource in January 2022 for review. Final interconnection approval is anticipated in June 2022.

[1] On page 3 of the Petition, Bloom indicates the system will function as a microgrid. Under CGS §16-243y, a microgrid is defined as a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid and that connects and disconnects from such grid to enable it to operate in both grid-connected or island mode.
[2] The final percentage depends on the final building load once construction is completed and operations commence.

The proposed Bloom fuel cell units are designed to optimize the electrical efficiency alone rather than operate as combined heat and power units. Heat generated by the proposed facilities is used internally to increase the electrical efficiency of the fuel cells, and consequently there is no useful waste heat generated.

The fuel cell facility would operate for the 6-year contract with Americold. The solid oxide fuel cell media would be changed at five-year intervals. At the end of the 6-year contract, Americold may renew the contract or terminate. If the contract is terminated, the fuel cell units and associated equipment and components would be dismantled and removed.

Bloom anticipates construction to start in the third quarter of 2022 with approximately 12 - 18 weeks of total construction time, i.e. 4 to 6 weeks for site prep, 4 to 6 weeks for installation and 4 to 6 weeks for commissioning. Construction hours would be Monday-Friday, 7AM – 5 PM.

The estimated cost of the facility is $1,679,265.

Environmental Effects and Mitigation

The fuel cell facility would comply with all applicable Department of Energy and Environmental Protection (DEEP) water quality standards as no water would be consumed or discharged once the facility is operational. The proposed fuel cell facility would operate without water discharge under normal operating conditions. Water consumption would only occur at system fill and during restart operations.

Air emissions produced during fuel cell operation would not trigger any regulatory thresholds and are shown below.

Fuel Cell Facility	
Compound	lbs/MWh
NOx	0.01
CO_2*	679-833

*DEEP amended its regulations in 2016 to eliminate the CO2 permit requirements from the New Source Review and Title V Programs as a result of a United States Supreme Court decision that overturned states' regulatory CO2 permit requirements (*Utility Air Regulatory Group v. U.S. Environmental Protection Agency*, 573 U.S. 302 (2014)

The proposed facility would emit no methane (CH_4), sulfur hexafluoride (SF_6), hydrofluorocarbons (HFCs) or perfluorocarbons (PFCs), which are greenhouse gases defined in RCSA §22a-174-1(49), and would emit negligible amounts of sulfur oxides, volatile organic compounds and particulate matter.

The fuel cell desulfurization system would remove sulfur that is used as an odorant in natural gas because it is a fuel cell system contaminant. Sulfur compounds would be collected within a desulfurization unit (desulf unit) using a filter media – a composite copper catalyst. The U.S. Department of Transportation has certified the desulf unit as an acceptable form of transport for the desulfurization material that meets hazardous waste shipment standards. When a desulf unit is taken out of service, it is transported by a Bloom contractor to an out of state facility where the composite copper catalyst within the unit is removed, and the copper is used for other products. The empty desulf units are the refurbished for reuse at other Bloom fuel cell locations.

Visual impact from the proposed Project would be minimal as it is located on an industrial warehouse property. The Americold building will block views of the Project from the south and southwest. Existing vegetation and distance will minimize views from the residential area to the east beyond the Pequabuck River and also from areas to the west of the subject property. Views of the facility from Northwest Drive would be limited to the immediate vicinity of the site.

No wetlands, forest or prime farmland soils would be disturbed by the proposed Project as it is located within a paved area between the warehouse building and its parking lot. Erosion and sedimentation controls for the proposed facility would comply with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.

The site is not within a Federal Emergency Management Agency-designated flood zone. The site is located within a DEEP-designated Aquifer Protection Area (APA). The proposed installation involves only shallow excavation in a recently disturbed area, and therefore, it would not have an adverse effect on the APA. The site is not within a DEEP Natural Diversity Database buffer area.

The site is previously disturbed and not expected to impact cultural resources.

Public Safety

Before commissioning the proposed facility, Bloom would use compressed air as pipe cleaning media in accordance with Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission.

The fuel cell facility has internal and remote 24/7 operational monitoring. Abnormal operation would cause the facility to automatically shut down. The facility can also be shut down through a remote operations center as well as manually. The fuel cell facility is designed in accordance with American National Standards Institute and Canadian Standards Association (ANSI/CSA) America FC 1-2004 and the National Fire Protection Association, Inc. Standard 853 for stationary fuel cell power systems and includes extensive safety control systems, including both automatic and manual shutdown mechanisms that comply with pertinent engineering standards.

An emergency response plan (ERP) for the facility is included within the Petition. Bloom would submit the ERP to the Plainville Fire Marshal and would provide on-site training to local officials.

The fuel cell system is controlled electronically and has internal sensors that continuously measure system operation. If safety circuits detect a condition outside normal operating parameters, the fuel supply is stopped, and individual system components are automatically shut down. In addition, manual emergency shut down push buttons would be located at the site.

Noise associated with the construction of this Project would be temporary and exempt from DEEP Noise Control Regulations. Operation of the facility is expected to produce noise emissions no greater than 29 dBA at the nearest residential receptor located approximately 755 feet to the southeast of the site and would comply with DEEP's Noise Control Regulations. The fuel cell would have a noise dampening foam material at the doors and exhaust of the fuel cell to lower its noise emissions by up to 5 dBA.

Conclusion

The Project is a distributed energy resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. It would reduce the emission of air pollutants that contribute to smog and acid rain, and to a lesser extent, global climate change, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources.

