



June 28, 2020
GM 20-133

Anne Stausboll, Chair
Mayors' Commission on Climate Change
980 Ninth Street, Suite 1700
Sacramento, CA 95814

Re: Mayors' Commission on Climate Change – All-Electric Buildings Recommendation

Dear Chair Stausboll, Fellow Commissioners and Ms. Meis,

It's an honor to service on the Mayors' Commission on Climate Change and I appreciate the opportunity to provide additional information in response to recent concerns regarding all-electric new buildings in the Sacramento region. SMUD offers the following details and summary of recent program participation to supplement materials that the Commission has received.

SMUD All-Electric Program Participation

SMUD has seen significant interest in all-electric construction from developers and builders. SMUD's All-Electric Homes Program, which started offering incentives in mid-2018, has resulted in 235 single-family and multi-family newly constructed homes within our service area to date. Homebuilders who participate in the program receive up to \$5,000 per single-family home and up to \$1,750 per multi-family unit.

Looking ahead, 37 unique developers and builders have committed to build 46 new all-electric developments. Of those new developments, 38 are single-family and 8 are multi-family, representing a total of 1,138 new single-family homes and 898 multi-family units that are being actively designed and constructed as all-electric. In addition, we have reserved incentives to four all-electric multi-family retrofit projects, resulting in an additional 428 retrofitted units encompassing low-income, senior living and market rate apartments. We also have incentive reservation agreements in place with top-tier national homebuilders including DR Horton, K Hovnanian Homes, and Beazer Homes to build thousands of new all-electric homes. These homes will feature energy efficient construction combined with heat pump space heating and cooling, heat pump water heating, and induction stoves with no natural gas infrastructure costs.

Commercial developers are also beginning to transition to all-electric construction. To date, five completed commercial buildings have participated in SMUD's programs. We see an even larger number of future projects in the pipeline, with over 2 million square feet of commercial projects in our programs under construction and in design. Incentives are being proposed for all-electric projects expected through at least 2024, however our Carbon Reduction Plan calls for incentives to help with market transition for most segments through 2030, and through 2040 for our most challenging building types and market segments.

Technology is Ready to Meet Most All-Electric Projects

There is a misperception that the technology necessary for all-electric buildings does not exist. SMUD has found that the technology is readily available and gaining in popularity. For example, heat pumps are not a new technology, but rather a new application that developers are becoming increasingly familiar with. We've seen numerous multi-family projects opting for heat pump space heating due to its high efficiency, cost-effectiveness and additional support from the California Department of Community Services and Development Low Income Weatherization programs.

All electric technologies for single-family and low-rise commercial and low-rise multi-family construction are readily available and cost effective today. As a result, we strongly support requiring all-electric construction for all new construction under 4 stories beginning in 2023.

While central water heating applications for multi-story projects can be more challenging with heat pumps from a cost and space standpoint, local projects are beginning to incorporate the technology. I want to specifically highlight D&S Development's 17 Central project. This project is an 8-story, 112-unit, all-electric, multi-family mixed-use building on the border of Downtown and Midtown Sacramento. 17 Central has selected a Colmac-engineered central heat pump water heating system to meet the project's water heating needs.

SMUD is also piloting water heating technologies that are ideally suited for our climate. Major manufacturers of low-temperature capable units are actively working to eliminate the need for backup electric resistance heating, which can increase the cost of electrical infrastructure and transformers. Ecotope, an engineering firm we are working with, has designed more than 26 central heat pump systems that typically serve projects between 100-500 units.

Technology solutions are rapidly developing and will become increasingly cost-effective as the technology becomes more widely adopted. To bridge that gap, SMUD has focused incentive offerings on this key technology to accelerate market adoption.

All-Electric Construction Costs

SMUD is partnering with cities and the state of California to promote building codes that encourage the transition from natural gas to all-electric.¹ Studies from the Statewide Codes & Standards Working Group concluded that all-electric low-rise commercial, single-family and multi-family buildings are cost effective within our climate zone. It also found that builders also have reduced construction costs from forgoing the installation of natural gas infrastructure. The average infrastructure savings is approximately \$5,000 for single-family and \$3,000 for multi-family homes. Cost effectiveness studies for other building types are currently being conducted.

¹ Four of the five largest electric utilities in the State of California are actively supporting transitioning the State's new construction to all-electric over the next few years. SMUD, PG&E, Southern California Edison, and Los Angeles Department of Water and Power, are all participating in the forthcoming rule making for the 2022 California Energy Code (Title 24, Part 6) and urging the California Energy Commission to support efficient, all-electric new construction, where feasible and cost-effective.

Central City Development

Infill development can be challenging for a variety of reasons. Utilities is one of those reasons. The condition of overhead and underground wet and dry utilities should be considered as early as possible during a project's due diligence phase. SMUD infrastructure and electrical equipment can require special consideration in order to ensure safety and reliability. We strongly encourage developers and customers to engage with SMUD early in the design stages, when they have a sense of their electric load requirements and electric panel size, so that we can proactively work with them to identify needs, costs and energy efficient solutions.

There is no inherent grid capacity constraint that prevents electrification of new construction. A project may be challenged by space requirements for SMUD infrastructure and electrical equipment, which would be true of all infill projects, whether or not they are all-electric. Admittedly, all-electric may exacerbate the space and cost issue where the incremental load associated with electric water heating creates the need for an additional transformer. To address these challenges, SMUD has developed creative solutions such as minimizing size requirements for underground vaults and creating a developer incentive mechanism to defray infrastructure costs through our Rule 16 service interconnection process. It is true that vaulted services – which typically house the needed electric transformers for a new building or project – are significantly more costly than above-ground installation of equipment. And, this can be particularly challenging in zero setback development, as found in Sacramento's Central City. Many developers who have contacted SMUD in the initial stages of projects and have worked closely with our staff have been able to take advantage of integrating creative design solutions into their plans that reduced costs.

Of those projects that have committed or are have reserved all-electric incentives, 21 residential and 9 commercial projects are located within Sacramento's Central City, representing a total of 766 residential units and nearly 2.5 million commercial square feet.

Conclusion

As you can see from the number of all-electric projects that have been constructed, are underway or that have applied for electrification incentives, all-electric construction is rapidly becoming the norm in our region and has strong interest among much of Sacramento's building community. We anticipate that this interest will continue to grow stronger within the next couple of years as technology becomes more widely accepted and costs continue to decline. At SMUD, we remain committed to offering incentives and other resources and to work closely with the development community to facilitate the wider adoption of building electrification within the greater Sacramento region as we partner to address climate change.

Sincerely,



Arlen Orchard
CEO and General Manager