



March 18, 2014

City of Sunnyvale  
Planning and Building Division  
456 W. Olive Avenue  
Sunnyvale, CA 94086  
ATTN: Timothy Maier

**RE: Revised Zoning Administrator Review Application – Yahoo Fuel Cell Project**

Dear Mr. Maier,

Please find the attached revised application materials relating to a proposed fuel cell project at the Yahoo campus located at 701 First Avenue in Sunnyvale. This submittal is being provided as an addendum to the original application that was filed on December 4, 2013. The revision proposes a new location adjacent to Building E in place of the original location adjacent to Building A. Included is a revised project description, alternatives analysis, photos of existing conditions of the project area, and a site plan. We request that the project be considered during the Zoning Administrator Hearing scheduled for April 16, 2014.

Should you have any questions or concerns, or require additional information, please contact me at [amy.shanahan@bloomenergy.com](mailto:amy.shanahan@bloomenergy.com) or (408) 543-1746.

Sincerely

**Bloom Energy**

A handwritten signature in black ink, appearing to read "Amy Shanahan", written over a horizontal line.

Amy Shanahan

**Yahoo Fuel Cell Project**  
**Zoning Administrator Review Application**  
**Project Description**  
**Last Revised 03/17/2014**

**Overview**

The proposed project involves installation of a Bloom Energy solid oxide fuel cell facility which will supply electric power to the Yahoo Headquarters campus located at 701 First Avenue in Sunnyvale. Specifically, the facility will be a one (1) megawatt energy server consisting of five (5) 200-kilowatt Bloom Energy ES-5700 fuel cell systems and ancillary equipment including a telemetry cabinet, water de-ionizing module (WDM), and power distribution section (PDS). The facility will interconnect to the site's distribution system, will provide a portion of the site's electrical requirements, and will operate in parallel with the grid. The dimensions of the fuel cells are approximately 25'-6" long, 8'-6" wide and 6'-9" high. Construction is anticipated to commence in April 2014, with final commissioning in 2014.

**The Site**

The project site is zoned as Moffett Park Industrial (MP-I) and is located in the Moffett Park Specific Development Plan. The 24.01-acre property is currently developed as an industrial use consisting of mostly landscaping with existing sidewalks, parking, and buildings. The property is located on First Avenue. The surrounding properties to the east, south, west, and north are industrial buildings, also zoned (MP-I). The abutting property to the northeast is zoned Public Facility (PF).

<b>Address</b>	701 First Avenue, Building E, Sunnyvale, CA
<b>Assessor's Parcel No</b>	110-44-008, Lot/Parcel 2
<b>Existing Use</b>	Developed Data Center and Office Buildings
<b>Lot Size</b>	1,045,876 SF ±24.01 Acre
<b>Zoning</b>	Moffett Park Industrial
<b>Setback</b>	15' (front)

**Proposed Facility Location**

The proposed facility location is within an existing landscaped area adjacent to Building E along First Avenue. The location was chosen based on project feasibility and zoning considerations. In

addition to the proposed alternative, several alternatives were evaluated which are discussed in detail in the Alternatives Analysis section.

### **Project Feasibility**

In order to ensure proper functioning from an engineering perspective, the fuel cells must be placed in an appropriate area that is outdoors in an open space with adequate accessibility for maintenance. The proposed location satisfies this and other engineering requirements.

The proposed location is close to the existing electrical and gas connections, which minimizes the construction footprint and installations costs, and enables the project to be economically feasible. Lastly, the proposed location fits well within the overall campus design and is in keeping with the integrity of the site plan layout.

### **Zoning**

Pursuant to Title 19 of the Sunnyvale Municipal Code (SMC) and Moffett Park Specific Plan, several zoning standards apply to this project including landscaping, parking, setbacks, equipment screening, and easement requirements. The status of compliance with each of these standards is discussed below.

#### *Parking*

With consideration of Yahoo's high employee count and parking needs, installation within parking areas would impact access and employee parking and was therefore deemed suboptimal. The proposed location does not impact access, traffic, or parking.

