



April 24, 2020

Melanie Bachman, Esq.  
Executive Director  
Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

**RE: Petition of Bloom Energy Corporation for a Declaratory Ruling for the Location and Construction of a 600-Kilowatt Fuel Cell Customer Side Distributed Resource at Southern Connecticut State University, 201 Wintergreen Avenue, New Haven, Connecticut**

Dear Attorney Bachman:

We are submitting an original and fifteen (15) copies of the above-captioned Petition, together with the filing fee of \$625.

In the Petition, Bloom Energy Corporation (“Bloom”) requests the Connecticut Siting Council approve the location and construction of a 600-kilowatt fuel cell and associated equipment (the “Facility”). The Facility will be located on the North Campus of Southern Connecticut State University at 201 Wintergreen Avenue, New Haven, CT (the “Site”). Electricity generated by the Facility will benefit the University, and any excess electricity will be exported to the electric grid. The Facility will be fueled by natural gas.

Should you have any questions, concerns, or require additional information, please contact me at (860) 839-8373.

Sincerely,  
Bloom Energy

A handwritten signature in black ink, appearing to read "Justin Adams".

Justin Adams  
[justin.adams@bloomenergy.com](mailto:justin.adams@bloomenergy.com)  
(860) 839-8373

**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

PETITION OF BLOOM ENERGY : PETITION NO. \_\_\_\_  
CORPORATION FOR A DECLARATORY :  
RULING FOR THE LOCATION AND :  
CONSTRUCTION OF A 600-KILOWATT FUEL :  
CELL CUSTOMER-SIDE DISTRIBUTED :  
RESOURCE AT 201 WINTERGREEN AVENUE, :  
NEW HAVEN, CT : APRIL 24, 2020

PETITION OF BLOOM ENERGY CORPORATION FOR A DECLARATORY RULING

Pursuant to Conn. Gen. Stat. §§ 4-176 and 16-50k(a) and Conn. Agencies Regs. § 16-50j-38 et seq., Bloom Energy Corporation (“Bloom”) requests that the Connecticut Siting Council (“Council”) approve by declaratory ruling the location and construction of a customer-side distributed resources project composed of three (3) ES-5 Bloom Energy Server solid oxide fuel cells and associated equipment (the “Facility”), providing 600 kilowatts (“kW”) (net) of power to Southern Connecticut State University (“SCSU”) at its North Campus in New Haven, Connecticut (the “Site”). *See* Exhibits 1A and 1B. The Facility will be installed, maintained and operated by Bloom. It will be owned by a third-party financing source of Bloom under an agreement with the State of Connecticut.

Conn. Gen. Stat. § 16-50k(a) provides that:

Notwithstanding the provisions of this chapter or title 16a, the council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling ... (B) the construction or location of any fuel cell, unless the council finds a substantial adverse environmental effect, or of any customer-side distributed resources project or facility ... with a capacity of not more than sixty-five megawatts, as long as such project meets air and water quality standards of the Department of Energy and Environmental Projection....



The proposed Facility will be a customer-side distributed resources facility under 65 MW that complies with the air and water quality standards of the State of Connecticut Department of Energy and Environmental Protection (“DEEP”). Bloom submits that no Certificate is required for the proposed Facility, as the installation would not have a substantial adverse environmental effect in the immediate vicinity of the Site or in the State of Connecticut.

## I. COMMUNICATIONS

Correspondence and other communication regarding this petition should be directed to the following parties:

Justin Adams  
Bloom Energy Corporation  
4353 North First Street  
San Jose, CA 95134  
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Fax: (408) 543-1501  
Email: [justin.adams@bloomenergy.com](mailto:justin.adams@bloomenergy.com)

Nedal Sumrein  
Bloom Energy Corporation  
4353 North First Street  
San Jose, CA 95134  
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Fax: (408) 543-1501  
Email: [nedal.sumrein@bloomenergy.com](mailto:nedal.sumrein@bloomenergy.com)

## II. DISCUSSION

### A. Project Description and Purpose

The Facility will be a 600-kW customer-side distributed resource consisting of three (3) state-of-the-art Bloom Energy Servers and associated equipment. The Facility will be interconnected to switchgear within the nearby Energy Center (power plant) building. *See* Exhibits 1B and 2.

The proposed Facility is a “customer-side distributed resources” project because it will be “a unit with a rating of not more than sixty-five megawatts [located] on the premises of an industrial end user within the transmission and distribution system including, but not limited to, fuel cells ....” Conn. Gen. Stat. § 16-1(a)(34)(A). Further, the Connecticut Public Utilities



Regulatory Authority (“PURA”) determined that Bloom’s Energy Server qualifies as a Class I renewable energy source fuel cell as defined in Conn. Gen. Stat. §16-1(a)(20)(A). Decision, Docket No. 12-02-09, September 12, 2012.

The purpose of the proposed project is to replace a portion of the average baseload of the West Campus infrastructure<sup>1</sup> with a Class I renewable energy source, assist in achieving the State’s sustainability goals, and improve reliability of electrical systems and equipment. The Facility has been sized to provide almost 62% of the annual average baseload of almost 1,000 kW for the SCSU West Campus. Exhibit 3. Electricity generated by the Facility will be consumed primarily at the West Campus, and any excess electricity will be exported to the grid.

## **B. The Facility**

The Facility will consist of three Bloom solid oxide fuel cell Energy Servers, two (2) 200-kW model ES5-FABAAN and one (1) 200-kW model ES5-FADAAN, and associated equipment. As shown in Exhibit 2, the fuel cells and associated equipment will be installed on the North Campus of SCSU, adjacent to the north side of the Energy Center. The associated equipment includes water deionizers, telemetry cabinets, disconnect switches and utility cabinets. The Facility is enclosed, factory-assembled and tested prior to installation on the Site. See Exhibit 3 for Bloom Energy Server Product Datasheets.

The operational life of the Facility is for the life of the 20-year contract and the solid oxide media in the fuel cells are exchanged at roughly five-year intervals. The Facility, the connections, and associated equipment will be installed in compliance with applicable building, plumbing, electrical, and fire codes. At the conclusion of the 20-year contract, the State may

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<sup>1</sup> The Energy Center is located on the North Campus but also provides power for the West Campus.





renew the contract, return the Facility at no cost, or buy the Facility at a fair market value. If the Facility is to be removed at the end of the contract or if there is a default in the contract, the Energy Servers, associated equipment and components will be dismantled and removed and the site will be restored as nearly as practicable to its effective original condition.

The Facility will be capable of producing 600 kW of continuous, reliable electric power. The Facility will interconnect to the Site's distribution system and operate in parallel with the grid to provide the Site's electrical requirements. Any electricity generated in excess of the Site's requirement will be exported to the grid in accordance with the United Illuminating ("UI") interconnection technical requirements. This installation will not have an uninterruptible power module ("UPM") and thus will not have any means to output power in a grid independent capacity at any time. The grid-parallel output will interconnect with the utility power system at the switchgear within the adjacent electric distribution switchyard.

Each Energy Server is equipped with a UL-1741 listed inverter set that complies with IEEE-1547 standards for interconnection of inverter-based distributed generation. It is UL Recognized under UL Category QIKH2 and UL File Number E310552. The interconnection application for the Facility will be submitted to UI in June 2020. The impact study agreement and cost determination are pending, and initial feedback is expected in August 2020. The Facility will be fueled by natural gas supplied by the Southern Connecticut Gas Company.

The Facility will have extensive hardware, software and operator safety control systems, designed in accordance with American National Standards Institute and Canadian Standards Association for Stationary Fuel Cell Power Systems ("ANSI/CSA"). It is Listed by UL as a "Stationary Fuel Cell Power System" to ANSI/CSA FC1-2014 under UL Category IRGZ and UL



File Number MH45102. The Facility would be controlled remotely and have internal sensors that continuously monitor 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. A Bloom Energy Remote Monitoring Control Center (RMCC) operator can also remotely initiate any emergency sequence. An emergency stop alarm initiates an automatic shutdown sequence that puts the system into “safe mode” and causes it to stop exporting power. Bloom operators can assess different situations and take the necessary actions to mitigate impacts on the fuel cells during maintenance work, shutdowns or outages and enable them to come back online smoothly and efficiently when the disruption is completed. In addition, SCSU and City of New Haven Fire Department personnel are provided with an Emergency Response Plan. Exhibit 4.

The Facility will be installed in accordance with NFPA 853<sup>2</sup>. This standard provides fire prevention and fire protection requirements for safeguarding life and physical property associated with buildings or facilities that employ stationary fuel cell systems of all sizes. The risk of fire related to the operation of the Facility is therefore very low. Furthermore, in the Facility, natural gas is not burned; it is used in a chemical reaction to generate electricity. The natural gas is digested almost immediately upon entering the unit and is no longer combustible. As stated above, any variation in heat outside of the operational parameters will trigger an automatic shutdown of the energy server. Before commissioning, the fuel lines (pipes) are cleaned in accordance with Conn. Gen. Stat. Section 16-50ii<sup>3</sup>.

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<sup>2</sup> Standard for the Installation of Stationary Fuel Cell Power Systems, 2015 Edition

<sup>3</sup> Public Act 11-101, An Act Adopting Certain Safety Recommendations of the Thomas Commission

## C. Existing Environment

### i. The Site

The Facility would be installed on the western portion of a 22.62-acre parcel in the northwest area of New Haven. The parcel is one of several that comprise SCSU, and is part of the North Campus. The property is in the Cemetery zoning district, and borders the Town of Hamden to the north.

The Town of Hamden closed landfill and transfer station is immediately to the north of the property. A cemetery is to the west, on the west side of Wintergreen Avenue. Additional SCSU development is to the south and east. The nearest property line to the proposed Facility boundary is with the Town of Hamden landfill/transfer station property approximately 20 feet to the northeast. The closest residentially developed property is approximately 1171 feet to the northeast of the Facility.

The Facility was strategically placed to take advantage of the existing SCSU utility infrastructure while minimizing impact on operational requirements and traffic and pedestrian flow within the Site.

### ii. Wildlife and Habitat

A review of the publicly available Connecticut Department of Energy and Environmental Protection (DEEP) Natural Diversity Database (NDDB) December 2019 data shows that the proposed Facility is within .25 mile of an NDDB area. The nearest NDDB area is approximately .20 mile west of the Facility. Exhibit 6. Therefore, a DEEP NDDB request for review has been submitted. The results of the NDDB review are pending.

