



**TOWN OF GREENBURGH
Conservation Advisory Council**

Minutes of Meeting

Thursday, October 28th, 2021

Zoom Meeting hosted by Aaron Schmidt and Mike Sigal

ROLL CALL:

CAC Members Present: T. Tori, M. Sigal, D. Maiello, N. Drain, L. Silverstein,
M. Beal, L. Powell

CAC Student Members Present:

Town of Greenburgh: Aaron Schmidt, Deputy Commissioner CD & C, M. Britton, Assistant Planner

Residents: A. Fayemi, M. Bodin

Applicants: For PB 20-24 Bloom Energy; . Grillo, B. Noonan

Others:

APPROVAL OF MINUTES:

October 14th, 2021 – minutes approved

Correspondence:

Environmental Review:

- PB 20-24 Bloom Energy – Fuel Cells Installation in Parking lot of Altice @ 151 Fulton Street, White Plains, NY.

Per request of the Planning Board, the CAC is reviewing the environmental aspects of this project.

Bloom Energy servers sought to be installed at the Altice site use a proprietary solid oxide fuel cell technology to convert natural gas (supplied through an existing ConEd supply line) into electricity through an electrochemical process without combustion. The project will generate 1.5MW of electric power to cover the baseload requirements for the Altice data center on a 24/7/365 basis (although review of a Bloom Energy FAQ from their website raises questions regarding the validity of this last statement). This is a technology which raises issues the CAC has not reviewed before. The project is intended to run for a ten year contract.

The site is zoned 1B. Facility location is adjacent to a multi-family residential district, approximately 35 ft. from a single-family residence, and approximately 1,800 ft. from an elementary school. Additional residential homes are in White Plains, not Greenburgh.

Bloom Energy answered some of the questions provided by CAC prior to the meeting and made a presentation.

In their presentation the exact location of proposed fuel cells was identified in the parking lot in the front of the building along Russel Street . Existing fence will remain. Bloom proposes adding quilted fiberglass sound barrier to block hum of equipment. Awaiting clarification of exact location of barrier. CAC expressed concern about the aesthetics of the proposed sound barrier. Aaron noted that nothing can be planted on the right-of-way to create a natural barrier.

There is water usage to maintain temperature of unit as it heats up.

Equinix Data in Elmsford has a Bloom unit on site.

Bloom has global monitoring centers and field maintenance people “everywhere.” However, they were unable to identify locations in Westchester and confirm which monitoring center will be responsible for this unit.

Copy of Questions asked and answered (black: CAC questions submitted to Bloom Energy ahead of the CAC meeting, Green: Bloom Energy answers supplied ahead of the meeting, Red: Comments made during CAC Meeting):

Town of Greenburgh
Conservation Advisory Council
Attn: Mike Sigal
177 Hillside Avenue
Greenburgh, NY 10607

Re: 151 Fulton Street, Greenburgh, NY
Bloom Energy Fuel Cell Installation Project
CAC Meeting – Thursday, October 28th, 2021, 7:30pm.

Dear Mr. Sigal and Members of the Council,

On October 26th, the Council had several inquiries regarding our Fuel Cell installation project to be addressed prior to our scheduled meeting on Thursday, October 28th at 7:30pm. Please find our detailed responses to the Council's inquiries as follows:

1. What are Altice's energy needs? What use will be made of the electricity and on what schedule? Is Altice operating a business on these premises or nearby, if so, what business? Are the fuel cells expected to provide more, less or just

the amount Altice needs? Will any unmet needs be met by the electric grid?

What will be done with any excess production?

This project will generate 1.5MW of electric power to cover the baseload electric requirements for an Altice data center on a 24/7/365 basis. The electricity generated by the project will mainly be consumed on-site in lieu of electricity currently supplied via the electric grid.

Bloom answered that there is some heat exhaustion into local atmosphere. All units have fans to keep unit cool.

2. Will the Bloom Energy installation function to provide power in the event the electric grid or gas supply system is interrupted? If not, what advantage would the installation provide to Altice?

In its initial phase this installation will be deployed in grid parallel mode rather than microgrid mode. This means that when the grid is not available, the fuel cell power generator will be in standby mode awaiting for the grid to come back up. Although this system will initially be deployed as a grid parallel project many of Bloom's microgrid customers start with our "microgrid ready" grid parallel systems and then upgrade to a microgrid by adding switchgear later in the project life, often depending on the performance of the surrounding electric grid. In the meantime, the project will have four main advantages to Altice: (1) it will reduce their energy related emissions of greenhouse gases and local air pollutants, (2) it will provide them with cost predictability relative to electric grid supplied power over time, (3) it will provide their data center with high quality power that data centers need unlike grid power that is subject to voltage instabilities that can affect equipment, and (4) it will enable them to quickly upgrade to a microgrid whenever they choose to do so.

