

Law and Legislation Committee Report

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Discussion Item 03

Title: New Building Electrification – Proposed Framework & Timeline

Location: Citywide

Recommendation: Review and comment on a framework and timeline for a proposed ordinance that facilitates: 1) the electrification of all new low-rise buildings of three stories or less; and 2) the requirement that 20% Electric Vehicle (EV) capable charging spaces and at least one installed, operational Level 2 EV charger are constructed in new multi-unit residential and nonresidential development of three stories or less.

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Attachments:

- 1-Description/Analysis
- 2-Proposed Framework
- 3-Outreach Efforts
- 4-Schedule
- 5-SMUD Electric Grid Capacity (To be delivered as Supplemental Material)

Description/Analysis

Issue Detail: Decarbonization through electrification is one of the City's key strategies for reducing greenhouse gas (GHG) emissions. Building code amendments are more effective and cost efficient than other GHG reduction measures, so they are a logical first step. Sacramento is looking to be a regional and statewide leader in taking proactive steps to reduce the impact of climate change. Passing a local building electrification ordinance helps build a case for statewide building code changes and encourages decarbonization across the State, nation, and the world.

Following the passage of SB100, which mandates that California utilities provide carbon-neutral electricity by 2045, local governments began passing ordinances that are variations on the theme of prohibiting fossil fuel energy sources in new construction.

As of September 1, 2020, thirty-three local governments in California have passed local government "decarbonization ordinances". Many of these are amendments to various parts of the California Building Standards Code for water and space heating systems, however some of them go as far as prohibiting natural gas infrastructure, and many of them have included additions such as solar and EV charging infrastructure requirements.

Recognizing the need for urgent action, on August 25, 2020, City Council directed staff to 1.) begin the process of adopting an ordinance requiring all new low-rise construction to be all-electric by 2023 and 2.) to change the local building code to ensure that new infrastructure is EV-capable. The Council's direction to staff was given following a presentation on the recommendations of the Mayors' Commission on Climate Change (MCCC). The Council's direction on August 25 supports Council's earlier action declaring a climate emergency on December 10, 2019 (Resolution No. 2019-0465), and the City's intent to take bold and immediate action to address climate change. Council requested that staff bring a draft framework and timeline to the Law and Legislation Committee of the City Council within 45 days.

In November 2018, Mayor Darrell Steinberg and West Sacramento Mayor Christopher Cabaldon launched the Mayors' Commission on Climate Change (MCCC) to develop recommendations for the cities of Sacramento and West Sacramento to achieve carbon zero by 2045. On June 29, 2020 the Mayors' Commission on Climate Change unanimously adopted its [final report](#) for achieving carbon zero by 2045 in Sacramento and West Sacramento. The MCCC recommendations included the following for electrification in new construction:

MCCC Built Environment Recommendation - Electrification in New Construction:

- Mandating all-electric construction to eliminate fossil-fuel use in new low-rise* buildings by 2023 and all buildings by 2026**. (*Low-rise defined as under 4 stories **Provided that the costs to go all-electric are cost-effective including the incremental costs of electrical infrastructure upgrades and the technology has shown to be feasible.)¹

MCCC Mobility Recommendation - Zero-Emission Vehicles:

- Developing a comprehensive package of incentives, disincentives, and policies to encourage the adoption of zero-emission vehicles (ZEVs) so that:
 1. 70% of new vehicle registrations will be for ZEVs by 2030.
 2. All public, private, and shared fleets are fully electrified by 2045

All-electric buildings have been shown to be cost-effective for new construction of nearly all building types. Avoiding the cost of gas infrastructure provides significant savings, and most electric appliances have similar or lower operating costs compared to natural gas appliances.

While new construction has been demonstrated to be cost effective, retrofitting existing buildings can require significant upfront investment (even though they provide long term cost savings). Preliminary research conducted on Bay Area housing stock estimated that the marginal costs associated with electrifying an existing single-family home between \$7,500 and \$17,000, depending on the appliances chosen and the buildings existing equipment and configuration.