#### *Landscaping*

The site zoning requires a minimum landscaped area of 20% of the lot area. According to the City Council approval for the Yahoo campus (February 8, 2000, #00-038), the existing landscaping was approved at 35%. The approved project encompasses two parcels consisting of a total of 1,483,218 square feet.<sup>1</sup> The proposed project will remove less than 1,500 square feet of landscaped area (less than 1% of the entire area), which will maintain overall landscaping area well above the 20% requirement.

#### *Screening*

Also pursuant to Title 19 of the SMC, equipment visible from public streets must be screened. The existing landscaping provides some screening. As shown in the attached site plans (see Note 26), we

---

<sup>1</sup> *Reference* Email correspondence dated November 13, 2013 between Momoko Ishijima (City of Sunnyvale) and Amy Shanahan (Bloom Energy)

are proposing additional vegetation screening between the fuel cells and First Avenue. Specifically, shrubs will be installed which match the existing landscaping and will provide partial screening.

#### *Setback*

Pursuant to Title 19 of the Sunnyvale Municipal Code (SMC) and Moffett Park Specific Plan, a minimum front setback of 15 feet is required for structures from public streets. The proposed location is well outside of the setback area.

The SMC does not allow equipment to be placed between the face of a building and public street. The proposed location is adjacent to the north face of the building and First Avenue, and is therefore inconsistent with the standard SMC requirements and requires an exception. As a result, Zoning Administrator Review at a public hearing is required

#### *Easements*

According to the subdivision parcel map (June 7, 1999), a 25' landscape easement runs along First Avenue from the sidewalk. As shown in the attached site plan, the fuel cells will be placed entirely outside of the landscape easement area. A small portion (approximately 8') of the concrete slab will be placed within the easement.

### **Alternatives Analysis**

Multiple alternatives were analyzed. As described, above, the proposed alternative (G) adjacent to Building E was selected because it meets all project feasibility requirements and avoids significant conflicts with standard SMC requirements.

#### **A – Building A Landscape Area (*original proposed location*)**

Location A is a landscaped area adjacent to First Ave. The location is close to the existing electrical and gas connections, which would minimize the construction footprint and installations costs, and enables the project to be economically feasible. It is also adjacent to the primary electrical load served, Yahoo's data center server room, and therefore maximizes delivered electrical output. This location meets all project feasibility requirements, and is a preferred location of the applicant.

Location A avoids impacts to parking. However it has several conflicts with the standard SMC requirements. It is within the setback area and located between the face of a building and street, which requires that an exception be made to standard SMC requirements. Screening would be required. In

addition, Location A is within a Landscape Easement and Public Utility Easement which requires abandonment of the easement and approval from the City Council.

Location A meets all project feasibility requirements, but is not preferred based on SMC and easement conflicts.

#### **B – Building E (*proposed location*)**

As described above, Location B is a landscaped area adjacent to First Ave. The location is close to the existing electrical and gas connections, which would minimize the construction footprint and installations costs, and enables the project to be economically feasible. This location meets all project feasibility requirements, and is a preferred location of the applicant.

Location B avoids impacts to parking. It is located outside of the setback area. The fuel cells would be located outside of easement areas, with a small portion of the concrete slab inside of a landscape easement. Location B is between the face of a building and street, which requires that an exception be made to standard SMC requirements. Screening would be required.

Location B meets all project feasibility requirements, and substantially conforms to SMC standards. Approval for placement of the fuel cells between the face of a building and street has been approved by the City for other projects in the past, and so it seems appropriate for this project as well given that there are no other zoning conflicts and vegetative screening will be installed.

#### **C – Parking Areas (Including Garage)**

Placement of the fuel cells within an existing parking area would reduce available parking spaces, and therefore impact parking constraints. In addition, many parking areas are located far from existing utilities and the load served, which would require long utility runs and greatly increase the construction footprint and installation costs. The parking garage does not have the structural integrity to support the weight of the fuel cells.