Per Bloom, excess energy goes back into the Grid. They were unable to confirm if energy is given or sold back. This unit will run in grid parallel mode. There is the ability to upgrade to a micro grid which is a stand-alone system. CAC is awaiting clarification on the exact perimeters of grid parallel mode. Bloom Energy FAQ seems to contradict statements made in CAC mtg. We were told Bloom unit runs 24/7. Bloom FAQ sheet states that if local energy source suffers an outage, the unit will be in stand-by and not produce energy.

3. Will there be a mechanism in place to remove impurities from the natural gas before it undergoes the electrochemical process to produce electricity? If so, what are these impurities expected to be and what will be done with the removed impurities?

Yes. As a safety requirement all gas distribution companies are required to add a sulfur compound to gas so that humans can smell it. These sulfur compounds can poison a fuel cell and consequently our fuel cells have a filtration system

that removes these compounds and deposit them into a sealed steel canister. Natural gas also contains trace amounts of benzene and this contaminant is also captured in our de-sulfurization canisters.

The sealed canisters are replaced every 15-36 months. They are never opened on site at any point in their life. After the passage of that much time the amount of benzene that is collected in the sealed canister is equivalent to what is contained in a single gallon of gasoline. Due to this handling protocol the material in the sealed canisters is not classified as a hazardous material under the Resources Conservation and Recovery (RCRA) act and it is transported, without ever being opened to a recycling facility in Indiana where it is used as a source for manufacturing various copper compounds, thereby avoiding copper mining and the environmental impacts associated with it.

CAC asked about the use of scrubbers or other technology currently available to remove impurities. An answer wasn't provided at this time. CAC asked for data about CO2 emissions regarding how fast they dissipate and in what direction do they typically spread?

4. The Staff Report provided by CD&C states that the fuel cell project will provide 1,500 KW base load power, presumably from information provided by the Applicant. From the noise consultant's letter, it appears this system will run 24 hr/day. The Bloom Energy data sheet states that the fuel cells produce 0.034 lbs. of CO2 per MWh. Will there be a system in place to contain/sequester any produced CO2? How does that work? What happens to the sequestered carbon? What is the amount of CO2 released into the air daily? Are CO2 scrubbers proposed for the project? If not, why not?

The emissions from any distributed energy project are properly assessed relative to the electricity from the electric distribution grid that are displaced when the project is installed. When the 1.5MW Altice project begins operating there will be 1.5MW less electricity supplied to the electric grid. The large power plants supplying the

electric grid that will be displaced as a result of installing a distributed generation project are known as "marginal power plants." The greenhouse gas and local air pollutant emissions of those plants are known and reported by the US EPA in its eGRID database, the preeminent and comprehensive inventory of environmental attributes of electric power systems.

In Westchester, the marginal power plants on the grid that will be displaced have an emission rate of over 1,016 lbs CO2 per MWh. A Bloom Energy fuel cell produces, on average, between 679 and 833 lbs of CO2 per MWh of power produced, much lower than the marginal power plants it will displace. In short this project will reduce emissions by displacing the dirtiest power plants, effectively reducing the output of those plants by 1.5MW.

It is important to note that the same is true of other forms of air pollution, like NO_x, the air pollutant that causes smog, asthma, and other respiratory diseases. The NO_x emission rate for the Westchester region is 0.4 lbs/MWhr whereas the emission rate for Bloom is 0.0017 lbs/MWhr, or 235 times lower. This is important because there has been a wave of new studies indicating that local air pollution is far more harmful to human health than previously believed and that the impacts of this kind of pollution are particularly harmful for disadvantaged communities. There will be no system to capture and sequester the CO₂ produced from the fuel cells in the Altice project, rather it will reduce CO₂ and other air pollutants as described above.

Bloom was asked to clarify the scientific source of where the 1,016lbs CO₂ per MWh emission rate for Westchester County comes from. They responded from eGrid. Bloom was asked if output from coal plants (the dirtiest plants used) is included in that number? CAC noted that there are no coal plants in Westchester County thus indicating that the actual emissions rate is lower. CAC noted that the inquiry about how much CO₂ was emitted into the air daily from the facility was not answered. Bloom did not give the emission number.

