Planning and Design Commission Report
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File ID: 2021-00102 February 11, 2021 **Public Hearing Item 05**

Title: An Ordinance Amending and Adding Various Provisions of Title 15 and Title 17 of the Sacramento City Code and Adopting Local Amendments to the California Building Standards Code, Relating to Green Building Standards Including Electrification

File ID: 2021-00102

Location: Citywide

Recommendation: Conduct a public hearing and upon conclusion recommend approval and forward to the City Council: Item A. Environmental Exemption (Per CEQA Guidelines Section 15061(b)(3) – Common Sense Exemption, Sections 15307 and 15308, actions taken by a regulatory agency concerning maintenance, restoration or enhancement of natural resources or protection of the environment); and **Item B.** an Ordinance amending and adding various provisions of Title 15 and Titles 17 of the Sacramento City Code and adopting local amendments to the California Building Standards Code, relating to green building standards including electrification.

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Attachments:
1-Description/Analysis
2-Background
3-Community and Stakeholder Engagement
4-Frequently Asked Questions (FAQ)

5-Ordinance - Redline
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Description/Analysis

Issue Detail: The New Building Electrification Ordinance (Ordinance) establishes phased requirements for the electrification of new building construction, requires higher levels of electric vehicle (EV) charging infrastructure in new construction, and establishes parking incentives for EV charging infrastructure. This ordinance implements direction of the City Council and a key recommendation of the Mayors' Commission on Climate Change (MCCC) final report approved on June 29, 2020.[1]

Following recommendations of the MCCC final report, City Council passed Motion No. 2020-0226 on August 25, 2020,[2] directing the City Manager to take a number of actions including moving quickly to draft an ordinance to require electrification of new construction. Since then, staff have conducted study sessions with the Law and Legislation Committee and Planning and Design Commission, and held numerous stakeholder meetings including eight webinars on various aspects of new building electrification. See Attachment 3-Community and Stakeholder Engagement for a summary of the community engagement conducted to-date.

The New Building Electrification Ordinance (Attachment 5) includes the following changes to the Sacramento City Code:

- Local amendments to the California Building Standards Code that will amend Title 15, Sacramento's Building Code to require:
    - Building permit applications filed on or after January 1, 2023, for all newly constructed buildings that are three stories or less to be all-electric buildings.
    - Building permit applications filed on or after January 1, 2026, for all newly constructed buildings that are four stories or more to be all-electric buildings.
    - Require new nonresidential, multifamily dwellings, and hotels and motels to provide 20% EV capable charging spaces and at least one installed, operational Level 2 EV charger, effective January 1, 2023 for new construction of three stories or less, and effective January 1, 2026 for new construction of four stories or more.

- The Ordinance also includes amendments to Title 17, Sacramento's Planning and Development Code to support EV charging with incentives that would allow:
    - One EV parking space with a Level 2 EV charger or a direct current fast charger to be substituted for a maximum of two parking spaces or 10% of the required on-site parking spaces, whichever is greater.

[1] Mayors' Commission on Climate Change final report and background information available online: https://www.lgc.org/climatecommission/.
[2] Recorded presentation and Council materials available online: https://sacramento.granicus.com/MediaPlayer.php?view_id=22&clip_id=4693&meta_id=596110.

- The Title 17 ordinance amendment would be effective thirty days after adoption.

The New Building Electrification Ordinance responds to input received from stakeholder meetings and community conversations since August 2020 and is consistent with City Council direction and recommendations from the MCCC. Attachment 3–Community and Stakeholder Engagement identifies the key areas of input received during the various stakeholder meetings. Attachment 4–Frequently Asked Questions includes responses to the key questions staff have received from residents and stakeholders. The two core themes the City team have heard from stakeholders are related to the effective dates, and the feasibility of all new construction types complying with the Ordinance.

Ordinance Effective Dates

The Ordinance takes a phased approach to implementation while charting a path for Sacramento to be the first City in the six-county Sacramento Area Council of Governments region to require new construction to be all-electric. The effective dates are consistent with the MCCC recommendations and allow sufficient time for the development community to adequately plan for the new mandate. The effective dates for the New Building Electrification Ordinance are January 1, 2023 and January 1, 2026, respectively. These effective dates align with the effective dates of the 2022 and 2025 California Building Standards Code updates. Complete building permit applications (including payment of all required fees) filed with and accepted by the City's Building Division prior to the effective dates would not be subject to electrification requirements.

The California Building Standards Code is on a three-year cycle. Local amendments are only applicable to the California Building Standards Code in effect when the local amendments are made. Accordingly, the City's Ordinance is not enforceable until California adopts the future state building codes, and the City adopts Ordinances that are local amendments to the new California Building Standards Codes that would be adopted after July 1, 2022 and July 1, 2025, respectively.

Specifically, the proposal is to amend the California Energy Code and the California Green Standards Code, which are separate parts of the California Building Standards Code. In order to amend the California Energy Code, the City Council is required to make a determination that the proposed changes are cost-effective. Subsequently, the California Energy Commission is required to make a determination that the changes use less energy. Cost effectiveness studies are utilized as the basis for the cost-effectiveness determination. The latest cost-effectiveness studies for all-electric construction will be utilized for subsequent Ordinances. Adopting the ordinance now codifies the City's commitment to new building electrification and sends an important market signal.

In order to amend the California Green Standards Code, the City must determine that the changes are necessary due to local climatic, geographic, or topographic conditions. Such findings are included in the proposed ordinance and such findings are also applicable to the proposed changes to the California Energy Code.

During the transition period between Ordinance adoption and the effective dates, the City's Planning and Building Divisions and the Sacramento Municipal Utility District (SMUD) will continue to conduct targeted outreach and educate potential development project applicants about electrification benefits and SMUD incentives. Many projects within the SMUD service area have already voluntarily constructed all-electric buildings including 291 single-unit dwellings, 20 multi-unit dwellings, and five commercial buildings. Many additional all-electric development projects are in the planning stages.

The amendment to the Planning and Development Code, Title 17, includes parking incentives to encourage EV charging stations and would go into effect 30 days from the adoption of the Ordinance.

Although this Ordinance specifically addresses removing gas infrastructure from new construction, the greenhouse gas emissions (GHG) from natural gas combustion in existing buildings must be addressed in order for Sacramento to achieve carbon neutrality. On August 25, 2020, City Council passed a motion (No. 2020-0226) directing staff to initiate a number of climate actions, including to work with PG&E and SMUD to determine a schedule and funding for retrofits to gas infrastructure over the next decade. In the coming months, City staff will work with the Environmental Justice Collaborative Governance Committee, other stakeholders, and technical experts, to develop an equitable approach to existing building electrification.

Ordinance Feasibility

Consistent with the recommendations of the MCCC and in response to some stakeholder feedback about the feasibility of certain project types (see Attachment 4-Frequently Asked Questions), the New Building Electrification Ordinance includes provisions for an infeasibility waiver for the portions of the project where all electric is demonstrated by the project applicant to be infeasible. If a building permit applicant establishes to the satisfaction of the building official that compliance with the all-electric requirement is infeasible, the building official may grant a modification to the requirement. Following adoption of the Ordinance, staff will work with stakeholders to develop a process and criteria for determining if all-electric construction is not feasible.

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

ER 6.1.5 **Community Greenhouse Gas Reductions þ.** 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 þ.** 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 þ.** 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)

Further, City Council committed to carbon neutrality by 2045 with adoption of the 2040 General Plan Vision and Guiding Principles (Resolution No. 2019-0433). On January 19, 2021, City Council reaffirmed electrification as a key strategy for the 2040 General Plan update. Specifically, the January 19th resolution commits to require new buildings to be electric and to gradually transition existing buildings away from natural gas, with assistance and financial incentives for low-income residents.

Equity Considerations[3]: All-electric construction reduces the costs to build low-rise housing and may make low-rise housing more affordable. Cost-effectiveness studies for all-electric buildings demonstrate that the ratepayer utility costs for all-electric buildings are lower than those with gas appliances. Recent studies have found that natural gas stoves can cause indoor air quality to exceed outdoor air quality standards for nitrous oxide and carbon monoxide, which contribute to the formation of asthma. These health vulnerabilities are especially acute in lower-income rental housing.