Adding EV capacity requirements in new construction is also cost effective when compared to the cost of retrofitting to add EV capacity later. Installing EV capable spaces during construction adds approximately \$800 per space. Recent studies have indicated that retrofitting that same space can cost approximately \$2,370 - \$3,700, depending on the number of spaces. Incorporating the infrastructure with initial construction can then yield savings of \$1,570 - \$2,900 per space. For most building types, the savings from building all-electric offsets the small added cost of additional EV infrastructure, providing overall cost savings in comparison to mixed-fuel construction.

SMUD territory is one of the best locations in the country to go all-electric because SMUD offers excellent incentives, reliable electrical service, and maintains lower over-all energy rates than most utilities. SMUD's Integrated Resource Plan (or 2040 Energy Plan) was adopted by the California Energy Commission in December 2019 and sets a target of achieving net zero greenhouse emissions by 2040. The plan relies on a combination of measures and calls for significant investment in electrification of cars and buildings; reduced energy consumption

¹ The MCCC defined low-rise as anything under 4 stories. Staff are recommending "3 stories and under" because it is more precise.

through energy efficiency and demand response; and developing additional zero-emission generation resources and energy storage. SMUD is already half-way to its goal of achieving carbon-neutrality by 2040. Currently, 50 percent of SMUD's power mix is from carbon free sources including solar, wind, geothermal, biomass and hydroelectric. By 2030, SMUD expects 80 percent of their power mix will be carbon free.

In coordination with the MCCC recommendations, the City is also in the process of updating the Sacramento Climate Action Plan to reduce community-wide greenhouse gas emissions to 40% below 1990 levels by 2030 and achieve carbon neutrality by 2045.

As shown in the Schedule (Attachment 4), staff anticipate bringing the ordinance to City Council in March 2021 for adoption. In alignment with the MCCC recommendations, staff is recommending that the effective date of the ordinance be by 2023.

Policy Considerations: The 2035 General Plan includes the following key policies related to GHG emissions reduction.

- ER 6.1.5 Community Greenhouse Gas Reductions** 🌍. The City shall reduce community GHG emissions by 15 percent below 2005 baseline levels by 2020 and strive to reduce community emissions by 49% percent and 83% percent by 2035 and 2050, respectively. (RDR)
- ER 6.1.6 Municipal Greenhouse Gas Reductions** 🌍. The City shall maintain and implement its Phase 1 Climate Action Plan to reduce municipal GHG emissions by 22 percent below 2005 baseline level by 2020 and strive to reduce municipal emissions by 49 percent and 83 percent by 2035 and 2050, respectively. (SO)
- ER 6.1.7 Greenhouse Gas Reduction in New Development** 🌍. The City shall reduce greenhouse gas emissions from new development by discouraging auto-dependent sprawl and dependence on the private automobile; promoting water conservation and recycling; promoting development that is compact, mixed use, pedestrian friendly, and transit oriented; promoting energy-efficient building design and site planning; improving the jobs/housing ratio in each community; and other methods of reducing emissions. (RDR)

On November 12, 2019, Council adopted the Vision and Guiding Principles for the 2040 General Plan and Climate Action Plan Update. This document includes the commitment to take bold action to achieve carbon neutrality by 2045 and become a leading voice in the effort to reduce greenhouse gas emissions and adapt to climate change. New GHG emission reduction targets, GHG reduction measures and actions are being developed as part of the 2040 General Plan and Climate Action Plan Update.

Economic Impacts: The economic impacts of passing an electrification ordinance would be reduced construction costs for residential development and increased demand for climate-friendly appliances. During public outreach for code development, City staff and SMUD will engage stakeholders to share information and findings related to cost-effectiveness.

Environmental Considerations: City Council rules of procedure generally require that all proposals for ordinances must be reviewed by the Law and Legislation Committee prior to Council review and adoption. The review by the Law and Legislation Committee is not itself a project under the California Environmental Quality Act (CEQA) because it is a request for input and recommendation as an administrative activity that will not result in any direct or indirect physical change in the environment. (CEQA guidelines section 15378(b)(5).) Environmental review pursuant to CEQA will be conducted prior to any adoption of the proposed ordinance.

