

MEMORANDUM

Building Safety and Housing Department



DATE: January 13, 2023

TO: Mayor and Council

THROUGH: Steve McHarris, City Manager *Steve McHarris*

FROM: Bill Tott, Building Official

SUBJECT: Response to Bloom Energy and Santa Clara County Association of Realtors Letters Submitted Regarding Reach Code Adoption

This purpose of this Information Memorandum is to provide responses to letters submitted by Bloom Energy Corporation and the Santa Clara County Association of Realtors regarding the proposed reach codes

Bloom Energy letter

The attached letter from Bloom Energy Corporation (Bloom) was sent to the City Council. It is important to note that the section about the City's Climate Action Plan (CAP) could be misleading since it adds language to the City's specific Measures and Actions from the CAP, making it appear that the additions are a part of the City's CAP. The only way to differentiate between the two is that the direct quotes from the CAP are italicized while the comments are not which can easily result in a reader thinking that the CAP calls for the use of fuel cells, which it does not. Also, please note that in the second bullet point, "Measure BE-2.2", Bloom has italicized the second sentence which is not part of the CAP measure, which adds to the confusion.

In looking at Bloom's comment letter to the City, they offer the following points:

The City should use a definition of "all-electric buildings" that allows for the extension of natural gas infrastructure.

City Response: Extending natural gas infrastructure runs counter to the direction that California is moving to reduce gas infrastructure and reduces the cost benefits of all-electric construction. Additionally, in the presentation to Council on August 9, 2022 for adoption of the CAP update, under City Council Feedback, it was noted that "goals are adequate, but we can achieve more and use more aggressive language". The Summary of Public Comments portion included; " establish an end-of-flow of natural gas (NG) by 2040 or 2035 for commercial buildings and 2040 for residential buildings". Allowing NG infrastructure for new construction is counter to these comments and the movement to reduce / eliminate new NG infrastructure.

Fuel cells will be necessary to ensure reliability while reducing emissions.

City Response: More solar PV together with solar energy-supplied batteries can ensure reliability while reducing emissions. It is not necessary to use fuel cells for this purpose. Bloom fuel cells rely on natural gas to produce electricity which produces GHG emissions 24 hours a day, unlike emergency backup diesel generators that are only used a few hours a year. A fuel cell is cleaner on an hour-by-hour basis than a diesel generator, but this emission "savings" is very short term since daily emissions from the fuel cell are 24 hours a day, 7 days per week.

Onsite generation can reduce stress on the electrical grid.

City Response: Yes, onsite generation can be configured to reduce stress on the electrical grid. This is particularly true for batteries that can be set to release stored energy during evening / morning peaks in demand. Fuel cells, however, may not be particularly suited for this role since they will be producing power 24/7, and therefore cannot be turned on to provide additive power during the evening peak.

Green hydrogen, which can be used to fire a fuel cell, has been identified as a critical tool in achieving a net-zero energy transition.

Response: 1) Green hydrogen is not widely commercially available and most hydrogen produced today is made from fossil fuels, typically methane gas. 2) It is a potentially dangerous gas that is difficult to contain, prone to leakage, and could contribute to climate change

<https://acp.copernicus.org/articles/22/9349/2022/acp-22-9349-2022.pdf>; and 3) Could be used first in areas with existing gas infrastructure or for uses like heavy transportation that are difficult to electrify.

While it may be possible for future Bloom Fuel Cells to operate on alternative fuels, this will be cost-prohibitive for most uses and only practical for a small number of large industrial processes and some very high energy users. There is a much greater likelihood that, once constructed, a Bloom fuel cell will operate on natural gas and emit carbon dioxide 24 hours a day.

Santa Clara County Association of Realtors (SCCAOR) letter

The letter from SCCAOR is focused on providing reasons why reach codes should not be adopted for existing homes.

The Milpitas proposed reach codes are for new construction and do not have provisions or mandates that require all-electric conversions for existing homes.

Please contact Bill Tott (408) 686-3263 with any questions.

C: Steve McHarris, City Manager
Ashwini Kantak, Assistant City Manager
Bill Tott, Building Official
Christian Di Renzo, Public Works Director

Attachments:

Bloom Energy Letter dated December 6, 2022

Santa Clara County Association of Realtors (SCCAOR) Letter dated December 6, 2022



CITY OF MILPITAS

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12/6/2022
Agenda Item No. 18

ADDITIONAL ATTACHMENT AFTER AGENDA PACKET DISTRIBUTION

Item 18 – Letter from the Public

What Powers You

Dec 6, 2022

Rich Tran
Mayor
Milpitas City Hall
Milpitas, CA 95035

Dear Honorable Mayor Tran and Milpitas City Councilmembers,

Bloom Energy is pleased to provide comments on the proposed reach codes for building electrification. We recognize the value of building decarbonization as a key tool for meeting local and state climate goals and hope to help the City avoid unintended consequences negatively impacting local air quality, energy resiliency, and long-term decarbonization.