Economic Impacts: The economic impacts of passing an electrification ordinance may be reduced construction costs for residential development and increased demand for climate-friendly appliances. Cost-effectiveness studies indicate that all-electric construction is cost-effective for all low-rise construction, and analysis by City staff indicate that all-electric low-rise

[3] The City's working definition for equity is: "Regardless of one's identities, equity is when all people have fair, just treatment, access to the opportunities necessary to satisfy their essential needs, advance their well-being and achieve their full potential, while identifying and eliminating barriers that have prevented the full participation of some groups."

construction including the Ordinance's new EV charging requirements is cost-effective for all development type scenarios studied except medium office. Even medium office is cost-effective when SMUD incentives are considered. City staff and SMUD will continue to engage stakeholders to share information and findings related to cost-effectiveness. Staff will continue to work with stakeholders to understand and address economic barriers for certain development types.

Staff will collaborate with stakeholders to advance "just transition"[4] strategies and work to create new opportunities for jobs that may be impacted with a reduction of gas infrastructure work. Electrification and sustainable infrastructure bring new labor and workforce needs, with opportunities for Sacramento's low-income and underemployed communities.

Environmental Considerations: The adoption of an ordinance is a project under CEQA. The direct physical effect on the environment of the regulation would be negligible and less than significant.

Installation of additional electrical infrastructure in development would be required in some cases but would be offset by the lack of need to install gas infrastructure. The indirect effects of the regulation would substitute electrical energy use for natural gas. The combustion of natural gas produces indoor and outdoor air pollution as well as GHG emissions that are a significant contributor to climate change.

SB100 requires California utilities to provide carbon neutral electricity by 2045. The Sacramento Municipal Utility District currently provides electricity that is 50% carbon neutral. SMUD is committed to achieving carbon-neutral electricity by 2040 or earlier. The substitution of clean, carbon-neutral electricity for natural gas will significantly reduce indoor and outdoor air pollution and GHG emissions.

The Ordinance also includes provisions for electric vehicle capable charging spaces and electric vehicle chargers in new development projects. The internal combustion engine is a significant source of air pollution and GHG emissions. This ordinance provides a foundational action for the City to promote the transition from the internal combustion engine to zero-emission vehicles.

This Ordinance is consistent with City policies in the general plan and other plans, to reduce

[4] Refer to the just transition concept provided in the UC Berkeley Center for Labor Research and Education report to the California Workforce Development Board, in which "'Just Transition' refers to protection, support, and compensation for displaced workers and communities when a society makes significant policy decisions that result in job loss in affected businesses" to ensure that impacts are mitigated with other "high-road" opportunities (p. 149, Cha, M. (June 2020). Chapter 4: Just transition: Tools for protecting workers and their communities at risk of displacement due to climate policy. *Putting California on the high road.* https://laborcenter.berkeley.edu/wp-content/uploads/2020/08/Chapter-4-Just-Transition-Putting-California-on-the-High-Road.pdf

greenhouse gas emissions and improve air quality. Adoption and implementation of the Ordinance would not result in any significant effects. Because it can be seen with certainty that the action would not result in significant effects the action is exempt from CEQA pursuant to the commonsense exemption provided in CEQA Guidelines section 15061(b)(3). In addition, this ordinance is exempt pursuant to CEQA Guidelines sections 15307 and 15308 because it is an action taken to assure the maintenance, restoration or enhancement of natural resources or protection of the environment where the regulatory process involves procedures for protection of the environment.

Sustainability: The New Building 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 ordinance will also facilitate the transition to zero-emission vehicles (ZEVs), 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 MCCC.

Commission/Committee Action: On September 29, 2020 staff presented a draft new building electrification ordinance framework to the Law and Legislation Committee. On November 12, 2020, staff then presented the framework to the Planning and Design Commission.

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. In response to the recommendations of the MCCC and Council direction, staff is recommending adoption of the New Building Electrification Ordinance.

Financial Considerations: The New Building Electrification 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:

Current and Future State Mandates

California has taken an aggressive stance to mitigate climate change at the state-level through the adoption of legislation and executive orders. The two major state GHG-related goals are established by Assembly Bill 32 (2006) and Senate Bill 32 (2016).

- AB 32 established a statewide GHG emissions reduction goal of attaining 1990 levels by 2020.
- SB 32 requires state agencies to achieve a 40 percent reduction below 1990 levels by 2030.

Executive Order B-55-18 was signed by the Governor Brown in 2018. This order sets a goal of achieving carbon neutrality as soon as possible, but no later than 2045, and maintaining neutrality thereafter.

Following the passage of SB100 (2018), 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.

In September 2020, Governor Newsom issued EON-79-20, setting new statewide goals for phasing out gasoline-powered cars and trucks in California. Under the order, 100% of in-state sales of new passenger cars and trucks are to be zero-emission by 2035. Additionally, the order also establishes that all medium- and heavy-duty vehicles and off-road vehicles and equipment sales shall also be zero-emission where feasible.

City of Sacramento – Climate Action Policy Direction

In November 2018, Mayor Darrell Steinberg and West Sacramento Mayor Christopher Cabaldon launched MCCC to develop recommendations for the cities of Sacramento and West Sacramento to achieve carbon zero by 2045. On June 29, 2020, the MCCC unanimously approved 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.)

- 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.

In coordination with the MCCC recommendations, the City is also in the process of updating the Sacramento Climate Action and Adaptation Plan (CAAP) to reduce community-wide GHG emissions to 40% below 1990 levels by 2030 and developing a path forward for achieving carbon neutrality by 2045. It is anticipated that the draft CAAP will be available for public review in Summer 2021.

Decarbonization through electrification is one of the City's key strategies for reducing 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.

Additionally, 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. By requiring adequate electrical capacity for charging upfront, the ordinance will avoid future costly retrofits for electrical infrastructure and installing EV chargers.

Integrating all-electric building standards and EV capability into one comprehensive ordinance provides a balanced, overall package with net cost savings for new development.

Community and Stakeholder Engagement:
New Building Electrification Ordinance

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

- Three meetings with the General Plan Environmental Justice Working Group (EJWG) to review climate action key strategies and GHG reducing actions
- Four city-wide workshops (April/May of 2019)
- Ten community plan meetings (Summer of 2019)
- Three Environmental Justice listening sessions (2019)
- Interest Based Focus Group on climate change (February 2020)
- Virtual City-wide Workshops with 920 respondents to questionnaires (May-June 2020)
- A scientific survey with 504 respondents (August 2020)
- Virtual Self-Guided Community Plan Area Workshops (October 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)

Feedback from public and virtual workshops showed that the community is generally supportive of efforts to reduce GHG emissions, so specific questions about building electrification were included in the citywide scientific survey for the 2040 General Plan Update.

Of the 504 respondents who participated in the scientific survey, 65% of respondents indicated support for electrification of new construction, with 37% of respondents indicating strong support. As a scientific survey with a rigorous methodology, these findings can be interpreted as representative for the entire community with a +/- 4.38% margin of error at a 95% confidence level.

In addition, the survey showed that 63% of the respondents supported phasing out natural gas-powered appliances in existing buildings over the next 20 years.

Mayors' Commission on Climate Change:
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 unanimously approved. 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.

Community and Stakeholder Engagement:
New Building Electrification Ordinance

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. Industries and stakeholder groups involved 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 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. The built environment recommendation reflects feedback from the development community on considerations for and potential projects in downtown Sacramento. This feedback 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.

Sacramento Municipal Utility District:
The Sacramento Municipal Utility District (SMUD) kicked off its building electrification programs 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:
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 included the following:

- 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.

SPECIFIC OUTREACH CONDUCTED TO DATE FOR NEW BUILDING ELECTRIFICATION ORDINANCE:
City staff have participated in a number of stakeholder meetings. Feedback and discussion from stakeholders engaged in the last five months follows.

<u>American Institute of Architects, Central Valley Chapter</u>

- Discussion focused on SMUD incentives, electric equipment, and utility readiness. Both PG&E and SMUD indicated support and ready to handle electrification of new construction as of today.

<u>UA Local 447, Plumbers and Pipefitters</u>

- UA Local 447 generally embraces climate actions with some caveats.
- Gas piping work averages about 22.5% of the UA Local 447 work. According to UA Local 447, this work would account for more than 300,000 person-hours per year. A concern is that this ordinance could potentially put 150 members (10%) out of work in a year, without a "just transition" to ensure members can shift workload into other types of carbon-free work while maintaining and increasing wages.
- Suggestions to identify additional opportunities for greywater and rainwater catchment systems to provide work for plumbers and pipefitter to offset losses. These are ongoing items of discussion with the UA Local 447 for collaboration and partnership to operationalize a just transition with labor and workforce groups.