Sustainability: It is anticipated that the proposed electrification ordinance will have a net positive environmental impact because it will reduce GHG emissions and other pollution associated with fossil fuel combustion from gas heating systems, stoves, water heaters, and other appliances. The electrification will also facilitate the transition to zero-emission vehicles (ZEVs) and help improve air quality and further decarbonize Sacramento's economy. Electrifying buildings and the transportation sector are key strategies to achieve carbon neutrality and advance the recommendations from the Mayor's Climate Commission.

Commission/Committee Action: None

Rationale for Recommendation: Council has declared a climate emergency and declared the City's intent to take bold and immediate action to address climate change. Following the August 25, 2020 presentation on the recommendations from MCCC, City Council directed staff to begin the process of adopting an ordinance that would update City Code to require all new low-rise construction to be all electric by 2023 and increase EV infrastructure in new construction.

Staff are recommending an electrification ordinance for the reasons outlined below. The earlier the effective date of the ordinance, the greater the benefits will be.

Carbon Reductions

- The gap analysis of the draft measures and actions for the Climate Action Plan Update shows that there is still a gap of 323,108 MT CO_{2e} that needs to be closed in order to meet the City's target of achieving carbon-neutral by 2045. Clean, electric energy can replace the primary contributors to carbon pollution. Systemic changes to the built environment must be made to meet the City target. The earlier the effective date, the greater the City's ability to successfully close the gap.

Cost Savings

- Taking early action will cost less in the long run because it will cost more to retrofit buildings than it will cost to construct them as all-electric, EV-capable in the first place.
- An early effective date for the ordinance will avoid construction of “stranded assets” (obsolete gas infrastructure and appliances) that will require significant retrofit cost in the future when gas infrastructure is removed to meet state and utility standards for carbon emission reduction. The adoption of the ordinance eliminates the need to replace appliances and equipment within buildings at a later date. For example, according to yet to be published research, the added cost of retrofitting existing residential buildings to replace all four end uses of natural gas (HVAC, water heater, drier, and stove) is expected to be between \$7,600 and \$12,600 per dwelling unit.
- The proposed action to pass an electrification ordinance for new construction will reduce the costs to build low-rise residential housing and could result in more affordable single-family and multi-family low-rise housing.

Public Health Benefits

- Recent studies have found that natural gas stoves can cause indoor air quality to exceed outdoor air quality standards for NO₂ and CO. All electric buildings are safer and avoid the destructive costs of residential fires started by gas as well as deaths and life-changing injuries. The need to store and transport toxic flammable fossil fuels will be reduced.² Facilitating the transition to EVs will also have significant air quality benefits.

Compliance with Current and Future State Mandates

- Beginning with Assembly Bill 32 (2006), the state has passed a number of laws and Executive Orders requiring carbon emissions to be significantly reduced in the State. Carbon emissions reductions to 1990 levels can only be achieved if each jurisdiction and community does its part to make transformative change to reduce greenhouse gas emissions.

² In 2014 Lawrence Berkeley Lab analyzed indoor air pollution from gas stoves and concluded that during a winter week here in CA when we all close our windows, there are 12 million Californians in homes with gas stoves that are breathing levels of nitrogen dioxide (NO₂) that U.S. EPA has concluded is illegal outdoors. Outdoors we have spent billions and decades to eliminate dangerous levels of NO₂ and all US counties are in "attainment" with the NO₂ standard. Yet indoors - because of gas stoves - 12 million residents are exposed to levels EPA has deemed illegal and unsafe. In addition, there are 9 million residents breathing levels of formaldehyde that are illegal as well. <https://newscenter.lbl.gov/2013/07/23/kitchens-can-produce-hazardous-levels-of-indoor-pollutants/>