### iii. Wetlands and Watercourses

There are no identified natural wetlands or watercourses within the proposed location of the Facility. The nearest wetland is approximately 618 feet west of the Facility. The Facility is located within a previously developed area and minimal clearing of existing landscaping and minimal excavation and grading is required for its development. *See Exhibit 7.* Construction of the Facility would conform to best management practices for erosion and sedimentation (“E&S”) controls, including those provided for in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.

### iv. Cultural Resources

The Facility is proposed in a previously disturbed area and the construction and operation of the Facility will therefore not have a substantial adverse effect on cultural (archaeological and historical) resources.

### v. Flood Zones and Aquifer Protection Area

A review of the flood hazard mapping data from Federal Emergency Management Agency’s (“FEMA”) National Flood Insurance Program (“NFIP”) shows the Facility would be located within Zone X, an area of Minimal Flood Hazard. *See Exhibit 8.*

The Site was also reviewed for proximity to Aquifer Protection Areas. According to GIS data provided by DEEP, the nearest Aquifer Protection Area is approximately 5.96 miles to the northeast of the Facility.

## **D. Environmental Effects and Mitigation**

### i. Natural Gas Desulfurization Process

The first step in the production of electricity in a Bloom Energy server is desulfurization – the removal of the sulfur compounds that have been added to the natural gas as an odorant by



the natural gas suppliers. This step occurs in the desulfurization unit (“Desulf Unit”), a canister that contains a filter made for this purpose. Sulfur is not “produced” in this process, but is separated from the natural gas in which it was contained. In this process, trace levels of sulfur oxides and other naturally occurring elements may also absorb to the filter.

The desulfurization process takes place entirely within the Desulf Unit. Because they are built to hold natural gas, their structural integrity is essential. That integrity is assured by around the clock monitoring of the Energy Servers to detect any leak. Were there a leak, the Server (including the desulfurization operation) would shut down automatically. The structural integrity and leak prevention continue after the desulfurization canisters are removed from service. At that point, the entry and exit points for the natural gas automatically seal shut. The desulfurization canister remains sealed and is not opened at the Site, or anywhere in the State of Connecticut. No gaseous substances are released or vented at any point during the desulfurization process.

The Desulf Unit contains a composite copper catalyst that includes copper. This catalyst removes non-hazardous sulfur odorants from the natural gas feedstock. The sulfur, if not removed, would rapidly and irreversibly damage the fuel cells, bringing the production of electricity to a halt. Although the Desulf Unit is not intended to capture benzene or any other hazardous material, a small amount of benzene adheres to the adsorbent in the Unit.

The Desulf Units are periodically removed from service and replaced with Units containing fresh composite copper catalyst. Upon disconnection, the Desulf Unit automatically seals shut—to assure there is no release of natural gas. The Desulf Units are certified by the U.S. Department of Transportation (DOT) as meeting the hazardous waste shipment standards of the United Nations, DOT, IATA, ICAO and IMO Hazardous Materials Distribution and Packaging requirements.



The spent units are transported to ShoreMet, L.L.C. (ShoreMet) in Indiana, a facility where they are opened, the contents are removed and copper is used as an ingredient in various products. The Desulf Units are then cleaned, refilled, and sent back to the field for reuse.

The Indiana Department of Environmental Management (IDEM) reviewed ShoreMet's management of Bloom's spent desulfurization units. IDEM issued a letter concluding that the spent desulfurization units sent to ShoreMet are excluded from hazardous waste requirements because the contents (i.e., spent media) are used to make copper products (Code of Federal Regulation, title 40, section 261.2(e)(1)(i)). The US Environmental Protection reviewed IDEM's findings and agreed. The California Department of Toxic Substances Control (DTSC) reviewed these decisions and concluded that the Desulf Units are excluded recyclable material (ERM) under California Health and Safety Code, section 25143.2, subsection (b). There are a number of conditions that apply to this exemption; Bloom satisfies those conditions.

ii. Water, Heat and Air Emissions

The construction and operation of the Facility will comply with DEEP's air and water quality standards and will not have a substantial adverse environmental effect.

With respect to water discharges, the Facility is designed to operate without water discharge under normal operating conditions. There are no connections or discharge points to the proposed Facility. Additionally, the Facility would use no water during normal operation beyond a 288-gallon injection at start-up.

Heat generated by the proposed Facility is used internally to increase the electrical efficiency of the fuel cell system. As a result, there is no useful waste heat generated by the fuel cell. The minimal amount of thermal load present at the Site would preclude the efficient deployment of a combined heat and power application.



Conn. Agencies Regs. § 22a-174-42, which governs air emissions from new distributed generators, exempts fuel cells from air permitting requirements. Accordingly, no permits, registrations, or applications are required based on the actual emissions from the Facility.<sup>4</sup> Even though the fuel cell systems are exempt from the emissions requirements, Bloom Energy fuel cells do meet the emissions standards of Section 22a-174-42. Per Section 22a-174-42(e)(1)(A) a certification by the California Air Resources Board (CARB) pursuant to Title 17, sections 94200 through 94214 of the California Code of Regulations meets the requirements of Conn. Agencies Regs. § 22a-174-42. The Bloom Energy fuel cells are certified under the CARB distributed generation program. A current list of certified applications is provided on the CARB's distributed generation certification website (<http://www.arb.ca.gov/energy/dg/eo/eo-current.htm>).

The Facility will also meet state criteria thresholds for all greenhouse gases defined in Section 22a-174-1(49). Table 1 lists thresholds set by the Low and Zero Emissions Renewable Energy Credit (LREC/ZREC) program<sup>5</sup>, and compares them to emissions generated from the proposed Facility. By virtue of the non-combustion process the Bloom Energy fuel cells virtually eliminate NO<sub>x</sub>, SO<sub>x</sub>, CO, VOCs and particulate matter emissions from the energy production process. Similarly, there are no CH<sub>4</sub>, SF<sub>6</sub>, HFC or PFC emissions. The CH<sub>4</sub> is broken down in the reforming process. Reforming is the type of process where if you have sufficient catalyst, the reaction can go all the way to completion. That is the case for the Bloom Energy Server. The fuel is reformed in the hot box – with a significant excess catalyst for reaction.

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<sup>4</sup> See Conn. Agencies Regs. §§ 22a-174-42(b) and (e).

<sup>5</sup> Sec. 16-244t

**Table 1: Connecticut Thresholds for Greenhouse Gases**

<b>Emission Type</b>	<b>Bloom Output</b>	<b>LREC allowance</b>
Nitrous Oxides (NO <sub>x</sub> )	<0.01 lbs/MWh	0.07 lbs/MWh
Carbon Monoxide (CO)	<0.05 lbs/MWh	0.10 lbs/MWh
Sulfur Oxides (SO <sub>x</sub> )	Negligible	Not Listed
Volatile Organic Compounds (VOCs)	<0.02 lbs/MWh	0.02 lbs/MWh
Carbon Dioxide (CO <sub>2</sub> ) <sup>6</sup>	679-833 lbs/MWh	Not Listed

The proposed Facility will ultimately displace less efficient fossil fueled marginal generation on the ISO New England system. Based upon US Environmental Protection Agency (EPA) “eGrid” data, the proposed facility is expected to reduce carbon emissions by more than 25% while essentially eliminating local air pollutants like NO<sub>x</sub>, SO<sub>x</sub>, and particulate matter.

iii. Sound Levels

The Facility is located on a parcel classified as a Class B emitter (68. Educational Services) and the nearest receptor is the Hamden Town Transfer Station to the north of the Facility, also classified as a Class B receptor (69. Miscellaneous Services—Except 691).<sup>7</sup> The results of the sound model predicting noise levels at that property boundary, located at a distance of approximately 47 feet, are provided as Exhibit 9. The proposed Facility would be defined as “Scenario 2” in the model. Scenario 2 models noise for a Bloom Energy Server installed with no structures behind it to reflect sound from either side. The results of the Scenario 2 sound model at 47 feet are 55.3 dBA, which is in compliance with the Connecticut regulations for the Control of Noise and the City’s noise ordinance, which generally conforms to the State regulations. The

<sup>6</sup> Carbon dioxide is measured at Bloom’s stated lifetime efficiency level of 53-60%

<sup>7</sup> Section 22a-69-2 of the DEEP Noise Regulations provide guidance in classifying both emitter and receptor Noise Zones. Classifications are based on the actual use of a parcel or tract under single ownership, as detailed by the Standard Land Use Classification Manual of Connecticut (SLUCONN).



City's ordinance defines daytime hours as Monday through Saturday, 7:00 a.m. to 10:00 p.m. and Sunday and holidays, 9:00 a.m. to 9:00 p.m.

## ix. Visual Effects

The visual effect of the Facility will be minimal. Mature tree growth to the north and west. The Energy Center building will block visibility from the south. Limited visibility may be experienced from the SCSU tennis courts to the east. The addition of the Facility is consistent with the existing development on the surrounding area within the Site.

### **E. Project Construction and Maintenance**

Bloom anticipates construction to start in the fourth quarter of 2020 with 14 weeks of total construction time (6 weeks of site prep, 4 weeks of installation, and 4 weeks of commissioning).

During construction, appropriate erosion and sedimentation (E&S) controls will be installed and areas of disturbance will be promptly stabilized in order to minimize the potential for soil erosion and the flow of sediments off site. Temporary E&S control measures will be maintained and inspected throughout construction to ensure their integrity and effectiveness. The temporary E&S control measures will remain in place until the work is complete and all disturbed areas have been stabilized. No effects to drainage patterns or stormwater discharges are anticipated. Due to the limited disturbance required for the Facility's installation, no construction-related storm water permits will be required.

Soils that are generated during construction activities would not be stored or stockpiled inside of wetlands or adjacent to a watercourse, and appropriate E&S control measures would be employed and maintained for any temporary soil stockpiles. Any excavated soils compatible for reuse will be used as backfill in proximity to the same excavation area from where it originated.



Any excess excavated soils not suitable for reuse would be trucked off-site and managed in accordance with applicable regulations. Rock, concrete and other debris would be removed and trucked off-site.