Community and Stakeholder Engagement:
New Building Electrification Ordinance

Downtown Urban Infill/Business Coalition/Building Industry Association

- Issues noted are as follows:
    - Options and availability are sometimes limited for certain uses. As an example tanks in breweries typically require gas.
    - Concerns about feasibility and costs for developers.
    - Availability of equipment may be limited for some applications such as industrial uses and larger facilities.
    - Chefs and the cooking industry prefer cooking over a flame as allowed by gas cooking appliances. Many chefs also like to cook with caste iron, which can damage induction cooktops.
- Concerns: Implications about potentially adopting earlier than 2023:
    - Post-COVID market recovery not expected until the end of 2022.
    - Lead time is needed for developers to plan their projects. Do not want to drive businesses outside of the City.
    - Sacramento has a skilled labor gap and shifting to all electric could exacerbate challenges.

Pacific Gas & Electric

- PG&E conveyed support of the City's electrification efforts and has assisted by providing the support of PG&E on-call contractors to present and participate in City-led webinars.

Sacramento Metropolitan Air Quality Management District

- SMAQMD supports the efforts due to significant air quality benefits.
- The New Building Electrification Ordinance aligns with the District's recently amended Greenhouse Gas Thresholds Best Management practices, which establish that new projects subject to the thresholds should not include gas or should mitigate emissions with prewiring for 100% electric.

350 Sacramento

- Key recommendations include:
    - An earlier effective date, similar to the recently enacted ordinances already in effect elsewhere in the state. If the effective dates remain unchanged, an electric-ready requirement should go into effect now. Electric-ready would reduce the costs for major retrofits.
    - Major retrofits should be addressed as the next strategy.

City of Sacramento Housing Policy Working Group

- Housing Policy Working Group members noted the following:
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  - Recommended meeting with affordable housing developers to understand their unique challenges.
  - Strong interest was expressed in working with SMUD to advance net energy metering and virtual net energy metering as a critical priority. *See Attachment 3-Frequently Asked Questions for more details about the role of Net Energy Metering and Virtual Net Energy Metering in electrifying multi-unit affordable housing.*
  - The challenge of electric central water heating for high-rise development was noted.

- In follow-up conversations, Working Group members also indicated:
  - A distinguishing feature of net energy metering is that affordable housing developers can use it as an upfront tool to make a project more competitive for financing. By contrast, SMUD rebates for all-electric housing are available after construction is complete.
  - Certain electric appliances, such as induction cooktops are more expensive than conventional gas appliances. Without the ability to take advantage of SMUD rebates, an upfront financing tool, or net energy metering, these costs cannot be easily accommodated by affordable housing projects while remaining competitive for available financing programs and tax credits.

<u>SacEV Association</u>

- Participants emphasized the importance of standards to increase EV charging options in multi-family development.

<u>SacPEV Collaborative</u>

- Feedback included the following:
  - Standards for new construction are critical to ensure the provision of EV charging in multi-family development and advance equitable access to zero-emission vehicle technologies.
  - The next state building code is anticipated to increase EV capability requirements for voluntary CalGreen tiers, consistent with the City's proposal and aligns with anticipated future voluntary EV charging tiers in CalGreen.

Community and Stakeholder Engagement:
New Building Electrification Ordinance

Manufacturing and Electrification Discussion Group, February 5, 2021
(Forthcoming stakeholder discussion at time of report publication, with stakeholders from the Sacramento Metropolitan Chamber of Commerce, the Sacramento Valley Manufacturing Initiative, and the Power Inn Alliance.)

Topic-Focused Webinar/Outreach Event Series
City staff hosted eight topical webinars on electrification topics. These webinars were broadly promoted through the electrification ordinance email distribution lists, stakeholder outreach, and the City website at cityofsacramento.org/SacElectrificationOrdinance.

Electrification 101:

- Pre-recorded webinar providing essential background information about what the City is proposing, and the rationale and context for building electrification. Speakers included City staff, SMUD staff, and staff from the Building Decarbonization Coalition.

Green Businesses: CleanStart Perspectives November 12, 2020 (Hosted by CleanStart)
~10 participants

- Presentation: "Sacramento Electrification Update" an event hosted by CleanStart, with interest and clarifying questions from participants.

Electrifying Commercial Development – December 10, 2020
~50 participants
Presentations by Scott Shell, EHDD; Ted Tiffany, Guttman & Blaevoet; and Steve Oliver, SMUD

- Guest speakers provided case studies of the electrification of commercial buildings. They asserted that electrification of commercial projects is generally feasible at all scales, and equipment is available. Examples included case studies of mid- and high-rise all-electric projects (e.g., the new 21-story headquarters for the California Natural Resources Agency in Downtown Sacramento, currently under construction).
- Regarding transformer and infrastructure issues: equipment technology is still evolving that will impact power load, but it is incumbent on designers and engineers to plan ahead, and ask lots of questions on design assumptions, which can solve many of the challenges.
- Some special uses may not be able to fully forego gas infrastructure with current technologies, such as research labs that require lots of emergency power, and breweries, which may still require alternatives like biogas.

Community and Stakeholder Engagement:
New Building Electrification Ordinance

<u>All-Electric Residential Appliances – December 14, 2020</u>
~40 participants
Presentations by Nicholas Dunfee, TRC Companies; and Steve Oliver, SMUD

- Presentations about the recommended all-electric technologies for residential development, and SMUD incentives.

<u>Electrification of Special Uses: Labs & Manufacturing – December 17, 2020</u>
Presentation by Stet Sanborn, Smith Group; and Steve Oliver, SMUD

- Presenters provided numerous examples of all-electric labs, healthcare centers, and manufacturing uses. The discussion acknowledged that some uses can be more challenging to fully electrify due to high load, the need for power backup options, and intensive energy demands in 24-7 operations.

<u>Electrifying Multi-unit and Affordable Housing – January 7, 2021</u>
(~130 participants)
Presentations by Sean Armstrong, Redwood Energy; and Vanessa Guerra Martinez, Mutual Housing

- Presenters provided numerous examples of all-electric and zero-net energy affordable housing. However, all examples are outside of the SMUD territory and use net energy metering to incorporate solar photovoltaics and thereby enjoy increased competitiveness for financing and tax credits.
- The absence of a virtual net energy metering program with SMUD poses a challenge to the standard ways that housing developers package competitive affordable housing projects for funding. Local developers anticipate that this barrier will be exacerbated as new affordable housing projects electrify and need additional methods or support in lieu of virtual net energy metering.
- *See Attachment 3-Frequently Asked Questions for more details about the role of Net Energy Metering and Virtual Net Energy Metering in electrifying multi-unit affordable housing.*

<u>Electrification & Workforce – January 15, 2021</u>
(~24 participants)
Presentations by Larry Rillera, California Energy Commission; and Luis Sanchez, Community Resource Project Inc.

- Presentations highlighted programs, initiatives, and opportunities related to electrification, EV charger installations, retrofits, and workforce. A number of partnerships and pathways exist, yet panelists acknowledged the need for partnership to facilitate the transition of low-income communities and trades into clean-energy workforce opportunities.

Community and Stakeholder Engagement:
New Building Electrification Ordinance

<u>Electrification of Commercial Kitchens – January 25, 2021</u>

(~39 participants)

Presentations by Richard Young, Food Service Technology Center; and Courtney Payne, SMUD

- Presenters highlighted examples of commercial electric cooking equipment and SMUD rebates. Participant feedback on the webinar highlighted the concerns across the restaurant industry with going all electric on thin profit margins, especially in times of economic recession. Gas appliances are low-tech across the industry. Although electric kitchens may provide ongoing cost savings, they require upfront investment.

City of SACRAMENTO

NEW BUILDING ELECTRIFICATION ORDINANCE

The following Q&A is intended to provide key information about the **New Building Electrification Ordinance** including what it is, why the City is pursuing building electrification, what it will do, and when it will be effective.

City Council directed City staff to begin the process of adopting this ordinance on August 25, 2020. Since that time, staff have conducted study sessions with the Law and Legislation Committee and Planning and Design Commission and held numerous stakeholder meetings including eight educational/public outreach webinars on various aspects of new building electrification. Many of the following questions are based on questions posed in stakeholder meetings and webinars by community members.

1. What is the new building electrification ordinance?

- The City is proposing to adopt a building electrification ordinance that will require all newly constructed buildings to be all-electric and support electric vehicle charging. Effective dates will be phased in (see #10 below for details).

2. What is building electrification?

- Building electrification is the substitution of gas appliances (furnaces, water heaters, cooking ranges and stoves, dryers, etc.) with clean, safe, and highly efficient all-electric alternatives.