5. What is the life expectancy of the system to be installed? What does the contract between Bloom Energy and Altice provide about (i) maintenance obligations, and (ii) disposal of the fuel cells at the end of their useful life? The contract between Altice and Bloom Energy has a term of ten (10) years so that is the life expectancy of this particular project. The contract includes an operations and maintenance agreement, all of which will be performed by Bloom Energy. At the end of their useful life the fuel cells will be returned to Bloom's manufacturing center just outside Wilmington, Delaware where the component parts will be recycled and reused.

CAC asked if Bloom is responsible for removal of materials from site upon reaching the 10-year mark? CAC asked to see copies of their contract with Altice.

6. What does "efficiency" mean in this context?

Efficiency means the conversion efficiency at which the system converts fuel into electricity – ie. How many units of fuel does it require to generate a given unit of electricity. Most importantly, the efficiency of this system is higher than the efficiency of the power plants it will be displacing, resulting in a net decrease in emissions and fuel use over time.

7. What amount of carbon is produced by the power Altice would otherwise rely on?

As indicated in #4, the appropriate way to measure environmental impact of a distributed energy resource like a Bloom Energy fuel cell is to compare it against the marginal emissions rate, which captures the displaced alternatives

of energy resources at the margin. When more efficient or cost-effective solutions displace marginal power sources, the highest cost resources are the first resources requested to be shut off. Since Bloom's carbon intensity is lower than the displaced alternatives, the net impact is measurable emissions reductions. In addition, Bloom Energy fuel cells provide optimal air quality benefits because it produces virtually no local air pollutants like sulfur oxides (SOx), nitrogen oxides (NOx), and particulate matter.

8. Is there a governmental agency that monitors this type of facility to ensure that emissions are as stated?

Every five years, our technology is recertified by the California Air Resources Board (CARB).

That certification is based on source test results that confirm emissions are consistent with DG Certification limits and the emission factors contained in Bloom's various Spec Sheets. The air pollutant emissions from a fuel cell are such that the State of New York exempts these types of projects from air permitting.

CAC asked if Bloom ever sought a permit or waiver from the Department of Environmental Conservation for their facilities in New York for air permitting. They said No. CAC research shows the correct answer to be yes. They were granted permits for their facility at the Downstate Medical Center and for their facility at the King county Hospital.

CAC asked if a filing for this project will be required with NYS DEC? We are also further researching the circumstances around filing in other Bloom fuel cell installations.

9. Has the applicant received approval from Con Edison for this new application? Yes.

10. How often do shutdowns occur?

Ideally never since the Energy Server runs 24x7x365 and can be serviced while it is online and or at reduced output. In the unlikely event that a shutdown is required the Energy Server has internal process and safety control to safely monitor and shut itself down.

11. What special PPE and training is required for firefighters?

No special PPE. We work closely with local fire departments and a tour for local firefighter training can occur near the end of construction/installation or immediately thereafter. Bloom has over sixty operating projects in New York, including at sensitive sites like New York City Hall, The New SUNY Downstate Medical Center, the Kings County Medical Center in Brooklyn, the 911 call system for Long Island, Fordham University, and many others – and we have never had a safety issue.

Per Bloom the local fire district, Fairview, reviewed materials and have no further concern. Applicant offered they met with the Fire Chief in the Elmsford District.

If the Council should have any additional questions or if any of the above mentioned items require further clarification, please do not hesitate to contact us.

We appreciate your time and interest in our project and look forward to meeting with you and Members of the Council on Thursday.

Respectfully,

Kristen Grillo
Senior Permitting Specialist | East Coast
Bloom Energy Corporation

ON-GOING ITEMS – review of status and ongoing considerations:

- Battery Storage – No new discussion
- Elmwood – Lauren Powell shared RE comps for new homes matching square footage and lot size in Elmwood near the Elmwood Country Club site that are, in her opinion, appropriate comparisons.
- 4 Corners proposal – No new discussion
- Excess Food for Needy Law – No new discussion
- Development process and procedures – Town Code and SEQR – No new discussion
- CAC Guide under Town Code and SEQR – No new discussion
- SWAB – No new discussion
- Web Page – No new discussion
- Invasive Plants – No new discussion
- TB 19-08: Metropolis environmental considerations – No new discussion
- Environmental Recommendations for New Construction – No new discussion

NEW BUSINESS:

Establish Date of Next Meeting:

Monday, November 15th, 2021