Parking areas generally do not conflict with landscape, setback, or easement requirements. However screening would be needed for areas that can be seen from public streets, and exception would be needed for areas between the face of a building and a public street.

Location C is not preferred based on project feasibility issues and potential SMC conflicts.

#### **D – Internal Campus Areas**

Several areas internal to the campus were evaluated, including the Bocce Courts and areas designated for employee gathering and use. The Bocce Courts are located far from existing utilities and the load served, which would require long utility runs and greatly increase the construction footprint and installation costs. Other areas are utilized for employee gathering and other use. Placement of structures like fuel cells in those areas does not fit within the overall campus design, is not in keeping with the integrity of the site plan layout. In some cases, there are engineering conflicts with these areas (such as placement directly adjacent to or beneath buildings and trees).

Internal campus areas generally do not conflict with setback or easement requirements, though easements exist along the northern and western borders of the site.

Location D is not preferred based on project feasibility issues and potential SMC conflicts.

### **Attachments**

- 1 - Site Location Map** *(see original application)*
- 2 - Site Plans** *(revised Site Plan is attached)*
- 3 – Photos of Proposed Conditions** *(revised Photos are attached)*
- 4 – Product Datasheet** *(see original application)*
- 5 – Examples of Similar Projects** *(see original application)*



# USE PERMIT/SPECIAL DEVELOPMENT PERMIT JUSTIFICATIONS

One of the two following findings must be made in order to approve a Use Permit or Special Development Permit application.

---

The Sunnyvale Municipal code states that at least one of the following two justifications must be met before granting the Use Permit or Special Development Permit. Please provide us information on how your project meets **at least one** of the following criteria.

1. The proposed use attains the objectives and purposes of the General Plan of the City of Sunnyvale as the project ...

*See attachment.*

OR

2. The proposed use ensures that the general appearance of proposed structures, or the uses to be made of the property to which the application refers, will not impair either the orderly development of, or the existing uses being made of, adjacent properties as ...

*See attachment.*

If you need assistance in answering either of these justifications, contact the Planning Division staff at the One-Stop Permit Center.

## Use Permit/Special Development Permit Justifications

### 1. The proposed use attains the objectives and purposes of the General Plan of the City of Sunnyvale as the project...

The proposed project supports multiple objectives within the City of Sunnyvale General Plan and its Council Policies relating to Energy and Sustainable Development (See Exhibit X). Per the City webpage, *"The City's Council Policies Manual is a compendium of policies established by City Council resolution or motion which provide guidelines for current or future City action. Such policies, when implemented, assist in achieving General Plan goals."*

#### City Council Policy 3.5.1 Energy

The proposed project is a partnership between two companies that are based locally in Sunnyvale: Yahoo and Bloom Energy. The purpose of the project is to supply the Yahoo campus with one (1) megawatt of base load clean alternative energy, which will eliminate its dependence on the grid and support its commitment toward sustainability. The fuel cell technology is engineered and produced by Bloom Energy, a growing company with roots in NASA's Mars program.

Bloom fuel cells generate clean, reliable power with minimal environmental impact, making the Bloom Energy Server one of the most sustainable solutions available. Compared with other sources of energy, the server reduces greenhouse gas emissions and air emissions, reduces water consumption, requires a small physical footprint, and is highly efficient. This directly aligns with the City's Energy Policy, which states that the City will:

- **Promote the development of alternative energy resources and support the enhancement of existing technologies**  
*Approval of the project proliferates the developing alternative energy industry, and specifically supports the growth of a local business producing existing alternative energy technology.*
- **Support efforts to provide affordable, reliable, diverse, safe, and environmentally acceptable power to the citizens and businesses of Sunnyvale**  
*The City's commitment above is mirrored by the guiding principle of the Bloom Energy Server, which is that it provides "clean, reliable, and affordable power." In addition, the project will provide clean energy to a local business.*