Areas affected by construction would be re-graded as practical and stabilized using revegetation or other measures before removing temporary E&S controls. Construction-related impacts will therefore be minimal.

### **III. COMMUNITY OUTREACH**

Bloom has provided notice of this petition via certificate of mailing to abutting property owners and appropriate municipal officials and governmental agencies to whom notice is required to be given pursuant to Conn. Agencies Regs. § 16-50j-40(a)<sup>8</sup>. A copy of the notice letter, a service list and documentation of mailing are provided in Exhibit 10 and the corresponding abutters map is provided as Exhibit 11.

A representative of Bloom contacted Ms. Aicha Woods, Executive Director, City Plan for the City of New Haven, and provided plans for review. No response has been received to date. Bloom will address any questions or concerns that may be raised by Ms. Woods or other City representatives. *See* Exhibit 12.

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<sup>8</sup> Conn. Agencies Regs. § 16-50j-40(a) requires that “[p]rior to submitting a petition for a declaratory ruling to the Council, the petitioner shall, where applicable, provide notice to each person other than the petitioner appearing of record as an owner of property which abuts the proposed primary or alternative sites of the proposed facility, each person appearing of record as an owner of the property or properties on which the primary or alternative proposed facility is to be located, and the appropriate municipal officials and government agencies [listed in Section 16-50/ of the Connecticut General Statutes].”



#### IV. BASIS FOR GRANTING OF THE PETITION

Under Conn. Gen. Stat. § 16-50k(a), the Council is required to approve by declaratory ruling the construction or location of a customer-side distributed resources project or facility with a capacity of not more than 65 MW, as long as the facility meets DEEP air and water quality standards. The proposed Facility meets each of these criteria. The Facility is a “customer-side distributed resources” project, as defined in Conn. Gen. Stat. § 16-1(a)(34)(A), because the Facility is “a unit with a rating of not more than sixty-five megawatts [located] on the premises of a retail end user within the transmission and distribution system including, but not limited to, fuel cells” and, as demonstrated herein, will meet DEEP air and water quality standards. In addition, as demonstrated above, the construction and operation of the Facility will not have a substantial adverse environmental

#### V. CONCLUSION

For the reasons stated above, Bloom respectfully requests that the Council approve the location and construction of the Facility by declaratory ruling.

Respectfully submitted,  
Bloom Energy Corporation

By: 

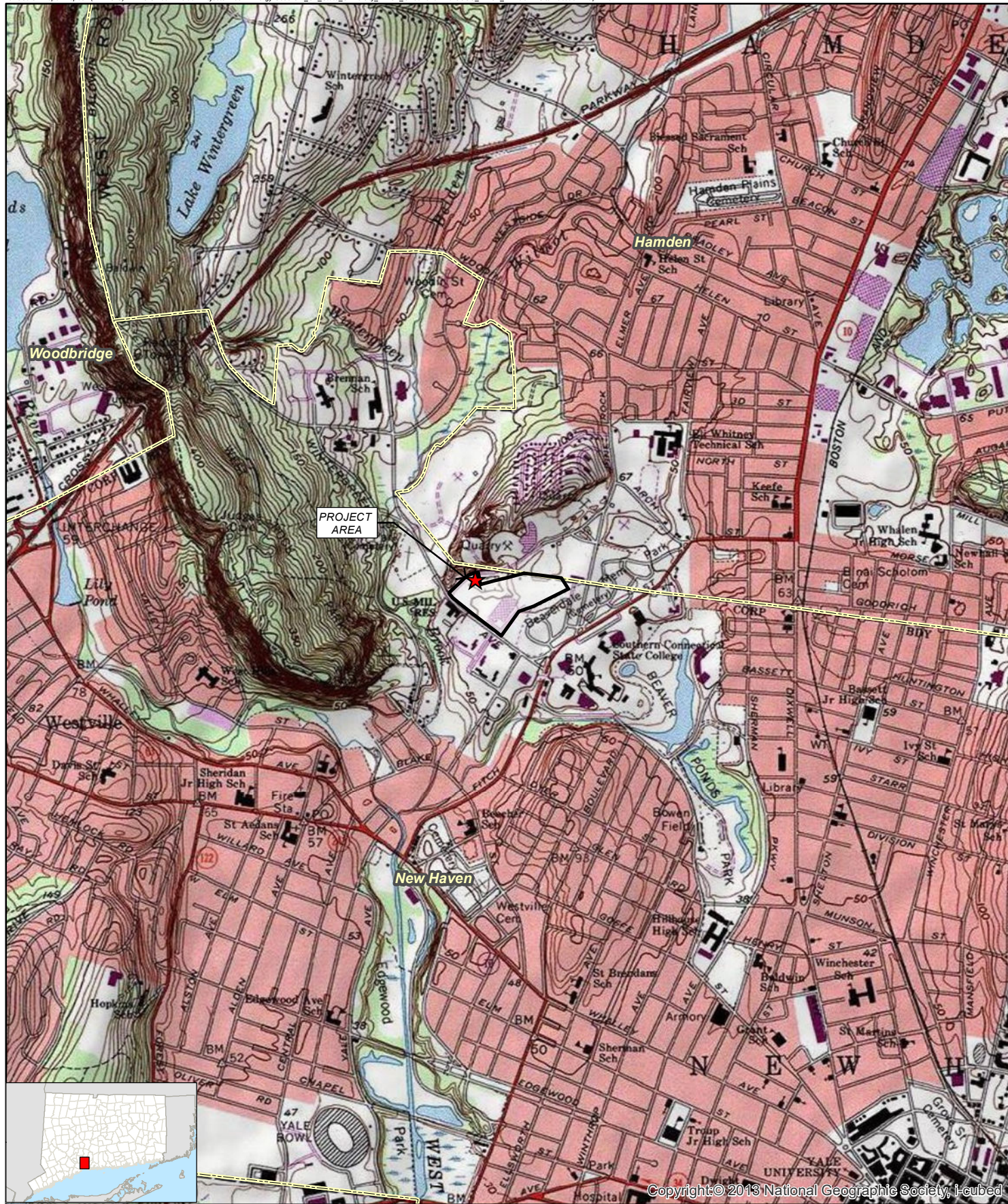
Justin Adams  
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Telephone: (408) 543-1500  
Email: [justin.adams@bloomenergy.com](mailto:justin.adams@bloomenergy.com)

**EXHIBITS**

- Exhibit 1A: Site Location Map
- Exhibit 1B: Site Schematic
- Exhibit 2: Site and Permit Plans
- Exhibit 3: Bloom Energy Server System Background Documentation
- Exhibit 4: Emergency Response Plan
- Exhibit 5: Photos of the Proposed Location
- Exhibit 6: DEEP Coastal Boundary, Natural Diversity Data Base (NDDB), Critical Habitats
- Exhibit 7: DEEP Wetlands and Watercourse Map
- Exhibit 8: FEMA Map
- Exhibit 9: Sound Model
- Exhibit 10: Notice Pursuant to Conn. Agencies Regs. § 16-50j-40(a)
- Exhibit 11: Abutters Map
- Exhibit 12: Municipal Consultation




# Exhibit 1A



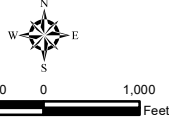


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**Legend**

-  Project Area
-  Site
-  Municipal Boundary

**Map Notes:**  
 Base Map Source: USGS 7.5 Minute Topographic Quadrangle Map:  
 New Haven (1984), CT  
 Map Scale: 1:24,000  
 Map Date: February 2020



**Exhibit 1A  
 Site Location Map**

Proposed Bloom Energy Facility  
 Southern Connecticut State University (SCSU)  
 201 Wintergreen Avenue  
 New Haven, CT










# Exhibit 1B





**Legend**

-  Site
-  Project Area
-  Gas Supply Line
-  Approximate Assessor Parcel Boundary (CTDEEP)
-  Municipal Boundary

**Map Notes:**  
 Base Map Source: CTECO 2016 Aerial Photograph  
 Map Scale: 1 inch = 250 feet  
 Map Date: February 2020



**Exhibit 1B  
 Site Schematic**

Proposed Bloom Energy Facility  
 Southern Connecticut State University (SCSU)  
 201 Wintergreen Avenue  
 New Haven, CT