Bloom Energy is a leading clean energy company headquartered and with manufacturing facilities in the Bay Area. Bloom Energy Servers are a distributed energy resource that delivers reliable, uninterrupted power. Using solid oxide fuel cell technology, Bloom converts natural gas, biogas, or hydrogen into electricity with high efficiency and without combustion, significantly reducing environmental impacts. Utilizing the same technology, Bloom Electrolyzers can be paired with renewable energy sources to create clean, low-cost hydrogen at industry-leading efficiencies.

The updated definition of an “all-electric building” as currently proposed in ordinance 65.154 inadvertently obstructs customers’ ability to procure clean, resilient on-site power by banning pipelines from anywhere within property lines of newly constructed buildings. This would affect the City’s ability to reach key goals of increasing energy reliability, especially for critical facilities and industrial properties, and complicate plans to phase out highly polluting back up generation sources. Therefore, we propose the City retain its current definition for an “All-Electric Building” from the 2019 municipal code as shown below:

“ALL-ELECTRIC BUILDING is a building that has no natural gas or propane plumbing installed within the building and that uses electricity as the only source of energy for space heating, water heating (including pools and spas), cooking appliances, and clothes drying appliances.”

Maintaining the current definition will also help the City of Milpitas move towards achieving the goals set forth in the 2022 Milpitas Climate Action Plan Update, as outlined below:



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- Measure BE-1.2: Facilitate innovative approaches to energy generation, distribution, and storage (e.g., microgrids). Microgrids and DERs that will help enable greater deployment of renewable energy are most effective when a diverse mix of technologies can be deployed in a complementary fashion.
- Measure BE-2.2: Facilitate all-electric development projects for industrial buildings. Industrial buildings due to higher electricity usage, requirements, and resiliency concerns prove harder and more costly to electrify than residential properties. DERs and microgrids can help address these concerns and more rapidly enable the electrification of end-uses within these buildings.
- Action BE-2.4.4: Eliminate the provision of fossil fuel-powered backup generator permits for existing nonresidential development by 2030. As diesel generators proliferate throughout the Bay Area and increasingly underpin an unreliable power grid, non-combustion distributed energy resources such as fuel cells will be necessary to ensure reliability while reducing emissions.
- Measure 2.4: Minimize stress on the electrical grid and increase the resilience of existing residential and commercial development through energy efficiency upgrades and on-site energy generation and storage. Onsite DERs and microgrids reduce the overall load on the grid and can be configured to contribute to the grid during peak demand.

If the City pursues the new definition, fuel cell microgrids would no longer be an option to support reliable and clean power, creating a de-facto monopoly for backup diesel generators. Diesel generators release harmful air pollutants and greenhouse gas emissions,¹ and they become the only long-term energy reliability option in the context of a full moratorium on natural gas infrastructure, including uses outside of the building.

Even as we are transitioning to a carbon-neutral energy future, the population of diesel generators in California is growing rapidly due to an aging grid, increased extreme weather events, and the intermittent nature of wind and solar generation. In fact, the diesel generator population in Milpitas increased by 62.5 percent between December 2018 and June 2020. In June 2020, back-up diesel generators in the City had a total capacity of 63.8 MW.²

Other cities in the Bay Area such as Livermore and Mountain View have chosen to adopt reach codes this year which do not preclude the installation of fuel cells or DERs. Other leading national cities such as Seattle and New York City have adopted such codes as well.

¹ M.Cubed, 2021. Diesel Back-Up Generator Population Grows Rapidly in the Bay Area and Southern California, p. 7

² Ibid. p.15



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Maintaining the City's existing definition of an all-electric building will also support the future use of green hydrogen, a zero-carbon fuel identified as a critical tool in achieving a net-zero energy transition

by supporting the deployment of solar and wind power. In the near term, technologies like fuel cells can electrify buildings via directed hydrogen utilizing the existing natural gas infrastructure as the market and future hydrogen infrastructure matures.