3. Why is the City developing this new building electrification ordinance?

- This ordinance implements direction of the City Council and the recommendation of the Mayors' Commission on Climate Change. In June 2019, the Mayors' Commission on Climate Change unanimously approved a final report, with the electrification of new buildings as a key strategy. Representatives on the Commission consisted of a range of stakeholders including business and environmental leaders, real estate and development professionals, governmental agencies, and nonprofits. Specifically, this broad range of Commissioners advised that the City mandate all-electric construction to eliminate fossil-fuel use in new buildings under 4 stories by 2023 and all new buildings by 2026, with caveats for cost-effectiveness and technical feasibility.[1] Following this

[1] Mayors' Commission on Climate Change final report and background information available online: https://www.lgc.org/climatecommission/.

recommendation, City Council passed Motion No. 2020-0226 on August 25, 2020,[2] directing the City Manager to take a number of actions including drafting an ordinance to require electrification of new construction. Responding to this direction, staff prepared this ordinance and incorporated the provisions advised by the Commission, with the recommended timelines and accommodation of situations of technical infeasibility.

4. What are the benefits of building electrification?

- **Smaller carbon footprint:** As electricity from the grid gets cleaner, all-electric buildings will eventually stop producing greenhouse gas emissions. The electricity provided today by the Sacramento Municipal Utilities District (SMUD) is already 50% carbon free and SMUD has a goal to provide 100% carbon-neutral electricity by 2030. All-electric buildings that purchase 100% renewable electricity are already zero-emission. Electric buildings are a key strategy to attain the City's goal of carbon neutrality by 2045.

- **Better indoor air quality:** All-electric buildings improve indoor air quality and promote better public health by eliminating natural gas combustion inside homes. Burning gas in household appliances produces harmful indoor air pollution.

- **Fire Safety:** All-electric buildings are safer. Natural gas use in homes is responsible for almost half of residential house fires.
- **Cost Savings:** All-electric new buildings do not require the installation of gas infrastructure, reducing capital costs. New, and existing all-electric buildings can benefit from reduced operating costs[3].

- **Equity:** All-electric new construction can reduce construction costs and make housing more affordable. For disadvantaged populations that spend a disproportionate amount of their income on energy, and who are more likely to suffer from asthma due to poor indoor air quality, zero emission homes are an important opportunity to deliver social equity benefits.

5. What type of construction will be subject to the ordinance?

- The ordinance applies only to new construction and will not apply to tenant improvements, remodels or permits for existing buildings.

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[2] Recorded presentation and Council materials available online: https://sacramento.granicus.com/MediaPlayer.php?view_id=22&clip_id=4693&meta_id=596110.

[3] Cost effectiveness studies:

- Reach Code, New Construction, Low Rise Residential: https://www.smud.org/-/media/Documents/Corporate/About-Us/Energy-Research-and-Development/2019-Low-Rise-Reach-Code-Analysis_SMUD_Final.ashx
- Reach Code, New Construction, Mid Rise Residential: https://www.smud.org/-/media/Documents/Corporate/About-Us/Energy-Research-and-Development/2019-Mid-rise-NC-Cost-Eff-Report-1.ashx
- Reach Code, New Construction, Low Rise Commercial: https://www.smud.org/-/media/Documents/Corporate/About-Us/Energy-Research-and-Development/2019-NR-NC-Cost-Effectiveness-Study-2019-07-25.ashx
- Low rise, single family and multifamily new and existing building electrification analysis: https://www.smud.org/-/media/Documents/Corporate/About-Us/Energy-Research-and-Development/E3-Residential-Building-Electrification-in-California-April-2019.ashx
- Website on the reach code analysis: https://explorer.localenergycodes.com/studies/city-sacramento/

6. Will the proposed ordinance apply to additions and remodels, or tenant improvements?

- No, this ordinance will not apply to additions and remodels, or tenant improvements, only new construction.

7. Will this ordinance apply to single family residences?

- Yes, this ordinance will require electrification of all low-rise new construction starting on January 1, 2023. However, the ordinance does not establish new EV capability requirements for single family residences; the California Green Building Code already requires EV capability in new single-family development.

8. What does the proposed new building electrification ordinance include?

- The proposed ordinance includes:
  - Local amendments to the California Building Standards Code that will amend Title 15 of the Sacramento City Code to:
    - Building permit applications filed on or after January 1, 2023, for all newly constructed buildings that are three stories or less to be all-electric buildings.
    - Building permit applications filed on or after January 1, 2026, for all newly constructed buildings that are four stories or more to be all-electric buildings.
      a. Consistent with Mayors' Commission on Climate Change recommendation, the 2026 effective date is under the condition that all-electric buildings four-stories and above have been shown to be cost effective and technically feasible by that date. The ordinance will provide an infeasibility waiver process that will place the burden on the project applicant/developer to show that it is not feasible to construct the new building completely without natural gas.
    - Require new nonresidential, multifamily dwellings, and hotels and motels to provide 20% EV capable charging spaces and at least one installed, operational Level 2 EV charger, effective January 1, 2023 for new construction of three stories or less, and effective January 1, 2026 for new construction of four stories or more.
  - In addition, the City is proposing to Amend Title 17, the Planning and Development Code, to support EV charging with parking reductions and parking standard incentives, effective in 2021.

9. What are the effective dates of the proposed ordinance?

- Proposed Effective Dates:
  - One-Three Stories and 20% EV capable spaces/EV charging: January 1, 2023.
  - Four-stories or more and 20% EV capable spaces/EV charging: January 1, 2026
  - EV Parking Incentives: 30 days from adoption

- These proposed electrification requirements would not apply to building permit applications submitted and accepted by the City's Building Division with payment of all required fees prior to the effective date of January 1, 2023 or January 1, 2026, respectively.

    - The proposed effective dates are consistent with the Mayors' Commission on Climate Change recommendations and allow sufficient time for the development community to adequately plan for the new mandate.

These effective dates align with the anticipated effective date of the 2022 California Building Standards Code and the anticipated effective date of the 2025 California Building Standards Code. The state's building code is on a three-year cycle and serves as the basis for any legally enforceable local code. Accordingly, the City's electrification ordinance is not enforceable until California releases the future state building codes, and the City re-adopts the ordinance as amendments to the new statewide building code.

- The proposed amendment to the Planning and Development Code would go into effect 30 days from the adoption of the ordinance. This change would incentivize EV charging stations prior to the effective date by allowing the substitution of one EV parking space with a Level 2 charger or a direct current fast charger to be substituted for a maximum of two parking spaces or 10% of the required on-site parking spaces, whichever is greater.

- During the transition period between the ordinance adoption date and effective date, the City's Planning and Building Divisions will conduct targeted outreach and educate potential development project applicants about the benefits of all-electric construction and engage stakeholders in the development of the process and criteria for the infeasibility waiver.

10. What happens if all-electric construction is not feasible for a proposed new building?

- The proposed ordinance will include provisions for an infeasibility waiver only for those portions of the project where all electric is infeasible; the process would allow an applicant to request an infeasibility waiver when they can demonstrate to the satisfaction of the City building official that it is technically infeasible to meet the requirements of this ordinance.

11. What other jurisdictions have enacted an electrification ordinance?

- A growing number of cities in California (41 so far) already have all-electric requirements in effect for new construction. The City of Berkeley was the first to enact all-electric requirements and a ban on natural gas infrastructure in 2019, which went into effect in 2020. Other cities recently adopting these requirements include the City of San Jose and the City & County of San Francisco. In California:
    - 5 jurisdictions have placed a moratorium on natural gas infrastructure and over 20 jurisdictions in California have adopted all-electric reach codes[4].

[4] A **reach code** is a local building energy code that "reaches" beyond the state minimum requirements for energy use in building design and construction.

- An additional 8 cities have adopted less stringent ordinances, which establish electric-preferred or electric-ready standards, while stopping short of prohibiting the inclusion of gas or propane infrastructure.
- Sacramento could be the first of the top ten big cities in California outside of the Bay Area to adopt an electrification ordinance; Sacramento could also be the first large inland community in California to do so.[5]

12. What about requiring all projects to be "electric-ready" before the all-electric requirements go into effect? How is it different from requiring all-electric?

- An electric-ready building includes both electric and natural gas infrastructure, but the building's electrical systems and designs provide capacity, space, electrical conductors or raceways, and related devices for a future retrofit of building appliances and equipment to be all-electric. By contrast, an all-electric project would not include any natural gas or propane infrastructure.

- The costs to make new development electric ready may be minimal when compared to the cost of retrofitting mixed-fuel buildings. For example, electric-ready adds $300-$400[6] to the cost of constructing a single-family dwelling, while the cost to retrofit a mixed-fuel single-family dwelling to upgrade to all-electric may be 3 - 4 times more than that after construction.

- Cost-benefits could greatly vary for multi-family and nonresidential development. There may also be a diminishing cost-benefit for upfront inclusion of electric-ready improvements, when compared to future costs for retrofits.