# Exhibit 2



CUSTOMER SITE

CONNECTICUT  
STATE UNIVERSITY  
201 WINTERGREEN AVE  
NEW HAVEN, CT 06515

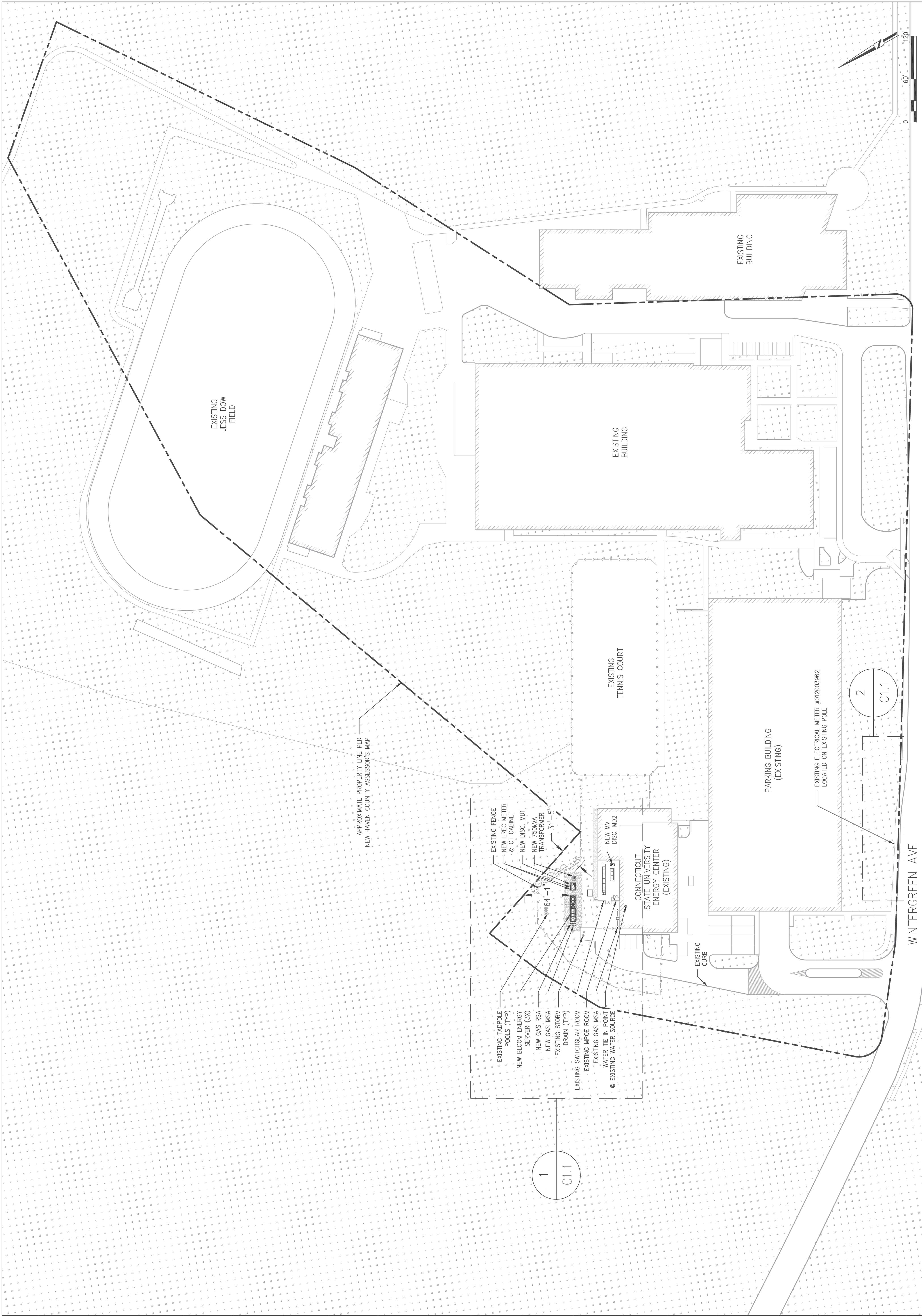


REVISION HISTORY		REVIEWED BY
REV	REVISION ISSUE	DATE

DESIGNED BY CARSON P. TURNER	REVIEWED BY
DRAWN BY BASAVARAJ BEJANAKAHALI	APPROVED BY

SHEET TITLE	OVERALL SITE PLAN
DRAWING NUMBER	G1.1

BLOOM DOCUMENT	DOC-1012502
THIS DRAWING IS 24" X 36" AT FULL SIZE	
SITE ID: CTU003.0	SHEET 03 OF 07



REFERENCE NOTES  
1. SITE PLAN BASED ON GOOGLE EARTH.

OVERALL SITE PLAN  
SCALE: 1" = 60'

1  
C1.1

2  
C1.1

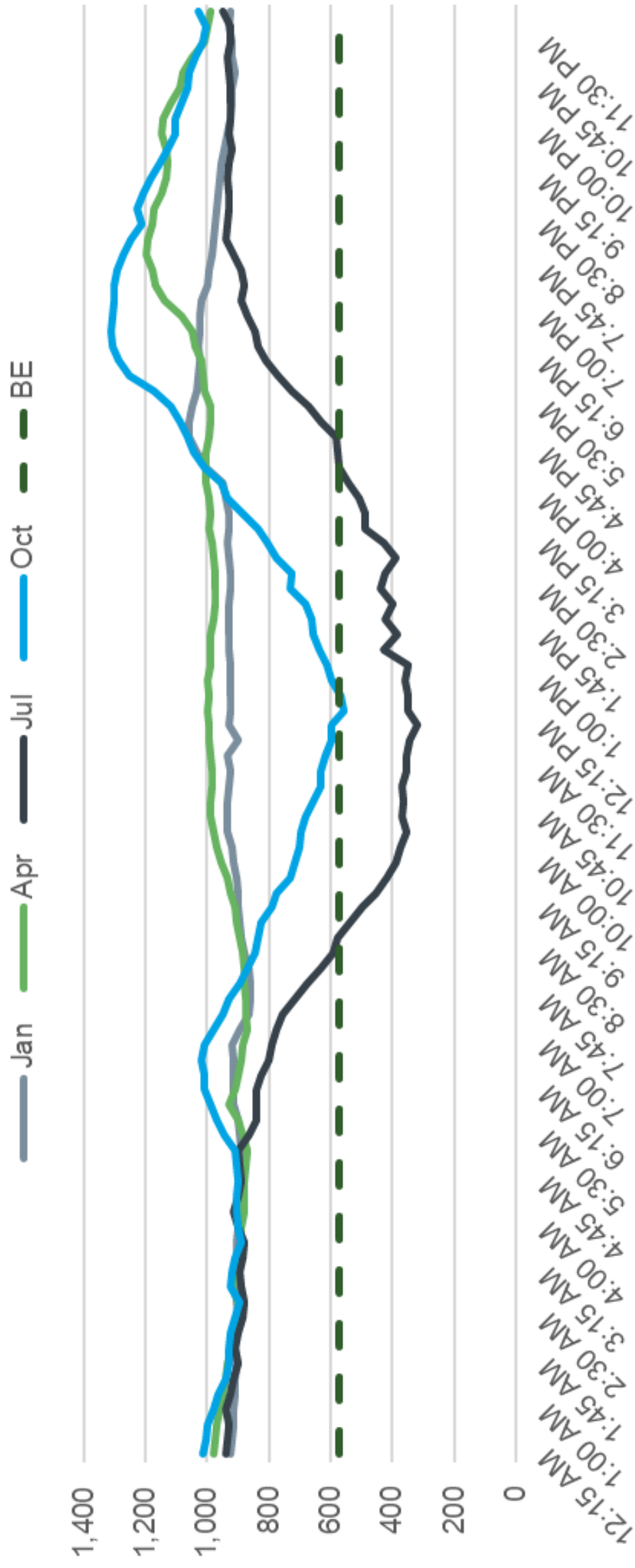






# Exhibit 3

Average Load Profile by Month  
(Bloom serves 62% of load)



## Energy Server™ 5

Always On, Clean Energy  
Using Patented Solid Oxide  
Fuel Cell Technology



*The Energy Server 5 provides combustion-free electric power with these benefits*



### Clean

Our systems produce near zero criteria pollutants (NOx, SOx, and particulate matter) and far fewer carbon emissions than legacy technologies.



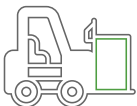
### Reliable

Bloom Energy Servers are designed around a modular architecture of simple repeating elements. This enables us to generate power 24 x 7 x 365 and can be configured to eliminate the need for traditional backup power equipment.



### Resilient

Our system operates at very high availability due to its fault-tolerant design and use of the robust natural gas pipeline system. Bloom Energy Servers have survived extreme weather events and other incidences and have continued providing power to our customers.



### Simple Installation and Maintenance

Our Energy Servers are 'plug and play' and have been designed in compliance with a variety of safety standards. Bloom Energy manages all aspects of installation, operation and maintenance of the systems.

Energy Server 5		Technical Highlights (ES5-FABAAN)	
<b>Outputs</b>			
Nameplate power output (net AC)	200 kW		
Load output (net AC)	200 kW		
Electrical connection	480V, 3-phase, 60 Hz		
<b>Inputs</b>			
Fuels	Natural gas, directed biogas		
Input fuel pressure	10-18 psig (15 psig nominal)		
Water	None during normal operation		
<b>Efficiency</b>			
Cumulative electrical efficiency (LHV net AC) <sup>1</sup>	65-53%		
Heat rate (HHV)	5,811-7,127 Btu/kWh		
<b>Emissions<sup>2</sup></b>			
NOx	0.0017 lbs/MWh		
SOx	Negligible		
CO	0.034 lbs/MWh		
VOCs	0.0159 lbs/MWh		
CO <sub>2</sub> @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas		
<b>Physical Attributes and Environment</b>			
Weight	12.2 tons		
Dimensions (variable layouts)	14'4" x 8'8" x 6'9" or 25'1" x 4'4" x 7'2"		
Temperature range	-20° to 45° C		
Humidity	0% - 100%		
Seismic vibration	IBC site class D		
Location	Outdoor		
Noise	< 70 dBA @ 6 feet		
<b>Codes and Standards</b>			
Complies with Rule 21 interconnection and IEEE1547 standards			
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards			
An Energy Server is a Stationary Fuel Cell Power System. It is Listed by Underwriters Laboratories, Inc. (UL) as a 'Stationary Fuel Cell Power System' to ANSI/CSA FC1-2014 under UL Category IRGZ and UL File Number MH45102.			
<b>Additional Notes</b>			
Access to a secure website to monitor system performance & environmental benefits			
Remotely managed and monitored by Bloom Energy			
Capable of emergency stop based on input from the site			

<sup>1</sup> 65% LHV efficiency verified by ASME PTC 50 Fuel Cell Power Systems Performance Test

<sup>2</sup> NOx and CO measured per CARB Method 100, VOCs measured as hexane by SCAQMD Method 25.3

## About Bloom Energy

Bloom Energy's mission is to make reliable, clean energy affordable for everyone in the world. The company's product, the Bloom Energy Server, delivers highly reliable and resilient, Always On electric power that is clean and sustainable. Bloom's customers include twenty-five of the Fortune 100 companies and leaders in cloud services and data centers, healthcare, retail, financial services, utilities and many other industries.

Bloom Energy

4353 North First Street  
San Jose, CA 95134

T 408 543 1500  
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info@bloomenergy.com  
www.bloomenergy.com

Be

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DOC-1011660 Rev A

## Energy Server™ 5

Always On, Clean Energy  
Using Patented Solid Oxide  
Fuel Cell Technology



*The Energy Server 5 provides combustion-free electric power with these benefits*



### Clean

Our systems produce near zero criteria pollutants (NOx, SOx, and particulate matter) and far fewer carbon emissions than legacy technologies.



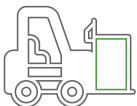
### Reliable

Bloom Energy Servers are designed around a modular architecture of simple repeating elements. This enables us to generate power 24 x 7 x 365 and can be configured to eliminate the need for traditional backup power equipment.



### Resilient

Our system operates at very high availability due to its fault-tolerant design and use of the robust natural gas pipeline system. Bloom Energy Servers have survived extreme weather events and other incidences and have continued providing power to our customers.