- California's utilities are required to have an all renewable energy portfolio by 2045. In order to achieve this ambitious goal, collaboration from the cities and county within SMUD's service territory is paramount to reduce GHG emissions and provide the Sacramento region with clean energy, improved air quality, and continued affordable rates that benefit the entire community.
- Integrating all-electric standards and EV capability into one comprehensive ordinance provides a balanced, overall package with net cost savings for new development. New projects will be future-proofed with adequate electrical capacity, avoiding the need for future costly retrofits.
- Requiring installation of at least one Level 2 charger increases visibility of EV charging options to both developers and the public, while leaving the option to developers to determine the feasibility of installing additional EV supply equipment. Regardless, by requiring adequate electrical capacity upfront, the ordinance will avoid future retrofit costs for installation of EV chargers.

Financial Considerations: The proposed ordinance is not anticipated to have a significant cost impact for the City. The Building Division will implement the new ordinance with existing staff resources.

Local Business Enterprise (LBE): Not Applicable

Background: California has taken an aggressive stance to mitigate climate change at the state-level through the adoption of legislation and policies. The two major state GHG-related goals are established by Assembly Bill 32 and Senate Bill 32.

- AB 32 required state agencies to reduce statewide GHG emissions to 1990 levels by 2020.
- SB 32 requires a 40 percent reduction below 1990 levels by 2030.

Executive Order B-55-18 was signed by the Governor Brown in 2018. It sets a goal of achieving carbon neutrality as soon as possible, but no later than 2045, and maintaining neutrality thereafter. It also calls for 100 percent renewable energy by 2045.

The City's key lever for transitioning buildings off of natural gas is to pass a series of ordinances that would change the requirements for obtaining a building permit and phase out natural gas over the 25-year period between now and 2045. The ordinance would also facilitate the transition from the internal combustion engine to zero-emission vehicles by improving the availability of vehicle charging infrastructure.

Proposed Framework for New Building Electrification Ordinance

Objective: Develop and adopt an electrification ordinance that requires (by 2023) all new construction of three stories or less to be all electric, and 2) requires a minimum of 20% Electric Vehicle (EV) capable charging spaces and at least one installed, operational Level II EV charger to be constructed in new multifamily and nonresidential development three stories or less.

Proposed Action:

- Amend City Building Code Title 15 (Buildings and Construction), including any required changes to the California Building Standards code in compliance with state law, to mandate all-electric construction to eliminate fossil-fuel use in new low-rise, three stories or less.
- Amend City Building Code Title 15 including any required changes to the California Building Standards code in compliance with state law, to require 20% EV capable charging spaces and at least one installed, operational Level 2 EV charger in new low-rise (three stories or less) multifamily and nonresidential development.
- Code amendment(s) to Title 17 of City Code (Planning and Development Code) to incentivize charging in both existing and new developments with parking reductions, requirements for including EV charging in the expansion of existing parking lots, and other incentives.
- The ordinance is anticipated to be ready for adoption in March 2021.

Outreach Efforts

OUTREACH EFFORTS TO DATE:

2040 General Plan Update/Climate Action Plan Outreach:

Staff have conducted an extensive community outreach program as part of the outreach for the 2040 General Plan and Climate Action Plan Update which included the concept of electrification. To date, outreach efforts have included:

- Two meetings with the General Plan Environmental Justice Working Group (EJWG) to review 22 GHG reducing actions
- Four city-wide workshops (April/May of 2019)
- Ten community plan meetings (Summer of 2019)
- Three listening sessions (2019)
- Virtual questionnaires with 920 respondents (May-June 2020)
- Plus: Pop-up events, youth engagement at Luther Burbank High School, youth events at Dyer Kelly elementary school, youth engagement through Summer at City Hall, youth engagement with youth ambassadors from La Familia, Asian Resources, and Greentech, Lift every Voice event (2019 and 2020)

The majority of the feedback from the community was supportive of efforts to reduce GHG emissions.