- Due to the range of potential costs, more analysis and outreach would be needed prior to including an electric-ready provision in the ordinance. In order to meet the expedited ordinance timeline, staff have not included this provision in the ordinance.

13. What criteria will be used to determine if all-electric is not feasible for a proposed new building?

- Following the adoption of the ordinance, staff will develop a process and criteria for determining if all-electric construction is not feasible. As proposed in the current draft ordinance, the burden will be on the applicant to show infeasibility. City staff will continue to evaluate the infeasibility waiver processes in collaboration with local stakeholders and refine the process for inclusion with amendments to the 2022 California Building Standards Code.

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[5] A number of other smaller communities have also adopted requirements for all-electric construction. The City of Davis currently requires new residential development to be electric-ready (refer to Chapter 8 of the Davis Municipal Code: https://qcode.us/codes/davis/).

[6] Reach Codes:

Energy & Environmental Economics. 2019. Residential Building Electrification in California. April 2019. https://www.ethree.com/wp-content/uploads/2019/04/E3_Residential_Building_Electrification_in_California_April_2019.pdf

California Energy Codes & Standards. (August 1, 2019). 2019 Cost-effectiveness Study: Low-Rise Residential New Construction. Prepared for Pacific Gas and Electric Company. Prepared by Frontier Energy. https://localenergycodes.com/download/73/file_path/fieldList/2019%20Res%20NC%20Cost-eff%20Report

TRC. 2016. Palo Alto Electrification Final Report. November 2016. https://www.cityofpaloalto.org/civicax/filebank/documents/55069

Additional cost-effectiveness studies available online: https://localenergycodes.com/content/resources.

14. What types of new development are hard to electrify, and how does the ordinance respond to these challenges?

- Despite the rapid schedule as directed by the Mayor and City Council, City staff have vetted issues through webinar events and discussions with local stakeholders, developers, chefs, affordable housing advocates, labor representatives, engineers, architects, and more. The ordinance includes provisions for an infeasibility waiver, recognizing the current technical limitations of all-electric in certain applications. Electrification poses challenges for some uses and development types:
    - Gas equipment has broader industry acceptance and understanding by the restaurant community. Some members of the restaurant community have indicated that the ordinance would pose a hardship, even though it would only apply to construction of new buildings, and have asserted the importance of maintaining flexibility for natural gas equipment in commercial cooking.
    - In certain cooking applications such as big pizza and bakery ovens, the ongoing operating costs for electric cooking equipment may be higher than the cost of operating gas equipment. [7]
    - Manufacturing and special use sectors may also have certain types of equipment that cannot be feasibly electrified while maintaining critical services. For example, some uses may require equipment such as a co-generation plants and emergency generators. The ordinance infeasibility waiver will provide flexibility where all-electric is technically infeasible for new construction.

- Providing an infeasibility waiver in the ordinance accommodates the unique needs of these building types and operators, consistent with the approach of other jurisdictions in California that have already enacted electrification ordinances, such as Oakland, San Francisco and San Jose. City staff will continue to collaborate with stakeholders moving forward, to better understand unique needs and identify options to transition to new, cleaner technologies.

15. Why adopt these ordinances now when state building codes are updated every three years?

- Decarbonization through electrification is one of the City's key strategies for achieving carbon neutrality. The ordinance will reduce greenhouse gas emissions (GHG) and provide many co-benefits including improved indoor and outdoor air quality and improved public health.

  It is not certain if or when state building codes will require all-electric construction. Passing the proposed ordinance in 2021 will signal intent to the development community and provide time to adequately plan for the new mandate.

- Building code amendments are more effective and cost efficient than other GHG reduction measures available to the City. In addition, most electric appliances have similar or lower operating costs compared to natural gas appliances.

[7] Richard Young (December 21, 2020). Frontier Energy, the Food Service Technology Center. Personal communication. ryoung@frontierenergy.com, https://fishnick.com/.

[8] Link to Studies: https://www.smud.org/en/Corporate/About-us/Research-and-Development#af4d3e2a-33c7-4612-90ab-3cb869e6da1e-326a400b-d34c-43e8-b0bf-36c07bc1486e

Avoiding the cost of gas infrastructure provides significant savings. Studies[8] have shown that all-electric low-rise buildings are already cost effective for new construction and adding EV capability requirements is also cost effective for all building types except medium office. When SMUD incentives are factored in, even medium office is cost effective, and other building types come out significantly ahead.

The electrification ordinance is expected to reduce the cost to build new low-rise housing. Delaying will cost more in the long run by creating stranded assets (obsolete gas infrastructure and appliances) that will cost significantly more to retrofit in the future when gas infrastructure is removed to meet state and utility standards for carbon emission reduction.

16. Why is all-electric new construction better for low-income and affordable housing residents?

- Cost effectiveness studies have shown that all-electric low-rise construction is typically cost effective.[9] The studies showed that the elimination natural gas infrastructure can provide significant cost savings, with ongoing savings to residents. One study estimated that over a 30-year period, residents in new electric construction would pay less in energy bills by approximately $5,349 in single family housing and $2,337 in low-rise multi-family.[10] The upfront costs associated with installing new gas distribution and service lines are paid off over time by the residents of the newly constructed buildings through monthly utility bills. This leads to higher energy rates for residents over the long term.
- A major portion of natural gas rates are to pay for infrastructure maintenance. The projected decrease in natural gas usage due to improved efficiency and electrification is projected to significantly increase the cost of natural gas over time[11]. Avoiding new natural gas infrastructure will decrease the number of stranded assets and help protect the community as a whole from energy rate increases.

17. What is the role of Net Energy Metering and Virtual Net Energy Metering in electrifying multi-unit affordable housing?

- VNEM is important for affordable housing because it enables a multi-meter property owner to allocate the property's solar system's energy credits to the tenants and identifies an ongoing revenue stream to meet financing payment obligations. NEM is also a tool that allows affordable housing developers to monetize the credit from solar photovoltaic systems as a way to make a more competitive project for financing, better equipping them to securitize financing.

- Net Energy Metering (NEM) allows energy customers who generate their own energy to serve their energy needs directly onsite and receive a financial credit on electric bills for excess energy provided to the utility. NEM is available to customers of the three large investor-owned (IOU)

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[8] Link to Studies: https://www.smud.org/en/Corporate/About-us/Research-and-Development#af4d3e2a-33c7-4612-90ab-3cb869e6da1e-326a400b-d34c-43e8-b0bf-36c07bc1486e

[9] Refer to footnote 6 for links to low-rise cost-effectiveness studies.

[10] Low-rise multi-family defined as 8 units. California Energy Codes & Standards. (August 1, 2019). 2019 Cost-effectiveness Study: Low-Rise Residential New Construction. Prepared for Pacific Gas and Electric Company. Prepared by Frontier Energy. https://localenergycodes.com/download/73/file_path/fieldList/2019%20Res%20NC%20Cost-eff%20Report.

[11] Increasing costs of natural gas: https://gridworks.org/wp-content/uploads/2019/09/GW_Calif-Gas-System-report-1.pdf

territories regulated by the California Public Utilities Commission.[12] Virtual Net Energy Metering (VNEM) is a NEM program available to multitenant properties such as multi-unit affordable housing, allowing for the solar benefit to be allocated to multiple tenants.

- Prior to the IOUs being mandated to adopt VNEM, SMUD tested and implemented a similar pilot program to provide access to solar to multi-tenant properties. Currently, SMUD does not offer a VNEM program. However, SMUD is undergoing a NEM Successor rate restructuring process which is anticipated to result in a rate proposal that will be subject to public review in the summer with SMUD Board action in September 2021. An onsite generation aggregate multi-tenant program option will be considered as part of the Successor rate process. The City will monitor and engage in these proceedings.

- SMUD also offers Neighborhood SolarShares for developers of new single family and multifamily homes as a California Energy Commission approved option for compliance with the new construction solar mandate from the 2019 California Buildings Standards Code. SMUD also offers rebates for electric construction, but rebates are only available after the project is constructed. Hence, SMUD's rebates do not address the upfront financing barriers that affordable housing developers face.

- In an increasingly competitive financial environment, NEM is a tool that affordable housing developers have relied on to compete for and secure limited financing from public housing agencies, the state, and federal tax credits. Without NEM in SMUD territory, local affordable housing developers report that they will be further challenged to package funding when building all-electric. Local affordable housing developers also report that certain all electric equipment for their projects can be more expensive and be infeasible with tight project pro-formas.