## City General Plan, Land Use and Transportation - Economy, Goal LT-6

### Economy

**GOAL LT-6** SUPPORTIVE ECONOMIC DEVELOPMENT ENVIRONMENT — SUSTAIN A STRONG LOCAL ECONOMY THAT CONTRIBUTES FISCAL SUPPORT FOR DESIRED CITY SERVICES AND PROVIDES A MIX OF JOBS AND COMMERCIAL OPPORTUNITIES. *(Previously LUTE Goal C4)*

- Policy LT-6.4 Encourage sustainable industries that emphasize resource efficiency, environmental responsibility, and the prevention of pollution and waste. *(Previously LUTE Policy C4.4)*
- Policy LT-6.5 Encourage creation or installation of pilot programs (such as Bloom Boxes or Voice Over Internet Protocol) for emerging industries in both private and public facilities. *(NEW)*

As a local business that provides sustainable energy, the proposed project directly aligns with the City's overarching economic development goals and specifically to Policies LT-6.4 and 6.5. In fact, Policy LT-6.5 explicitly calls out support for pilot programs such as Bloom Boxes, and it could not be more evident that such a project such as the one proposed is an example of what the policy is intended to guide support for.

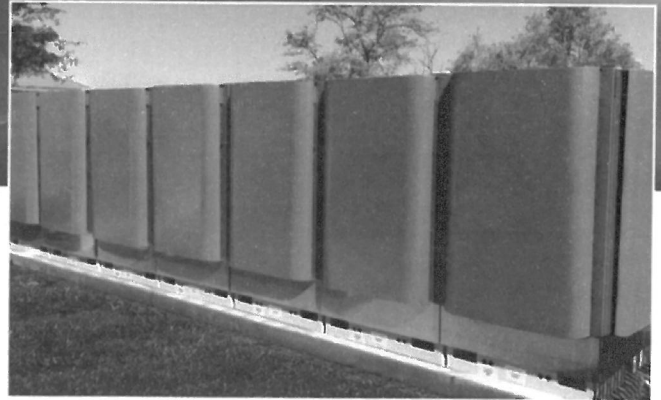
- 2. The proposed use ensures that the general appearance of proposed structures, or the uses to be made of the property to which the application refers, will not impair either the orderly development of, or the existing uses being made of, adjacent properties as....**

As being similar to the design quality of signage monuments, the aesthetics of the fuel cell system will not impair the overall appearance or use of the property. The finish quality and detailing of the design is compatible with elements found in the property's existing architecture such as metal panels, store-front fenestration, awnings, etc. Bloom Energy's fuel cell product is very different from generic "mechanical equipment" that has a rough industrial appearance in that the finished product has been designed to a high level of modern, aesthetic quality.



## ES-5700 Energy Server

*Welcome to clean, quiet electricity that's always on.  
Welcome to the ES-5700 Energy Server.*



### CLEAN POWER ON DEMAND

Bloom Energy's ES-5700 delivers clean power to meet your base load electricity needs. Seamlessly producing power in parallel with the utility grid, the ES-5700 will reduce your emissions and save you money.

### RELIABLE RISK MITIGATION

The ES-5700 operates at unmatched electrical efficiencies. That means that it consumes less fuel and produces less CO<sub>2</sub> than competing technologies. As the aging grid infrastructure and rising fuel costs cause utility prices to soar, the economic and environmental benefits of your ES-5700 will continue to increase.

### INNOVATIVE TECHNOLOGY

Utilizing solid oxide fuel cell (SOFC) technology first developed for NASA's Mars program, the ES-5700 produces clean power. Unlike other fuel cell technologies, Bloom's SOFCs are well-suited to high-volume, low-cost manufacturing which also makes them uniquely affordable. The ES-5700 also employs a modular architecture that enables the total installation size to be tailored to your base load electricity demand.

### ALL-ELECTRIC POWER

The ES-5700's superior electrical efficiency eliminates the need for complicated CHP systems, and expands the deployment opportunities available to you. Your ES-5700 can be installed outdoors in hours rather than months or years.