### Simple Installation and Maintenance

Our Energy Servers are 'plug and play' and have been designed in compliance with a variety of safety standards. Bloom Energy manages all aspects of installation, operation and maintenance of the systems.



Energy Server 5		Technical Highlights (ES5-FADAAN)	
<b>Outputs</b>			
Nameplate power output (net AC)	200 kW		
Load output (net AC)	200 kW		
Electrical connection	480V, 3-phase, 60 Hz		
<b>Inputs</b>			
Fuels	Natural gas, directed biogas		
Input fuel pressure	10-18 psig (15 psig nominal)		
Water	None during normal operation		
<b>Efficiency</b>			
Cumulative electrical efficiency (LHV net AC) <sup>1</sup>	65-53%		
Heat rate (HHV)	5,811-7,127 Btu/kWh		
<b>Emissions<sup>2</sup></b>			
NOx	0.0017 lbs/MWh		
SOx	Negligible		
CO	0.034 lbs/MWh		
VOCs	0.0159 lbs/MWh		
CO <sub>2</sub> @ stated efficiency	679-833 lbs/MWh on natural gas; carbon neutral on directed biogas		
<b>Physical Attributes and Environment</b>			
Weight	10 tons		
Dimensions (variable layouts)	10'9" x 8'8" x 6'9" or 21'6" x 4'4" x 7'2"		
Temperature range	-20° to 45° C		
Humidity	0% - 100%		
Seismic vibration	IBC site class D		
Location	Outdoor		
Noise	< 70 dBA @ 6 feet		
<b>Codes and Standards</b>			
Complies with Rule 21 interconnection and IEEE1547 standards			
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards			
An Energy Server is a Stationary Fuel Cell Power System. It is Listed by Underwriters Laboratories, Inc. (UL) as a 'Stationary Fuel Cell Power System' to ANSI/CSA FC1-2014 under UL Category IRGZ and UL File Number MH45102.			
<b>Additional Notes</b>			
Access to a secure website to monitor system performance & environmental benefits			
Remotely managed and monitored by Bloom Energy			
Capable of emergency stop based on input from the site			

<sup>1</sup> 65% LHV efficiency verified by ASME PTC 50 Fuel Cell Power Systems Performance Test

<sup>2</sup> NOx and CO measured per CARB Method 100, VOCs measured as hexane by SCAQMD Method 25.3

## About Bloom Energy

Bloom Energy's mission is to make reliable, clean energy affordable for everyone in the world. The company's product, the Bloom Energy Server, delivers highly reliable and resilient, Always On electric power that is clean and sustainable. Bloom's customers include twenty-five of the Fortune 100 companies and leaders in cloud services and data centers, healthcare, retail, financial services, utilities and many other industries.

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# Exhibit 4



*Fire Prevention and Emergency Planning –  
Grid Parallel*

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Bloom Energy Corporation, 1299 Orleans Drive, Sunnyvale, CA 94089 USA

## Table of Contents

1. Fire Prevention and Emergency Planning Overview
2. Fuel Cell Installation Safety Features
3. Emergency Notification Procedures
4. Fire and Smoke Procedures
5. Medical Emergency Procedures
6. Materials Release Procedures
7. Natural Disasters and Severe Weather
  - 7.1 Earthquake
  - 7.2 Flood
8. Utility Outage
9. Good Housekeeping and Maintenance
  - 9.1 Good Housekeeping
  - 9.2 Maintenance
10. Training

## 1. FIRE PREVENTION AND EMERGENCY PLANNING OVERVIEW

---

The following document is provided only as a guide to assist you in complying with national and local codes and requirements, as well as to provide other helpful information. It is not intended to supersede the requirements of any standard. You should review the standards for particular requirements that are applicable to your individual situation, and make adjustments to this program that are specific to your company. You will need to add information relevant to your facility in order to develop an effective, comprehensive program.

## 2. FUEL CELL SYSTEM INSTALLATION SAFETY FEATURES

---

The fuel cell system has redundant safety features and in-system checks to ensure that the system will not harm certified technicians or bystanders near the unit. While the actual fuel cells operate at high temperatures, these components do not move, and are contained within many layers of insulation. During normal operation, the unit is cool to the touch and operates quietly.

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. A Bloom Energy Remote Monitoring and Control Center (RMCC) operator can also remotely initiate any emergency sequence. An Emergency Stop alarm condition initiates an automatic shutdown sequence that puts the fuel cell system into —safe mode and causes it to stop exporting power. If you have questions about any of these safety features, please contact Bloom Energy.

**If you have to shut down your fuel cell system right away**—for example, in case of a building fire or electrical hazard—three shutoff controls are installed at your facility external to the system. The locations of these three controls should be known to your facilities manager before operation, and should be noted on your facility diagram that you created with your Bloom Energy account manager. The three shutoffs are the **EPO button**, the **electrical disconnect**, and the **natural gas shutoff valve**.

- An **Emergency Power Off (EPO) Button** cuts all power to all systems and stops them from exporting power to your building. All natural gas flow is also stopped within the systems. (The EPO button is on the front/side of the EDM, if an EDM is installed.) Lift the protective cover and break the glass seal that covers the button with the attached hammer. After the glass seal is broken, the shutdown sequence will automatically begin.



Figure 1: Emergency Power Off Button

- An **electrical disconnect** manually disconnects systems from the grid if needed. Pressing the EPO button should already stop any power transmission, but it does not hurt the systems to also open this disconnect if you believe it is needed. The location of this disconnect will vary, however it is typically located near the point of interconnection where the wires from the fuel cell installation meet the facility's electrical framework. This may be inside your facility's electrical room, or if the fuel cell installation is near the electrical room, it may be found within the switchgear that Bloom Energy installs. This location of this disconnect is shown on the Site Map (see below) and is labeled "(name of electrical utility) Lockable Visible Generator Disconnect Switch".



Figure 2: Electrical Disconnect

- A **manual natural gas valve** shuts down all natural gas to the system. If the valve operator is perpendicular to the pipe, the valve is shut. If it is parallel with the pipe, the valve is open.



Figure 3: Manual Natural Gas Valve

**Site map:**

- An overhead site map showing the location of all safety features will be posted throughout the fuel cell installation
- Electronic copies are available to you for use in your site planning

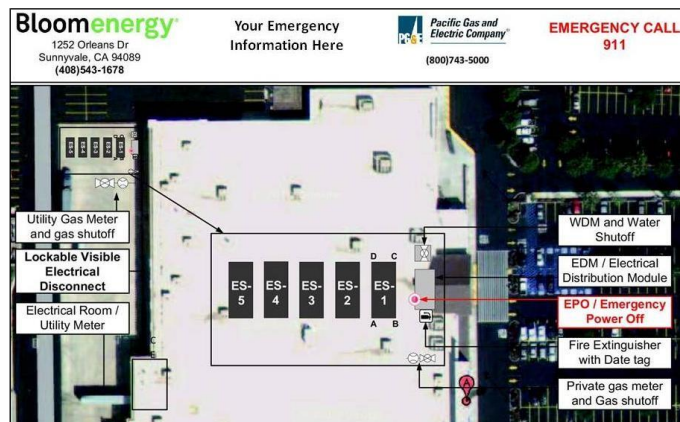


Figure 4: Sample Site Map

**Manual controls:**

- Clearly marked emergency stop button labeled —Fuel Cell Emergency Shut Down located at site
- Two manual fuel shutoff valves outside the system, and two isolation valves inside the system

**Fire hazard mitigation:**

- System is plumbed directly to utility-provided natural gas
- If system input gas pressure is compromised, a pressure switch triggers an emergency system shutdown and fuel input is isolated
- System does not use fuel compressors or pumps
- System has virtually no stored fuel (internal capacity is < 5 scf)



**Electrical hazard and mitigation:**

- System operates at 480V
- Signs inside the system warn of the risk of electric shock
- System has backfeed protection
- System inverter prevents grid backfeed during a power outage

**Mechanical hazard and mitigation:**

- Finger/hand guard protection is provided on all fans
- All moving parts are located behind secured doors

**Material hazard mitigation:**

- Desulfurizer bed (to remove fuel impurities) are fully enclosed
- Maintained and serviced by licensed vendors

### **3. EMERGENCY NOTIFICATION PROCEDURES**

---

**Life-Threatening Emergencies**

To report life-threatening emergencies, immediately call:

<b>Fire:</b>	<b>911</b>
<b>Ambulance:</b>	<b>911</b>
<b>Police:</b>	<b>911</b>

Conditions that require automatic emergency notification include:

- Unconscious Victim
- Seizure
- Major Trauma
- Chest Pains
- Difficulty Breathing
- Flames

**Non-Life-Threatening Emergencies**

For non-life-threatening emergencies, report the incident to the local safety control center.

When you report an emergency, give the following information:

- Exact nature of the emergency (describe as clearly and accurately as possible).
- Exact location (i.e., address, building, floor, area, department, etc.).
- Telephone number from which you are calling.
- Your full name.
- **Do not hang up**, as additional information may be needed.

To assist in any subsequent investigation or determination of corrective actions, it is recommended to record the following items as close to the incident time as possible:

- Summary of any violation

- Identification of responsible parties
- Identification of victims and witnesses
- Description of evidence
- Description of general conditions
- Description of any vehicles involved
- Narratives from witnesses
- Any photographs

## 4. FIRE OR SMOKE PROCEDURES

---

This section describes the procedures involving a fire or smoke. A major fire is one that requires the use of more than one fire extinguisher or takes more than one minute to extinguish.

If you discover a fire or smoke:

1. Activate the nearest fire alarm if not activated already.
2. Activate the fuel cell Emergency Stop if possible.
3. Shut off the fuel cell installation natural gas line if possible.
4. If the fire is small and does not pose an immediate risk to personal safety, you may attempt to extinguish it with a portable fire extinguisher **only if trained to do so**.
5. Avoid using water on electrical fires.
6. Report every fire, regardless of size, immediately. Smoke or the smell of smoke should be reported.
  - From a safe location dial **911**.
  - Report the incident to the local security safety center.

## 5. MEDICAL EMERGENCY PROCEDURES

---

This section describes the necessary procedures for injuries or illnesses that may occur under extreme conditions.

A serious injury can be life-threatening and will require immediate medical attention. Injuries can include head injuries, spine injuries, broken bones, heart attack, stroke, loss of consciousness, excessive bleeding, chemical exposure, etc.