18. What other incentives for affordable housing development is the City considering?

- City staff and SMUD are committed to reducing the barriers for affordable housing developers to build all-electric. The City has eliminated city development impact fees for qualifying affordable dwelling units and provides a fee deferral program for other development impact fees that it collects for other agencies. The City is working to further remove barriers to the production of housing with policy and code changes, permit streamlining, and other initiatives. City staff will continue to work through these issues and identify appropriate solutions with key stakeholders to facilitate the construction of affordable housing. SMUD may also consider updates to its rules and programs as described above.

19. Cost-effectiveness studies have shown that all-electric low-rise construction is cost effective, but is the combination of all-electric + EV capable cost-effective for new low-rise construction?

- For most building types (except medium office), 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. Even medium office was found to be cost-effective when SMUD incentives were considered, which resulted in a savings of $88.[13]

[12] California Public Utilities Commission (2021), https://www.cpuc.ca.gov/NEM/.

[13] Cost estimates for this question were determined using cost-effectiveness studies referenced in footnote #6. Staff calculated the number of EV capable parking spaces for project prototypes assuming average rates of parking provision based on Title 17 requirements and typical projects. Electrical system assumptions were vetted with SMUD. The incremental costs of EV capability and installed Level 2 chargers were calculated for each prototype based on the California Air Resources

- Adding EV capacity requirements in new construction is 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 yields savings between $1,570 - $2,900 per space.[14]
- By packaging EV capability together with all-electric, the City is taking forward a net-positive cost package for new low-rise construction. Staff's initial review of available cost effectiveness studies indicates that this approach can yield substantial savings, especially for residential buildings:
    - Accounting for both 20% EV capability and all-electric requirements for low-rise, data suggests that savings ranges from over $6,000 (for a mid-rise, ~88 unit development) to over $60,000 (for a low-rise multi-family project with 8 dwelling units).

20. When will cost effectiveness studies for buildings that are 4-stories and above be available?

- A cost effectiveness study for mid-rise residential buildings has been completed.[15] Other studies for buildings that are 4-stories and above are expected to be completed prior to the ordinance effective date for buildings that are 4-stories and above.

21. Does SMUD have the resources to provide reliable grid capacity?

- As reliability is a core value, SMUD has the resources and capital investment plans in place to ensure that all customer energy requirements are met and that the grid can continue to deliver as electrification of buildings and transportation becomes more prevalent in the Central City and throughout SMUD's service territory.

22. What impacts will the electrification of new buildings have on the grid?

- Impacts to the grid for the electrification of new buildings are less than many may imagine because existing peak electrical loads are in the summer; the SMUD system is sized for summer peak loads, while the shift to all-electric space heating (which uses more electricity than other appliances) would occur in the winter. In addition, electric heat pump space heating, electric heat pump water heating, and induction stovetops are all very energy efficient.

- The potential impact of electric vehicle charging on the grid is more significant. These impacts will not happen overnight, and SMUD has ongoing forecasting in place and is actively planning to address impacts created by electric vehicle charging to meet future grid demand.

Board CALGreen Technical Cost and Analysis (2019) (California Green Building Standards Code, Title 24, Part 11, Sections 4.106.4 and 5.106.5.3, https://ww3.arb.ca.gov/cc/greenbuildings/pdf/tcac2018.pdf.).

[14] Energy Solutions/PG&E study done for San Francisco https://evchargingpros.com/wp-content/uploads/2017/04/City-of-SF-PEV-Infrastructure-Cost-Effectiveness-Report-2016.pdf

[15] California Energy Codes & Standards. (June 22, 2020). 2019 Mid-Rise New Construction Reach Code Cost-Effectiveness Study. https://localenergycodes.com/download/492/file_path/fieldList/2019%20Mid-rise%20NC%20Cost-Eff%20Report.pdf.

23. Are there issues related to locating transformers in tight mid-rise infill sites (particularly those with podium parking)? Would projects lose some developable space due to the need to add large transformers for all electric?"

- No, not necessarily. Based on a discussion with Sean Armstrong (Redwood Energy)[16] an all-electric building uses roughly 10% more power than a mixed-fuel building. SMUD electrical infrastructure is determined by a project's proposed electrical service size. When systems are appropriately sized and planned for from the initial stages of project design, transformers do not necessarily have to increase in size due to building electrification. To learn more about space requirements for mid-rise infill sites, please refer to SMUD's Electrical service in downtown Sacramento (pdf). We encourage applicants to schedule a pre-application meeting with SMUD's Commercial Development team (development@smud.org or 916-732-5448) to discuss their specific project needs.

24. How will I know if my building site is electric ready?

- The City and SMUD are developing tools and guidance to assist property owners and developers to aid in assessing and planning early for site specific considerations for their all-electric project that will be available before the Ordinance becomes effective.

25. Will the new building electrification ordinance create or exacerbate a shortage of electrical contractors?

- No, every gas appliance has to be wired for 120V (for fans, electric starts, etc.) so there is virtually no change in the labor needed by electricians to electrify new construction. However, input from local electricians indicates the need for a larger trained workforce – this represents an important workforce opportunity (refer to #26 below).

26. How will the new building electrification ordinance impact labor?

- The City anticipates more work for electrical infrastructure and equipment that can largely be met with the existing workforce in the near-term. However, long-term, as the City works towards carbon neutrality and both local and state targets for zero-emission vehicles, more trained workers will be needed to ensure the construction and installation of zero-emission vehicle infrastructure, including both EV chargers and hydrogen fueling stations. This will create a need for more electrical contractors, and an important workforce opportunity to provide needed high-quality jobs to the community. For example, in 2019, the International Brotherhood of Electrical Workers Local 340 estimated a shortage of approximately 1,500 people in the apprentice program, but apprenticeship has significant barriers to entry.[17] This represents an important jobs opportunity, and the City is committed to bridging this gap. Together with local partners, schools, and stakeholders, the City is working to create a pipeline for the new types of jobs opportunities consistent with the City's electrification goals. The City's recent CARES investment of approximately $10 million for workforce training of more than 11,000 Sacramentans provides an important foundation for these efforts.[18]

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[16] Link to webinar with Sean Armstrong: https://cityofsacramento-org.zoom.us/rec/share/NtSJ1pPpUwl_Yr9f-3r-B4NLKYMb7y4JUoFFtnDt1g_sCKCH9kMxejKPESXkdRBm.s-uUm26Hlt_15zjp

[17] Refer to the *EV Economic Pathways* analysis Frontier Energy conducted for the City's EV Blueprint project (2019): http://www.cityofsacramento.org/-/media/Corporate/Files/Public-Works/Electric-Vehicles/5-2_EV-Blueprint_Final-EV-Economic-Pathways.pdf?la=en

[18] Learn more about the City's CARES investments: https://www.cityofsacramento.org/Economic-Development/CARES-Act.

- State research indicates that building codes can shape the evolution of the market and encourage development of a local pool of contractors ready to meet code requirements and able to support a "high-road" path for local, high-quality jobs.[19] The City also recognizes the immense opportunity to create more jobs by attracting the manufacturing industries that are developing clean energy and zero-emission mobility technologies. The California Mobility Center is an important example of the regional commitment and investment in green jobs development.

- Through ongoing partnership and collaboration, the City is committed to developing a "just transition" to new market opportunities for local jobs in fossil fuel-related industries that may be impacted by the ordinance. The phased timing of the ordinance provides the City with additional time to ensure this smooth transition. Data from local pipefitters indicates that gas piping and appliance work can be an important portion of their workload.[20] However, new opportunities abound in water conservation and reuse, and other aspects of the City's sustainability programs. The 2021 Climate Implementation Work Plan identified funding needs to address opportunities for green jobs and water conservation and reuse. The Midyear Fiscal 2021 Budget recommendation includes funding for these efforts that would accelerate green job efforts (pending approval by City Council).

27. Will new building electrification make Sacramento less resilient in preparing for the electrical outages that result from winter storms?

- No, increasing electric buildings and vehicles in Sacramento does not correlate with making the grid less resilient. Modern gas appliances require electricity to operate (for fans, electric starts, etc.), so modern electric appliances are no less resilient. Unforeseen electricity outages can occur resulting from car accidents, falling trees, storms, or even animals interfering with equipment. During an outage, SMUD consistently meets aggressive reliability targets, minimizing frequency and duration of outage events and distribution system disruptions.

- In fact, during California's primary natural disaster events, wildfires and earthquakes, utilities are supposed to turn the gas off. If 100% reliability is a goal for your home or project, electrification with battery and solar backup via microgrid is the way to get there.

- PG&E is also required to shut down gas service during fires and/or earthquakes. Gas service was shutoff in areas of the state for tens of thousands during Camp and Kincaid Fires, in some cases for over 10 days. For new buildings with gas appliances, having gas service does not improve resiliency, as new gas appliances require electricity for ignition and motors to function. This includes tankless water heaters, furnaces, gas dryers, gas ranges (especially with digital controls). Resilience is best handled with battery storage, propane (long storage life) generators or both.