Thank you for the opportunity to provide input on Milpitas's building electrification reach code. We believe sound policies that support building decarbonization and ensure energy reliability are key to the successful implementation of the goals of reducing greenhouse gas emissions and promoting resiliency. Please consider us a resource on distributed energy resources and building decarbonization, and feel free to reach out if I can be helpful.

Best Regards,

James Appfel

Government & Community Relations



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ADDITIONAL ATTACHMENTS AFTER AGENDA PACKET DISTRIBUTION

Item 18 – Letter from SCCAOR “SCCAOR Commentary on Agenda Item 18 - Public Hearing 2022 CA Energy Code and Green Building Standards Code”

From: [Enrique Navarro-Donnellan](#)
To: [Rich Tran](#); [Karina Dominguez](#); [Anthony Phan](#); [Carmen Montano](#); [Evelyn Chua](#); [Suzanne Guzetta](#)
Subject: SCCAOR Commentary on Agenda Item 18 - Public Hearing 2022 CA Energy Code and Green Building Standards Code
Date: Tuesday, December 6, 2022 2:22:40 PM
Attachments: [SCC Home Electrification Potential Costs.pdf](#)

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links.

Good Afternoon Milpitas Mayor & City Council,

The Santa Clara County Association of REALTORS® encourages you to reject any additional regulations or requirements beyond state mandates (ie: "reach codes") pertaining to existing homes.

For your reference, I have attached a study we conducted detailing the costs affiliated with reconfiguring a home to accommodate all-electric appliances - costs and necessary home adjustments well beyond solely swapping out appliances. Even in the case where only future development is considered for reach codes, several of these costs will be factored into the cost of said new housing. Our cost ranges were developed with responses from seven licensed electrician contractors in Santa Clara County.

As advocates for more, and affordably-priced housing, we advocate that home and property owners should be driving their own energy consumption decisions and have the option to live with energy systems that meet their needs and budget. In an area already among the most expensive markets in the nation, facing cost-of-living inflation across all consumer goods and services, particularly with electric utility rates higher than that paid elsewhere in the state or nation, we find it helpful to allow residents flexibility with the energy they use.

We ask that you oppose any additional reach codes on existing homes. Additionally, should it be considered, please oppose any mandates to require all-electric home conversion until public financing options are available to cover the costs of gas appliance replacement and the related structural work needed to accomodate all-electric appliances.

Kind Regards,

Enrique Navarro-Donnellan
Government Affairs Associate
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Potential Cost Range of All-Electric Conversion

Building Electrification Cost Study Published: June 27, 2022

STRUCTURAL COSTS	Low End*	High End*
APPLIANCES		
Air/Heating System	\$4,500	\$40,000
Range Cooktop	\$800	\$6,500
Water Heater	\$1,000	\$7,500
Clothes Dryer	\$1,000	\$3,000
SERVICES		
Rewiring & New 220 Amp Outlets	\$3,650	\$22,000
Construction Access to Electrical	\$2,000	\$9,000
Abatement of Asbestos & Lead	\$4,000	\$36,000
Replacement Housing During Asbestos Removal & Construction Upgrades	\$5,000	\$10,000
Electric Panel Upgrade from 50/100 to 200 amp	\$3,000	\$15,000
Undergrounding of Lines	\$3,500	\$15,000
Replacment of 2 inch pipe with 3 inch pipe to accommodate 200 amp service	\$5,000	\$30,000
PG&E Capping-Off Gas Lines	\$9,500	\$25,000
Permitting	\$1,000	\$5,000
SUBTOTAL APPLIANCES & SERVICES	\$43,950	\$224,000
ADDITIONAL FACTORS		
Solar Panels + Structural Upgrades	\$25,000	\$50,000
New Roof	\$20,000	\$75,000
Backup Battery	\$7,500	\$30,000
Swimming Pool/Spa Conversion**	\$10,000	\$35,000
Trigger for Fire Sprinklers	\$10,000	\$35,000
Trigger for Sewer Lateral	\$9,000	\$30,000
*Cost of Labor is the Most Significant Unknown Factor		
** Conversion to Electric is Discouraged by Pool Companies due to Inefficiency		
TOTAL STRUCTURAL COST	\$125,450	\$479,000

Sources: Based upon a study conducted by the Santa Clara County Association of REALTORS® (SCCAOR) with estimates from 7 Electrical Contractors in Santa Clara County.

The appliances, services, and additional factors are a "menu" of options and range of costs. Some newer homes will require fewer of the options and older homes will require most of the listed services and additional factors.