A non-serious injury is not immediately life-threatening but may still require the attention of a medical doctor. These can include headaches, nausea, itching, cuts, burns, etc.

### Life-Threatening Medical Emergency

1. Remain calm.
2. Immediately dial 911.
3. Report the incident to local security safety center.
4. Do not move the victim unless it is absolutely necessary.
5. Call out for personnel trained in first aid and/or CPR which may include Building Evacuation or Emergency Response team members.

6. Ask someone to bring the area first aid kit and Automated External Defibrillator.
7. Assist if capable or asked to do so.

### **Non-Life-Threatening Medical Emergency**

1. Remain calm.
2. Report the incident to the local security safety center.
3. Do not move the victim unless it is absolutely necessary.
4. Call out for personnel trained in first aid.
5. Ask someone to bring the area first aid kit.
6. If the victim requires further medical attention, then direct them to the nearest approved medical clinic or hospital – Contact Security or Human Resources for assistance if needed.
7. The injured employee's supervisor/manager is responsible for ensuring injury forms are properly filled out. Complete the forms within 24 hours of incident and submit to the injury reporting system for follow-up. Follow company protocols.

## **6. MATERIALS RELEASE PROCEDURES**

---

The fuel cell system does not pose a hazard to health or environment. However, some internal materials when released, may pose a irritation risk to people and a possible risk of fire if not properly handled. This section was designed to address potential material release events:

In case of a material release that poses a direct threat to health, safety, or the environment:

1. Report the incident to local safety/security office.
2. If extremely life-threatening immediately dial **911** followed with a call to Security.
3. Contain the spill.
4. Evacuate the area or building if the material release is determined to be life-threatening.

In the event of an unknown indoor smell or odor, report the incident to authorities responsible for HAZMAT and spills.

## **7. NATURAL DISASTERS AND SEVERE WEATHER**

---

### **7.1 Earthquake**

This section provides information and procedures for earthquake emergencies.

The fuel cell system is designed to automatically shut off if the natural gas supply is compromised.

The natural gas supply line has an external, manual shut-off valve that should be activated if it is safe to do so. This valve will be labeled, "Notice – Fuel Cell Gas Shut

Off". The natural gas line will be labeled with the word "gas" on a yellow background with an arrow pointing in the direction of flow.

The nearby Emergency Stop can be activated to stop the flow of fuel and power to/from the fuel cell system.

A Bloom Energy Field Engineer will validate site safety and system operation during/after severe weather as necessary.

## **7.2 Flood**

The fuel cell system support pad is designed to divert water flow. However, if flooding conditions exist, or threaten to exist due to heavy rainfall, creek bank overflows, or pipe breakage, then immediately report the incident to the local safety/security office.

Do not use the fuel cell power system if any part has been under water. If it is safe to reach the Emergency Power Off button for the site without entering the water, stop all systems until a Bloom Energy representative can assess the site.

Precautions to follow after a flood:

- Stay out of flooded areas. Flooded areas remain unsafe. Entering a flooded area places you at risk.
- Notify Bloom Energy. A Bloom Energy Field Engineer will validate site safety and system operation during/after severe weather as necessary

## **8. UTILITY OUTAGE**

---

The fuel cell system is operated in "Grid-Parallel" mode. If utility provided power is lost for any reason, the fuel cell system will go "off-line". The fuel cell system will remain in stand-by mode until it automatically senses the utility grid has been restored. If utility gas is shut down, the fuel cell system will begin to shut down completely.

The Bloom Energy Remote Monitoring Control Centers monitor the fuel cells 24 hours per day and will be alerted to utility grid interruptions via its controls software. A Field Service Engineer will be dispatched to restart the fuel cell system if necessary. Customer personnel should NOT attempt to start up or operate the fuel cell system.

### **Before a Planned Outage**

- Notify the Bloom Energy Remote Monitoring Control Center at 1-408-543-1678 at least 24 hours before planned outage.
- Bloom Energy Remote Monitoring Engineers will reduce power generated by the fuel cell system and take the fuel cell off-line.
- Abrupt fuel cell system shutdowns may cause significant system damage.

### During a Utility Power Loss

- The fuel cell system will automatically go off-line.
- The Bloom Energy Remote Monitoring Control Centers will monitor the fuel cell system.
- Bloom Energy Field Service will be dispatched to start up the fuel cell system as necessary.
- If the fuel cell system has been automatically shut down and utility power is restored, there will be no impact to building power delivery: primary power will come from the utility rather than the fuel cells.

## 9. GOOD HOUSEKEEPING AND MAINTENANCE

---

### 9.1 Good Housekeeping

Although extremely unlikely, to minimize the risk of fire and any incidents, Facility Managers should take the following precautions around the fuel cell installation:

- What to do if you smell gas:
  - Do not try to light any appliance
  - Do not touch any electrical switch; do not use any phone in the area
  - Leave the area immediately
  - Immediately call your gas supplier. Follow the gas supplier's instructions.
  - If you cannot reach your gas supplier, call the fire department
- Notify Bloom Energy Remote Monitoring Control Center at 1-408-543-1678 of any condition that would impair the safety of the fuel cell installation so that mitigation measures could be determined and placed into effect.
- Prohibit smoking within the area of the fuel cell installation. Bloom Energy will furnish No Smoking signs for the area.
- Ensure only Bloom Energy Service Providers are permitted access inside the system.
- Keep the area around the fuel cell installation clear for ten feet in all directions, for safety and ease of maintenance.
- Keep the area around the fuel cell power system clear and free of combustible materials, gasoline, and other flammable vapors and liquids.
- Shut the system down and call Bloom Energy immediately if you suspect a fuel line rupture.
- **Never enclose an operating system** in a tarp, tent, shed, or other structure that would allow air to become trapped. This system runs on natural gas, and produces trace amounts of CO and CO<sub>2</sub>. The amounts of these gases are safe for normal outdoor operation but could gather in an enclosed place.
- Do not block or obstruct air openings on the fuel cell power system. This system requires air flow in order to operate.

- Do not use this fuel cell power system if any part has been under water. Immediately call qualified service personnel to inspect the fuel cell power system and to replace any functional part which has been under water.
- Please contact Bloom Energy at 408-543-1678 with as much advance notice as possible if you plan, detect, or suspect a prolonged Internet outage.
- The Bloom Energy Field Service team will periodically clean the equipment; do not spray with pressurized hoses.

## **9.2 Maintenance**

Your site has specific Field Service personnel assigned to it for both routine maintenance and troubleshooting. Your site project manager will introduce you to the designated Bloom Energy Field Service team assigned to your site prior to operation.

Bloom Energy Field Service personnel are trained in state Safety Law. They are trained in all the procedures required for the fuel cell installation, and their toolkit includes all the safety equipment required to work around the fuel components and high voltage in our system (480VAC).

Bloom Energy also requires its employees to follow all necessary safety precautions, including:

- Every time a Field Service technician arrives at a site for the first time and opens a service panel, the technician will use a leak detector to determine whether there is any gas buildup in the system and determine that it is safe to work on it.
- Whenever a Field Service technician is removing and replacing a component on a fuel or exhaust line, the technician must keep a CO detector nearby to make sure that no CO is present in the line even after the system has been shut down.

The Field Service team expects to conduct quarterly and yearly preventative maintenance for certain types of consumable or cleanable components such as replacement of air filters, water filters, and desulfurizer beds. Other maintenance will be performed as required. During such times, inspections for any hazards will be conducted including quarterly fire extinguisher inspection (if applicable).

## **10. TRAINING**

---

Prior to system startup, a Bloom Energy representative will provide training on the fuel cell installation to include the location and operation of safety features as well as actions to take during emergencies. We desire this training to provide lasting value and are more than happy to work with you to customize the experience to suit your needs.