### FUEL FLEXIBILITY

The ES-5700 can run on natural gas, as well as, renewable fuels like biogas. You choose what works for you. Onsite fuels can provide added insurance for your critical loads, and the ES-5700 can easily accommodate those needs.

Future generations of Bloom's Energy Servers will offer the unique capacity to operate both as an energy generation and storage device, thus creating a bridge to a 100% renewable energy future.

### About Bloom Energy

Bloom Energy is making clean, reliable energy affordable. Our unique on-site power generation systems utilize an innovative fuel cell technology with roots in NASA's Mars program. By leveraging breakthrough advances in materials science, Bloom Energy systems are among the most efficient energy generators; providing for significantly reduced operating costs and dramatically lower greenhouse gas emissions. By generating power where it is consumed, Bloom Energy offers increased electrical reliability and improved energy security, providing a clear path to energy independence.

### Headquarters:

Sunnyvale, California

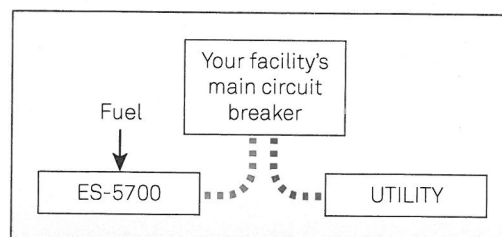
### For More Information:

[info@bloomenergy.com](mailto:info@bloomenergy.com)

# ES-5700 Energy Server

## YOUR POWER IS SECURE

The ES-5700 has been designed in compliance with Underwriters Laboratories (UL) and a variety of safety standards, and is backed by a comprehensive warranty. The ES-5700 actively communicates with Bloom Energy's network operations center. Should the system require unscheduled maintenance, we'll be deploying a solution before you even know there's a problem.



### Technical Highlights

#### Inputs

Fuels	Natural Gas, Directed Biogas
Input fuel pressure	15 psig
Fuel required @ rated power	1.32 MMBtu/hr of natural gas

#### Outputs

Nameplate power output (net AC)	210kW
Base load output (net AC)	200kW
Electrical efficiency (LHV net AC)	> 50%
Electrical connection	480V @ 60 Hz, 3 or 4-wire 3 phase

#### Physical

Weight	19.4 tons
Size	26' 5" x 8' 7" x 6' 9"

#### Emissions

NOx	< 0.01 lbs/MW-hr
SOx	negligible
CO	< 0.10 lbs/MW-hr
VOCs	< 0.02 lbs/MW-hr
CO <sub>2</sub> @ specified efficiency	773 lbs/MW-hr on natural gas; carbon neutral on Directed Biogas

#### Environment

Standard temperature range	-20° to 45° C (extreme weather kit optional)
Humidity	0% - 100%
Seismic Vibration	IBC site class D
Location	Outdoor
Noise @ rated power	< 70 DB @ 6 feet

#### Codes and Standards

Complies with Rule 21 interconnection standards  
Exempt from CA Air District permitting; meets stringent CARB 2007 emissions standards  
Product Listed by Underwriters Laboratories Inc. (UL) to ANSI/CSA America FC 1

#### Additional Notes

Operates in a grid parallel configuration  
Includes a secure website for you to showcase performance & environmental benefits  
Remotely managed and monitored by Bloom Energy  
Capable of emergency stop based on input from your facility

# Bloomenergy

Bloom Energy Corporation  
1299 Orleans Drive  
Sunnyvale CA 94089  
T 408 543 1500  
[www.bloomenergy.com](http://www.bloomenergy.com)

Confidential and Proprietary – Subject to Non-Disclosure Agreement  
© Bloom Energy Corporation 2010. All Rights Reserved. Printed on recycled paper

## ***Attachment 5***

---

### **Examples of Similar Projects**



**Figure 1: Bloom Energy (1252 Orleans Drive, Sunnyvale)**



**Figure 7: Nokia (200 S. Mathilda Avenue, Sunnyvale)**





**Figure 8: Nokia (200 S. Mathilda Avenue, Sunnyvale)**