If approved, staff recommends the following conditions:

1. Approval of any Project changes be delegated to Council staff;

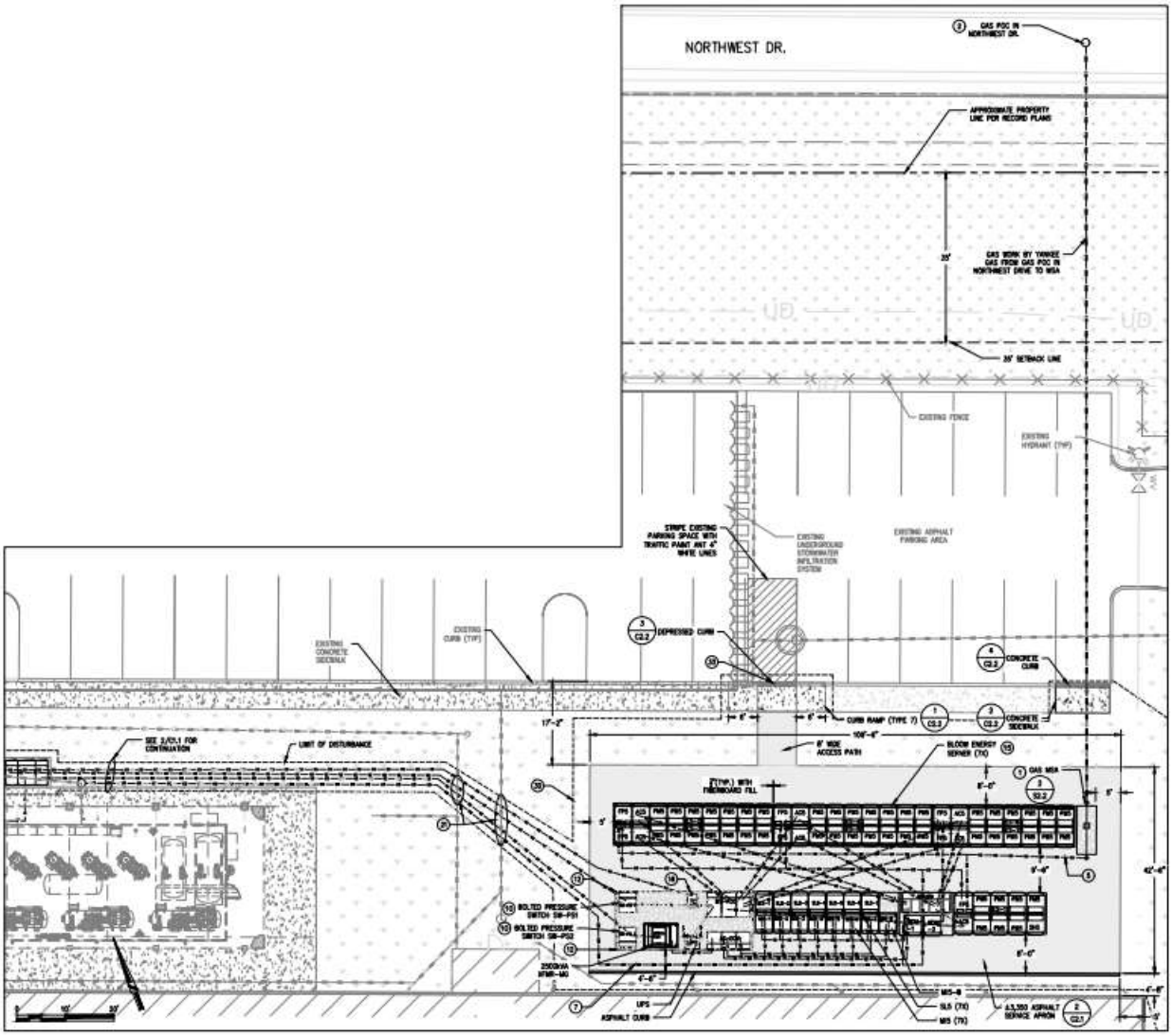
2. Provide a copy of the Fuel Cell Emergency Response Plan to local emergency responders prior to facility operation, and provide emergency response training; and
3. The Council shall be notified in writing at least two weeks prior to the commencement of site construction activities.

Fuel Cell Location

Exhibit 2
Site Vicinity
Proposed Bloom Energy Facility
Americold
24 Northwest Drive
Plainville, Connecticut

Bloomenergy
ALL-POINTS TECHNOLOGY CORPORATION

Site Plan


NORTHWEST DR.
GAS POC IN NORTHWEST DR.
APPROXIMATE PROPERTY LINE PER RECORD PLANS
GAS WORK BY YANKEE GAS FROM GAS POC IN NORTHWEST DRIVE TO MSA
35' SETBACK LINE
EXISTING FENCE
EXISTING HYDRANT (TYP)
STRIPE EXISTING PARKING SPACE WITH TRAFFIC PAINT 4" WHITE LINES
EXISTING UNDERGROUND STORMWATER INFILTRATION SYSTEM
EXISTING ASPHALT PAVING AREA
EXISTING CONCRETE SIDEWALK
EXISTING CURB (TYP)
DEPRESSED CURB
CONCRETE CURB
CURB RAMP (TYPE 7)
CONCRETE SIDEWALK
6' WIDE ACCESS PATH
BLOOM ENERGY SERVER (TYP)
GAS MSA
(TYP.) WITH FIBERBOARD FILL
SEE 3/C5.1 FOR CONTINUATION
LIMIT OF DISTURBANCE
BOLTED PRESSURE SWITCH SW-PS1
BOLTED PRESSURE SWITCH SW-PS2
2500KVA XFMR-MG
UPS
ASPHALT CURB
MS-B
SLS (TYP)
MS (TYP)
43,500 ASPHALT SERVICE APRON

Photographs of Site Plan Area

Looking toward Americold building northeast corner from Northwest Drive; proposed installation to be located near corner of building

Looking toward Americold building northeast corner from driveway at Northwest Drive; proposed installation to be located between building and driveway