# Exhibit 5



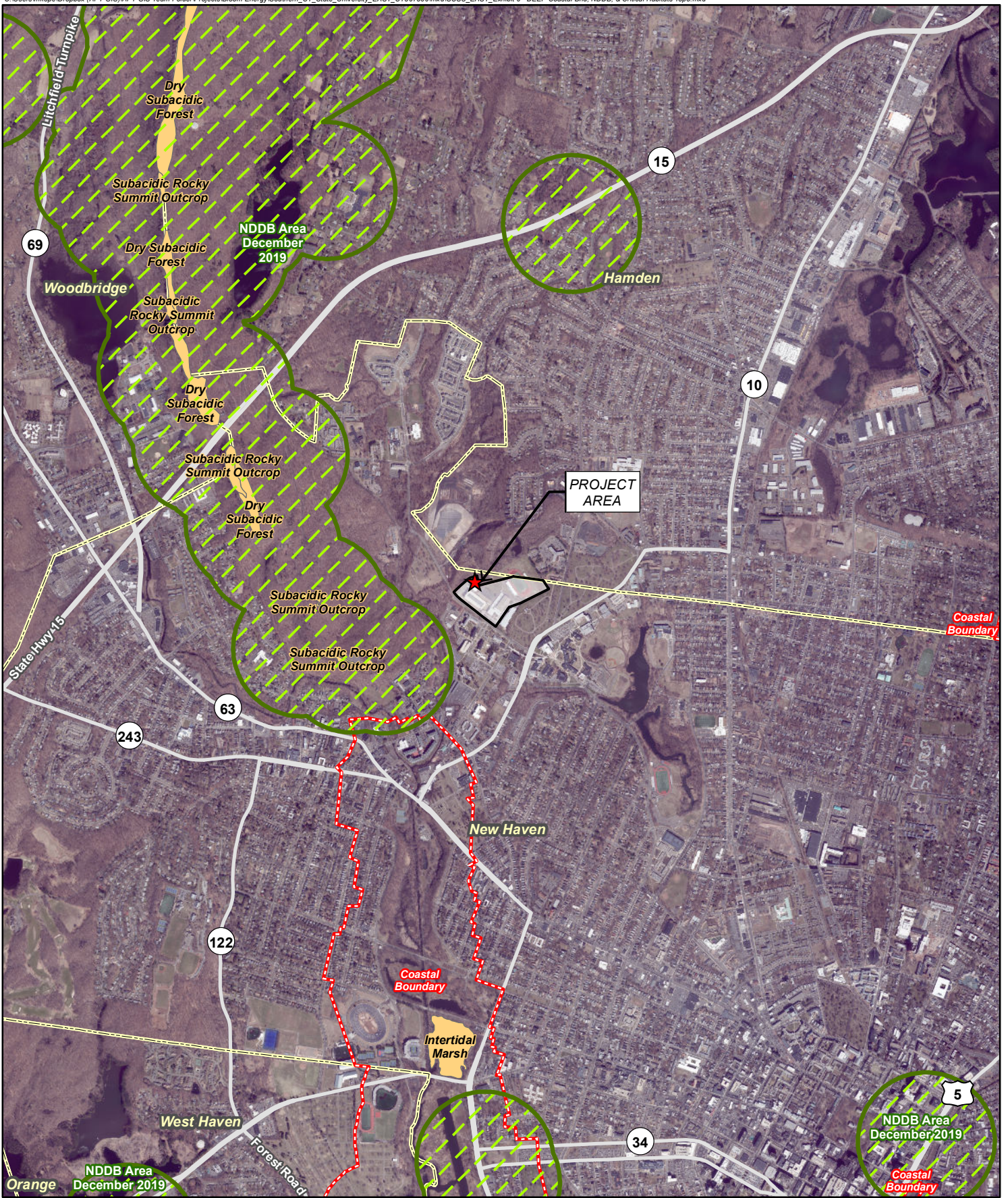
LEFT OF FUEL CELL LOCATION



RIGHT OF FUEL CELL LOCATION

# Exhibit 6





**Legend**

- ★ Project Area
- Site
- ▨ CTDEEP Natural Diversity Database (updated December 2019)
- ▨ CTDEEP Critical Habitat (2009)
- ▨ CTDEEP NE Cottontail Final Focus Area (none within mapped area)
- ▨ CTDEEP Coastal Boundary
- ▨ Municipal Boundary

*Map Notes:*  
 Base Map Source: CTECO 2019 Aerial Photograph  
 Map Scale: 1 inch = 2,500 feet  
 Map Date: February 2020



**Exhibit 6  
 CTDEEP Coastal Boundary, NDDB, & Critical Habitats**

Proposed Bloom Energy Facility  
 Southern Connecticut State University (SCSU)  
 201 Wintergreen Avenue  
 New Haven, CT












# Exhibit 7



**Legend**

-  Site
-  Project Area
-  Gas Supply Line
-  Approximate Assessor Parcel Boundary (CTDEEP)
-  CTDEEP Watercourse
-  CTDEEP Wetlands
-  Municipal Boundary

**Map Notes:**  
 Base Map Source: CTECO 2016 Aerial Photograph  
 Map Scale: 1 inch = 300 feet  
 Map Date: February 2020



**Exhibit 7  
 CTDEEP Wetlands and Watercourses**

Proposed Bloom Energy Facility  
 Southern Connecticut State  
 University (SCSU)  
 201 Wintergreen Avenue  
 New Haven, CT














# Exhibit 8



**Legend**

-  Site
-  Project Area
-  Gas Supply Line
-  Approximate Assessor Parcel Boundary (CTDEEP)
-  CTDEEP Watercourse
-  FEMA 100-Year Flood Zone
-  FEMA 500-Year Flood Zone
-  Floodway
-  Municipal Boundary

**Map Notes:**  
 Base Map Source: CTECO 2016 Aerial Photograph  
 Map Scale: 1 inch = 300 feet  
 Map Date: February 2020



**Exhibit 8  
 FEMA Flood Zones**

Proposed Bloom Energy Facility  
 Southern Connecticut State  
 University (SCSU)  
 201 Wintergreen Avenue  
 New Haven, CT



# Exhibit 9

# Calculation of Yuma Sound Pressure Based On Distance

By Bob Hintz 1/16

All calculations are based on the following formula for sound pressure level ( $L_p$ ):

$$L_p = L_w - 10 \cdot \log \left( \frac{Q}{4\pi \cdot r^2} \right) |$$

Sound power value ( $L_w$ ) attained from V1 Yuma linear in DE reported on Feb. 4, 2015 by Mei Wu.

## Scenario 1

ES is installed close to a building or tall wall so noise from the ES is reflected off of the structure and added to the noise from the other side of the ES making it sound louder than normal. This is represented by a directivity factor  $Q = 4$

**$L_p = 58.3$  dB**

Where:

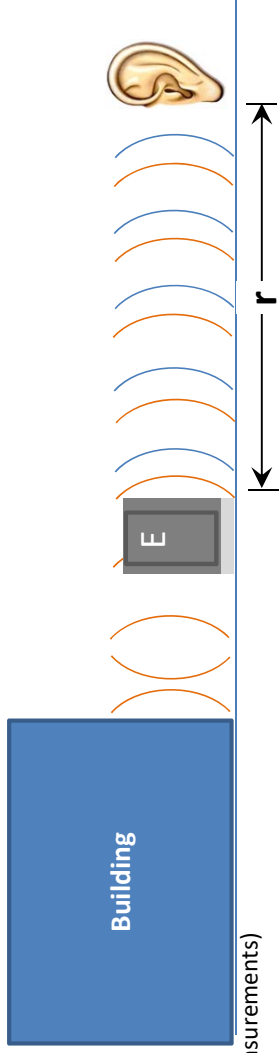
$L_w = 86.4$  dB  
 $Q = 4$   
 $r = 47$  Feet

ES sound power (Calc. from measurements)

Directivity factor

Enter value here for both Scenarios

Input various values for  $r$  to approximate the perceived sound pressure at that distance from the ES door



## Scenario 2

ES is installed with no structures behind it to reflect sound from either side. This is represented by a directivity factor  $Q = 2$

**$L_p = 55.3$  dB**

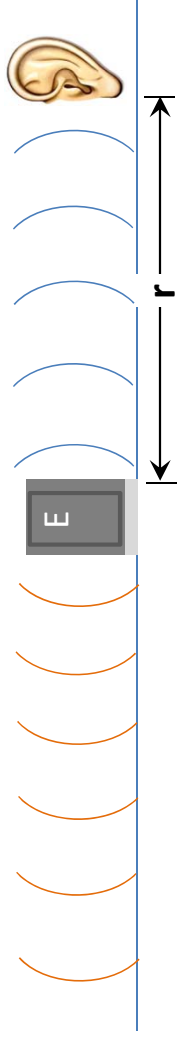
Where:

$L_w = 86.4$  dB  
 $Q = 2$   
 $r = 47$  Feet

ES sound power (Calc.)

Directivity factor

Input various values for  $r$  to approximate the perceived sound pressure at that distance from the ES door



# Exhibit 10





VIA CERTIFICATE OF MAILING

April 22, 2020

RE: Application of Bloom Energy for the location and construction of three (3) new ES-5 Bloom Energy Server solid oxide fuel cells to provide 600 Kilowatts of Customer-Side Distributed Resource at Southern Connecticut State University, 201 Wintergreen Avenue, New Haven, Connecticut

Dear Ladies and Gentlemen:

Pursuant to Section §16-50j-40 of the Connecticut Siting Council's (the "Council") regulations, we are notifying you that Bloom Energy intends to file, on or about April 27, 2020, a petition for declaratory ruling with the Council. The petition will request the Council's approval of the location and construction of a 600-kilowatt (KW) fuel cell installation and associated equipment. The Facility will be located on the North Campus of Southern Connecticut State University ("SCSU"), behind the Energy Center, at 201 Wintergreen Avenue in New Haven, Connecticut (the "Site").

The purpose of the proposed Facility is to replace a portion of the average baseload of SCSU's North Campus with a renewable energy source<sup>1</sup> and improve reliability of electrical systems and equipment. Electricity generated by the Facility will be consumed primarily at the Site, and any excess electricity will be exported to the electric grid. The Facility will be fueled by natural gas.

Keeping the lines of communication open is an important part of our work in your community. If you have questions about this work, please contact the undersigned or the Council.

Respectfully,

Justin Adams  
[justin.adams@bloomenergy.com](mailto:justin.adams@bloomenergy.com)



---

<sup>1</sup>Connecticut General Statutes §16-1(a)(26)(A) identifies fuel cells as a "Class I renewable energy source".



## Notice and Service List Pursuant to Conn. Agencies Regs. § 16-50j-40(a)

### Municipal and Elected Officials

Last Name	First Name	Title	Address	City	State	Zip Code
Elicker	Justin	Mayor, City of New Haven	165 Church Street	New Haven	CT	06510
Woods	Aicha	Executive Director, City Plan	165 Church Street	New Haven	CT	06510
		City Plan Commission	165 Church Street	New Haven	CT	06510
		Inland Wetlands Commission	165 Church Street	New Haven	CT	06510
Leng	Curt	Mayor, Town of Hamden	2750 Dixwell Avenue	Hamden	CT	06518
Kops	Daniel	Town Planner	2750 Dixwell Avenue, 3 <sup>rd</sup> Floor, Government Center	Hamden	CT	06518
Vocelli	Tom	Inland Wetlands Officer	2750 Dixwell Avenue, 3 <sup>rd</sup> Floor, Government Center	Hamden	CT	06518
Poitier	Brack	Chair, Planning & Zoning Commission	2750 Dixwell Avenue, 3 <sup>rd</sup> Floor, Government Center	Hamden	CT	06518
Lakin	Joan	Chair, Inland Wetlands Commission	2750 Dixwell Avenue, 3 <sup>rd</sup> Floor, Government Center	Hamden	CT	06518
Blumenthal	Richard	U.S. Senator	702 Hart Senate Office Building	Washington	DC	20510
Murphy	Chris	U.S. Senator	B40A Dirksen Senate Office Building	Washington	DC	20510
DeLauro	Rosa L	U.S. Representative	2413 Rayburn House Office Building	Washington	DC	20515
Winfield	Gary A	State Senator, 10 <sup>th</sup> District	Legislative Office Building, Room 2500	Hartford	CT	06106-1591
Walker	Toni E	State Representative, 93 <sup>rd</sup> District	Legislative Office Building, Room 2702	Hartford	CT	06106-1591