- Natural gas pipelines and electric grid both go down on occasion.

[19] Refer to *Putting California on the High Road* (June 2020), prepared by the UC Berkeley Labor Center for the California Workforce Development Board: https://laborcenter.berkeley.edu/wp-content/uploads/2020/09/Putting-California-on-the-High-Road.pdf

[20] According to the U.A. Local Union 447, the Plumbers and Pipefitters Union, approximately 22% of union member workload in late 2020 was for gas piping.

28. Does SMUD provide incentives to support building electrification?

- Yes, SMUD provides excellent incentives to support electrification. A summary of residential incentives as of January 2021 follows, but more information on SMUD programs follows.

SMUD

SMUD Smart Homes Program Manual
11/20/2019

Table 1 – Single Family, All-Electric Incentives

Incentive	Amount Available
Base Incentive for All-Electric Home	$4,000
Induction Cooktop	$1,000
Battery Bonus	$2,000
Total All-Electric Incentive per home	**Max $7,000**

Table 2 – Single Family, All-Electric Ready/Mixed Fuel Incentives

Incentive	Amount Available
Compliant with All-Electric Ready Definition (Required)	$1,000
Heat Pump HVAC only**	$950
Heat Pump Water Heater only**	$800
Induction Cooktop	$600
Electric Laundry Dryer	$200
Electric Fireplace or Outdoor Grill	$50
Subtotal All-Electric Ready Incentive per home	**Max $3,000**

** Must choose either heat pump HVAC or heat pump water heater, or both

Table 3 – Multifamily, All-Electric Units

Incentive	Amount Available
Base Incentive for All-Electric Unit	$1,250.00
Induction Cooktop	$500.00
Battery Bonus	N/A
Total All-Electric Incentive per home	**$1,750.00**

Table 4 – Multifamily, All-Electric Ready (Mixed Fuel) Units

Incentive	Amount Available
Compliant with All-Electric Ready Definition (Required)	$310
Heat Pump HVAC*	$320
Heat Pump Water Heater*	$450
Induction Cooktop	$300
Electric Laundry Dryer	$110
Subtotal All-Electric Ready Incentive per home	**Max $1,380**

* Must choose either heat pump HVAC or heat pump water heater, or both

- <u>Residential New Construction:</u>
  Smart Homes https://www.smud.org/en/Going-Green/Smart-Homes

- Retrofit:
  Commercial Multifamily: https://www.smud.org/en/Business-Solutions-and-Rebates/Business-Rebates/Multi-Family-go-electric-incentives
  Home Performance Program https://www.smud.org/en/Rebates-and-Savings-Tips/Improve-Home-Efficiency

- Commercial New Construction:
  Integrated Design Solutions: https://www.smud.org/en/Business-Solutions-and-Rebates/Business-Rebates/Integrated-Design-Solutions

29. Are there all-electric alternatives to gas stoves?

- Yes, induction cooktops perform better than conventional gas stoves, save on fuel costs, reduce indoor and outdoor air pollution, and reduce greenhouse gas emissions. There are also induction woks that can replace conventional woks over a gas stovetop.

30. What is electric induction cooking?

- Conventional stovetops use electric resistance to heat metal coils, which heats the air between the cooktop and the pan. Electromagnetic induction cooktops are a new type of electric stovetop that uses electromagnetic coils beneath a ceramic glass surface to transfer energy directly into metal pans. With induction cooking, the air between the cooktop and the pan never gets hot, so there is no residual heat and no need for a warning light. Induction cooktops are faster, more precise, and more energy efficient than conventional electric stovetops.
  One thing to note is that pots and pans need to have a magnetic (steel or iron) bottom in order to work with the electromagnetic induction cooktop. A quick way to test if pots and pans will work with induction is to see if a magnet sticks to the bottom.

31. Are there all-electric options for fireplaces?

- Yes, there are great all-electric alternatives to traditional wood or gas-burning fireplaces, and they do not require any maintenance, wood chopping, chimney cleaning or expensive installation. Electric fireplaces are affordable, clean, safe, and easy to install.

32. Will propane infrastructure be exempt?

- No, propane is a fossil fuel. The proposed ordinance will require newly constructed buildings to be all-electric and will prohibit the inclusion of natural gas piping or propane plumbing. Outdoor grills, patio heaters, and other appliances that use portable propane tanks will still be allowed as long as the appliance is not permanently plumbed for gas.

33. Can I listen to recordings of the building electrification webinar series?

- Yes, these can be found on the project webpage: http://www.cityofsacramento.org/SacElectrificationOrdinance

34. The market-penetration of electric heat pump water heaters is currently only at 2%, which seems too low to reasonably consider a mandate.

- Heat pump water heaters, as they exist today, have been made in the United States since 1978 as smaller brands, and have been manufactured by all the major brands since 2009. Furthermore, one in four homes in the United States is currently all-electric.[21]

  The State of California does not currently have a threshold for market adoption of water heaters in order to comply with its own laws regarding air pollution, which is the worst in the nation. Yet the

[21] One in Four U.S. Homes is All-Electric https://www.eia.gov/todayinenergy/detail.php?id=39293

market may not change of its own accord. Regulations and mandate help to create the market. In all of the examples below, the regulation came first, and then the product was invented.

- California's South Coast Air Quality Management Board required low-NOx water heaters to be created by May of 2006. Prior to the mandate, there was no such thing sold anywhere else in the U.S.
- The SCAQMD later required ultra-low-NOx water heaters to be created for California by Oct 1st, 2019. These also did not exist before the requirement.
- The CEC banned electric resistance water heaters in the 2016 Code, requiring all new construction to use heat pump water heaters to build all-electric.
- Another example is High-Global Warming Potential refrigerants. The Air Resources Board announced their 2023 phase-out years ago, when there were no substitute refrigerants in use in the U.S., and the manufacturers have started changing out the refrigerants (e.g. R-134a is switched for R-513 in water heaters; R-410a is switched for R-32 in HVAC heat pumps, etc.).

35. How can the City pass a reach code over a future building code cycle?

- The current ordinance as drafted will have no legal effect concerning modifications to the California Building Standards Code in the near term. The City will be required to pass a new ordinance for the next building code cycle (after July 1, 2022) that will provide modifications to the 2022 building standards code that will be effective January 1, 2023.

  In addition, the City will need to pass a new ordinance after July 1, 2025 that will provide for modifications to the 2025 building standards code that will be effective January 1, 2026. The amendments to Title 17, Planning and Development Code, will be effective in 2021.

- Codifying the phased implementation now provides developers and contractors with time to plan and prepare for the new ordinance.

36. What is the process for approving local amendments to the California Building Standards Code (California Code of Regulations, Title 24) for the proposed electrification ordinance?

- There are two processes that provide for local amendments to the California Building Standards Code:

  1) Local amendments that are more stringent due to climatic, geographic or topographic conditions. This generally requires a city, through an ordinance, to identify the specific local conditions, specify the local amendments and specify how the local amendment is made necessary because of the local condition. This process requires the City to file the ordinance and findings with the California Building Standards Commission.
  2) The other process concerns Part 6, the California Energy Code. This process allows a city to adopt local energy standards. The City would be required to determine that the proposed standards are cost effective. In addition, the California Energy Commission is required to find that the standards will require buildings to be designed to consume less energy than permitted by the California Energy Code.

37. How many new buildings are expected to be subject to the ordinance in 2023 and 2026?

Estimated Low-Rise Construction Subject to Ordinance in 2023*

Residential Buildings

Estimated Number of Building Permits			Estimated Number of Dwelling Units		
Low	High	Mean	Low	High	Mean
839	1,663	1,251	907	2,190	1,549

Non-Residential Buildings

Estimated Number of Building Permits			Estimated Total Square Feet		
Low	High	Mean	Low	High	Mean
127	129	128	639,711	896,515	768,113

*Based on 2018 & 2019 construction data

Estimated Low-Rise Construction Subject to Ordinance in 2026*

Residential Buildings

Estimated Number of Building Permits			Estimated Number of Dwelling Units		
Low	High	Mean	Low	High	Mean
9	10	9.5	673	886	780

Non-Residential Buildings

Estimated Number of Building Permits			Estimated Total Square Feet		
Low	High	Mean	Low	High	Mean
4	5	4.5	271,973	1,445,898	858,936

*Based on 2018 & 2019 construction data

38. What about existing buildings?

- Although this Ordinance specifically addresses removing gas infrastructure from new construction, the greenhouse gas emissions from natural gas combustion in existing buildings must be addressed in order for Sacramento to achieve carbon neutrality.