Mayor's Commission on Climate Change Community and Stakeholder Engagement:

The Mayors' Commission on Climate Change (MCCC) met first in November 2018 and held its ninth and final meeting on June 29, 2020 when the final MCCC recommendations were adopted. Throughout the duration of the Commission's efforts, input was gathered from the public, key stakeholders, and Technical Advisory Committee members in person and via online public comment. A series of Business Roundtables was also hosted by the Sacramento Mayor's Office, Climate Commissioners, and the Chambers of both cities.

The Built Environment Technical Advisory Committee solicited comments on the electrification strategies and tactics during each meeting as did the MCCC during its public meetings and online. The City of Sacramento Mayor's Office collaborated with Climate Commissioners Meg Arnold and the Sacramento Metro Chamber to host a series of roundtables and conversations with small and businesses, individuals, large employers, supply chains and over 100 stakeholders tied to business. Priority industries and stakeholder groups included real estate and development, multi-family property owners and managers, building contractors, restaurants, manufacturing operators, major employers, green businesses, shared mobility service providers, labor unions and

Outreach Efforts

workforce development organizations. The City of Sacramento Mayor's Office and Climate Commissioner and West Sacramento Councilman Chris Ledesma presented to and received feedback from the West Sacramento Chamber of Commerce as well. Feedback from the Sacramento Metro Chamber and the Building Industry Association resulted in an amendment to the strategy originally recommended by the Built Environment TAC and ultimately adopted by the MCCC. The comments received from Chamber leadership and developers with existing and potential projects in downtown Sacramento resulted in the split timing strategy for electrification of new construction with low-rise by 2023 and the high-rise buildings by 2026.

Outreach also included feedback from the Equity Technical Advisory Committee and organizations that represent entities that will be affected by the retrofit of future buildings.

SMUD's Outreach:

SMUD kicked off its building electrification efforts in June of 2018 with incentive programs for space and water heating, induction cooking, and programs for single family and multifamily developers. To date over 3,000 customers have taken advantage of these programs. As part of these programs SMUD has performed various outreach including:

- Over a dozen training events focused on architects, engineers, contractor and developers
- Induction training events held in over 6 libraries in the Sacramento area
- Maintained induction cooking unit in the library's' lending program
- Held a heat pump water heater technology forum at SMUD with over 100 attendees.
- Handed out flyers and magnets at home shows
- Building contractors who work in SMUD programs promote electrification and its benefits.
- SMUD's website includes information about the benefits of going electric, information about residential electric vehicles, all-electric smart homes, and SMUD programs (including educational videos explaining the technology and the environmental benefits of the technology).

EV Strategy/Blueprint Outreach:

In December 2017, the City adopted its first EV Strategy following stakeholder and community engagement. The City conducted additional engagement in 2019 to solicit community feedback on EV adoption and development standards through the City's EV Blueprint planning effort:

Outreach Efforts

- Over 15 community events throughout Sacramento including pop-up events and workshops to stakeholder presentations,
- An online survey available on the City website and at events, with 307 responses.
- A presentation to the Planning and Design Commission, with support for Title 17 amendments and an initial proposal of requiring EV-ready installations with an installed outlet.
- Stakeholder meetings with business and development representatives, affordable housing providers, and EV mobility technology companies.

PLANNED FUTURE OUTREACH

Ongoing outreach and education meetings including with key stakeholders:

- Local builders, construction industry, and building trades
- Developers
- Restaurant industry
- Business Districts
- Gas & Propane providers
- Community-Based Organizations
- Advocacy Organizations

SMUD will continue to host events and produce videos as well as kick off a larger marketing campaign in the community that will include television and radio ads, and social media postings.

Project Schedule – Electrification Ordinance

	ITEM/TASK	DATE
1	Law & Legislation: Review and comment on framework and effective dates	September 2020
2	Outreach & education meetings	Ongoing (October/November 2020)
3	Planning & Design Commission: Review and comment on framework and effective dates	November 2020
4	Revisions to draft Ordinance based on input	November 2020
5	Planning and Design Commission: Recommendation to Council for approval of Ordinance.	December 2020/January 2021
6	Law & Legislation: Recommendation to Council for approval of Ordinance	January/February 2021
7	City Council: Public Hearing on Ordinance	March 2021