Tong	William	Connecticut Attorney General	55 Elm Street	Hartford	CT	06106
Dykes	Katie	Commissioner, Department of Energy and Environmental Protection	79 Elm Street	Hartford	CT	06106-5127
Paslick Gillett	Marissa	Chairman, Public Utilities Regulatory Authority	10 Franklin Square	New Britain	CT	06051
Coleman-Mitchell	Renée D.	Commissioner, Department of Public Health	410 Capitol Avenue	Hartford	CT	06134
Merrow	Susan D.	Chair, Council on Environmental Quality	79 Elm Street	Hartford	CT	06106
Hurlburt	Bryan P.	Commissioner, Department of Agriculture	450 Columbus Blvd., Suite 701	Hartford	CT	06103
McCaw	Melissa	Secretary, Office of Policy and Management	450 Capitol Avenue	Hartford	CT	06106
Giulietti	Joseph	Commissioner, Department of Transportation	2800 Berlin Turnpike	Newington	CT	06111
Lehman	David	Commissioner, Department of Economic and Community Development	450 Columbus Boulevard	Hartford	CT	06103
Rush-Kittle	Regina	Deputy Commissioner, Division of Emergency Management and Homeland Security (DEMHS)	1111 Country Club Road	Middletown	CT	06457
Seagull	Michelle H.	Commissioner, Department of Consumer Protection	450 Columbus Boulevard, Suite 901	Hartford	CT	06103
Geballe	Josh	Commissioner, Department of Administrative Services	450 Columbus Boulevard	Hartford	CT	06103
Westby	Kurt	Commissioner, Department of Labor	200 Folly Brook Boulevard	Wethersfield	CT	06109
		South Central Regional Council of Governments	127 Washington Avenue, 4 <sup>th</sup> Floor West	North Haven	CT	06473

## Abutter Properties

Map ID M/B/L	Site Address	Owner Name	Street	City	State	Zip Code
368 1166 00300	SUBJECT PARCEL 85 (aka 201) Wintergreen Ave	Southern Connecticut State	165 Capitol Ave	Hartford	CT	06106
360 1166 00301	Wintergreen Ave	Beaverdale Memorial Park Incor	131 Farnham Ave	New Haven	CT	06515
359 1166 00100	Fitch St	Beaverdale Memorial Park Inc	90 Pine Rock Ave	Hamden	CT	06514- 0000
359 1166 00200	Fitch St	Beaverdale Memorial Park Inc	90 Pine Rock Ave	Hamden	CT	06514- 0000
369 1161 00100	10 Wintergreen Ave	Southern Connecticut State Col	165 Capitol Ave	Hartford	CT	06106
368 1161 00200	170 Wintergreen Ave	City of New Haven	165 Church St	New Haven	CT	06510
368 1166 00500	Wintergreen Ave	Town of Hamden	2372 Whitney Ave	Hamden	CT	06518- 0000
368 1166 00401	Wintergreen Ave	Town of Hamden	2372 Whitney Ave	Hamden	CT	06518- 0000
368 1166 00400	Wintergreen Ave	State of Connecticut	PO Box 317546	Newington	CT	06131- 7546
2123-001- 00-0000	180 Pine Rock Ave Rear, Hamden	State of Connecticut, c/o Dept of Public Works	165 Capital Ave	Hamden	CT	06518
2123-041- 00-0000	180 Pine Rock Ave Rear, Hamden	State of Connecticut	unknown	Hamden	CT	6514
2124-040- 00-0000	600 Fitch St, Hamden	Beaverdale Memorial Park Inc	90 Pine Rock Ave	New Haven	CT	06515



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Hon. Chris Murphy Senator			
840A Dirksen Senate Office Building Washington, DC 20510			
Hon. Rosa L. DeLauro U.S. Representative			
2413 Rayburn House Office Building Washington, DC 20515			
Hon. William Tong Attorney General			
55 Elm St. Hartford, CT 06106			
Katie Dykes, Commissioner Dept. of Energy & Environmental Protection			
79 Elm St. Hartford, CT 06106-5127			
Marissa Paslick Gillett, Chairman Public Utilities Regulatory Authority			
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USPS® Tracking Number Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)					Parcel Airlift
1.	Renee D. Coleman-Mitchell, Commissioner Department of Public Health 410 Capitol Ave. Hartford, CT 06134					
2.	Susan D. Mellow, Chair Council on Environmental Quality 79 Elm St. Hartford, CT 06106					
3.	Bryan P. Hurlburt, Commissioner Department of Agriculture 450 Columbus Blvd., Suite 701 Hartford, CT 06103					
4.	Melissa McCaw, Secretary Office of Policy and Management 450 Capitol Ave. Hartford, CT 06106					
5.	Joseph Guilietti, Commissioner Department of Transportation 2800 Berlin Turnpike Newington, CT 06111					
6.	David Lehman, Commissioner Dept. of Economic and Community Development 450 Columbus Blvd Hartford, CT 06103					



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<p>1.</p>	<p>Regina Rush-Kittle, Deputy Commissioner          Div. of Emergency Mgmt and Homeland Security          1111 Country Club Rd.          Middletown, CT 06457</p>					
<p>2.</p>	<p>Michelle H. Seagull, Commissioner          Department of Consumer Protection          450 Columbus Blvd., Suite 901          Hartford, CT 06103</p>					
<p>3.</p>	<p>Josh Geballe, Commissioner          Department of Administrative Services          450 Columbus Blvd.          Hartford, CT 06103</p>					
<p>4.</p>	<p>Kurt Westby, Commissioner          Department of Labor          200 Folly Brook Blvd.          Wethersfield, CT 06109</p>					
<p>5.</p>	<p>South Central Regional Council of Governments          127 Washington Ave., 4th Floor West          North Haven, CT 06473</p>					
<p>6.</p>	<p>Hon. Justin Elicker, Mayor          City of New Haven          165 Church St          New Haven, CT 06510</p>					





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USPS® Tracking Number Firm-specific Identifier	Address					
1.	Aicha Woods, Executive Director, City Plan 165 Church St New Haven, CT 06510					
2.	City Plan Commission 165 Church St New Haven, CT 06510					
3.	Inland Wetlands Commission 165 Church St New Haven, CT 06510					
4.	Hon. Curt Leng, Mayor Town of Hamden 2750 Dixwell Ave Hamden, CT 06518					
5.	Hon. Gary A Winfield State Senator, 10 <sup>th</sup> District Legislative Office Building, Room 2500 Hartford, CT 06106-1591					
6.	Hon. Toni E Walker Representative, 93 <sup>rd</sup> District Legislative Office Building, Room 2702 Hartford, CT 06106-1591					



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USPS® Tracking Number Firm-Specific Identifier		Address					
1.		Daniel Kops, Town Planner 2750 Dixwell Ave., 3 <sup>rd</sup> Floor Government Center Hamden, CT 06518					
2.		Tom Vocelli, Inland Wetlands Officer 2750 Dixwell Ave., 3 <sup>rd</sup> Floor Government Center Hamden, CT 06518					
3.		Brack Poitier, Chair Planning & Zoning Commission 2750 Dixwell Ave., 3 <sup>rd</sup> Floor Government Center Hamden, CT 06518					
4.		Joan Lakin, Chair Inland Wetlands Commission 2750 Dixwell Ave., 3 <sup>rd</sup> Floor Government Center Hamden, CT 06518					
5.		City of New Haven 165 Church St New Haven, CT 06510					
6.							



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USPS® Tracking Number Firm-specific Identifier		Address					
1.		Beaverdale Memorial Park Inc 90 Pine Rock Ave Hamden, CT 06515					
2.		State of Connecticut c/o Dept of Public Works 165 Capital Ave Hamden, CT 06518					
3.		State of Connecticut PO Box 317546 Newington, CT 06131-7546					
4.		Town of Hamden 2372 Whitney Ave Hamden, CT 06518-0000					
5.							
6.							

See Reverse for Instructions



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USPS® Tracking Number Firm-specific Identifier							
1.			Southern Connecticut State Col 165 Capitol Ave Hartford, CT 06106				
2.			Beaverdale Memorial Park Inc 90 Pine Rock Ave Hamden, CT 06514-0000				
3.			Beaverdale Memorial Park Inco 131 Farnham Ave New Haven, CT 06515				
4.			Southern Connecticut State 165 Capitol Ave Hartford, CT 06106				
5.							
6.							



# Exhibit 11



- Legend**
- Site
  - Abutting Property
  - Project Area
  - Gas Supply Line
  - Approximate Assessor Parcel Boundary (CTDEEP)
  - Municipal Boundary

**Map Notes:**  
 Base Map Source: CTECO 2016 Aerial Photograph  
 Map Scale: 1 inch = 300 feet  
 Map Date: February 2020



**Exhibit 11  
 Abutters**

Proposed Bloom Energy Facility  
 Southern Connecticut State  
 University (SCSU)  
 201 Wintergreen Avenue  
 New Haven, CT



# Exhibit 12

## Jennifer Young Gaudet

---

**From:** Jennifer Young Gaudet  
**Sent:** Friday, April 17, 2020 3:57 PM  
**To:** 'Aicha Woods'  
**Subject:** Bloom Energy - Southern Connecticut State University  
**Attachments:** Bloom Energy - SCSU North Campus site.pdf; Bloom Energy - SCSU East Campus Site.pdf

Dear Ms Woods:

All-Points Technology is working with Bloom Energy on plans for fuel cell installations at the Southern Connecticut State University campus. Bloom will submit a petition to the Connecticut Siting Council for approval; separate petitions are planned for each location. In preparation for the filing, we are seeking any comment you or other appropriate City staff may have on the proposed plans.

Two installations are planned, one on the East Campus behind Earl Hall and one on the North Campus behind the Energy Center. Attached are plans depicting the proposed installations.

I am available to discuss the plans or answer any questions you may have. I can be reached by phone at the number below or by e-mail. We recognize that the City is operating under significant restrictions due to the Covid-19 situation, and that you may not be able to respond in as timely a manner as usual. Just prior to submission, you and other municipal officials will receive notice of the Petition to the Siting Council. Please be assured that we will work with you to respond to any comments when received.

Thank you.

*Jennifer Young Gaudet*



### Jennifer Young Gaudet

Program Manager

**D:** 860.581.4478

**M:** 860.798.7454

**E:** [jyounggaudet@allpointstech.com](mailto:jyounggaudet@allpointstech.com)

**All-Points Technology Corporation, P.C.**

567 Vauxhall Street Extension – Suite 311

Waterford, CT 06385

*Please note our new corporate office address*