- On August 25, 2020, City Council passed a motion (No. 2020-0226) directing staff to initiate a number of climate actions, including to work with PG&E and SMUD to determine a schedule and funding for retrofits to gas infrastructure over the next decade. In the coming months, City staff will work with the Environmental Justice Collaborative Governance Committee, other stakeholders, and technical experts, to develop an equitable approach to existing building electrification.

- Identifying ways to expand programs which currently provide weatherization services, energy efficiency retrofits, and rooftop solar, to include electrification is an important aspect of the strategy to transition all buildings to all-electric. These programs currently target qualifying low-income households primarily for the purpose of reducing their utility bills and greenhouse gas emissions. Expanding these programs to include the replacement of gas appliances with all-electric will provide

a significant improvement in GHG reduction and will also provide the co-benefit of improving indoor air quality with health benefits to low-income families.

39. Will the City take my gas stove away?

- No. This ordinance will apply only to newly constructed buildings and will not affect buildings that already have gas. However, in Phase 2 above (which will apply to existing buildings within the next decade), over time, you will be able to keep your existing gas appliances, but you may not be able to replace them with new gas appliances. In 2021, City staff will continue to evaluate the types of programs and phasing for future efforts to electrify existing construction. City staff will work closely with local stakeholders to develop and recommend a process. Staff anticipate a multi-year effort in close coordination with SMUD and with extensive input from the community and stakeholders.

ORDINANCE NO.

Adopted by the Sacramento City Council

Date Adopted

AN ORDINANCE AMENDING AND ADDING VARIOUS PROVISIONS OF TITLE 15 AND TITLE 17 OF THE SACRAMENTO CITY CODE AND ADOPTING LOCAL AMENDMENTS TO THE CALIFORNIA BUILDING STANDARDS CODE, RELATING TO GREEN BUILDING STANDARDS INCLUDING ELECTRIFICATION

BE IT ENACTED BY THE COUNCIL OF THE CITY OF SACRAMENTO:

SECTION 1.

In connection with the local amendments to the 2019 California Energy Code, 2019 California Green Building Standards Code, and pursuant to California Health and Safety Code sections 17958, 17958.5, 17958.7, and 18941.5, the City Council finds and determines that:

A. The amendments are reasonably necessary because of local climatic, geological, or topographical conditions.

B. Under this adopting ordinance, specific amendments are established that are more restrictive than those adopted by the State of California under the State Buildings Standards Code, Title 24 of the California Code of Regulations.

C. Express Finding Number 1: Climatic

The burning of fossil fuels used to heat structures, heat water, for cooking, vehicle transportation, and for other uses is a significant contributor to greenhouse gas emissions and consequently climate change. "Combustion of natural gas and petroleum products for heating and cooking needs emits carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Emissions from natural gas consumption represent 79.9 percent of direct fossil fuel CO_2 emissions from the residential and commercial sections in 2018."[1] "Long-lived gases such as carbon dioxide can persist in the atmosphere for more than 100 years, even with efforts to reduce emissions today."[2] "Greenhouse gas emissions from transportation primarily come from burning fossil fuel for our cars, trucks, ships, trains, and planes. Over 90 percent of the fuel used for transportation is petroleum based, which includes primarily gasoline and diesel."[3] "Scientists attribute the global warming trend observed since the mid-20th century to the

[1] United States Environmental Protection Agency, Source of Greenhouse Gas Emissions, as of October 27, 2020, https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#commercial-and-residential.
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human expansion of the 'greenhouse effect' warming that results when the atmosphere traps heat radiating from Earth toward space."[4] Nitrous oxide, carbon dioxide, and methane are gases that contribute to the greenhouse effect.[5]

"Global climate change imposes substantial local impacts and risks on the Sacramento Valley, including rising temperatures, changing precipitation patterns and amounts, sea level rise, flooding, drought, and wildfire."[6] A general summary of climate risks facing the Sacramento Valley Region, including the City of Sacramento, are as follows:

- Warming air and water temperatures
- More extreme heat-waves
- Drier landscapes
- Less snow
- Variable precipitation and seasonal shifts
- More intense droughts and floods with less predictability
- Higher Delta water levels compounded by subsidence
- Increased risk of wildfire
- Loss of ecosystem habitat[7]

"The Sacramento Region is expected to experience hotter and drier conditions and reduced snowpack that could cause reduced reservoir supplies and Sacramento and American River flows."[8] "Increased flood frequency and elevated flood risk are expected in California as a result of sea level rise, more intense storm events, and shifts in the seasonal timing of rainfall and snow pack runoff."[9] "Higher temperatures and the increased frequency of heat waves associated with climate change are expected to significantly increase heat-related illness, such as heat exhaustion and heat stroke."[10]

Requiring all-electric construction, without gas infrastructure, and imposing additional electric vehicle parking requirements will reduce the amount of greenhouse gas produced in Sacramento and will contribute to reducing the impact of climate change and the associated risks.

Based upon this express finding, the following building standards in the 2019 California Building Standards Code are amended or added:

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[4] NASA, Causes of Climate Change, as of November 25, 2020, https://climate.nasa.gov/causes/.
[5] NASA, Causes of Climate Change, as of November 25, 2020, https://climate.nasa.gov/causes/.
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[8] City of Sacramento, Sacramento Climate Action Plan, Expected effects on the Sacramento Region, section 3.3, page 3-11, January 13, 2012.
[9] City of Sacramento, Sacramento Climate Action Plan, Expected effects on the Sacramento Region, section 3-3, page 3-13, January 13, 2012.
[10] City of Sacramento, Sacramento Climate Action Plan, section 3.3, page 3-13, January 13, 2012.

● 2019 California Energy Code sections 100.0(e)(2)(A) and 100.1(b) (prohibiting gas infrastructure, thereby decreasing the impact of greenhouses gases);
● California Green Building Standards Code sections A4.106.8.2, A4.106.8.2.1, A4.106.8.3, A4.106.8.3.1, A5.106.5.3.2, and A5.106.5.3.5 (increasing electric vehicle infrastructure, thereby decreasing the impact of greenhouse gases); and
● Sacramento City Code section 15.38.040 (implementing effective dates).

D. Express Finding Number 2: Geological

Sacramento is subject to ground tremors from seismic events as the City is located in a Design Category D, which relates to a high risk of earthquakes. The high-risk seismic zone is defined based on the proximity to known fault lines, soil type, and known mapped spectral accelerations. Large portions of Sacramento have very poor soil conditions, including liquefiable soil. The soil is often expansive in nature and very acidic which leads to pre-mature deterioration of plumbing piping installed in the ground. Although non-metallic gas pipe is not susceptible to deterioration, there are many homes built with metallic gas pipe infrastructure. The elimination of natural gas infrastructure in new dwellings would reduce the hazards associated with gas leaks during seismic events.

Based on this express finding, the following building standards in the 2019 California Building Standards Code are amended:

● 2019 California Energy Code sections 100.0(e)(2)(A) and 100.1(b) (prohibiting gas infrastructure, thereby decreasing the impact of greenhouses gases).

E. California Energy Code

The City Council finds that the modifications made to the California Energy Code in this ordinance are cost-effective for new buildings three stories or less as required by California Public Resources Code section 25402.l(h)(2). This finding of cost-effectiveness is based on the August 1, 2019 California Energy Standards 2019 Cost-effectiveness study: Low-Rise Residential New Construction, and the July 25, 2019 California Energy Codes and Standards 2019 Nonresidential New Construction Reach Code Cost Effectiveness Study. The cost-effectiveness studies have determined specific modifications to the 2019 California Energy Code for climate zone 12 are cost-effective. Further, pursuant to California Public Resources Code section 25402.1(h)(2), the City Council finds that the amendments made to the California Energy Code in this ordinance for new buildings three stories or less will require diminution of energy consumption levels to those permitted by the 2019 California Energy Code.

It is anticipated that cost-effectiveness studies for new buildings four stories or more will be published prior to the January 1, 2026 effective date for new buildings four stories or more.

SECTION 2.

Chapter 15.30 is hereby added to the Sacramento City Code to read as follows:

Chapter 15.30 AMENDMENTS TO THE CALIFORNIA ENERGY CODE

15.30.010 Amendments to the CEnC.

The CEnC is amended as set forth in this chapter.

15.30.020 Title lines.

For the purposes of this chapter, and notwithstanding the provisions of section 1.04.060, the title lines (or "catchwords") in this chapter shall be deemed to be part of such sections.

15.30.030 Local amendments to the CEnC.

A. Subsection 100.0(e)(2)(A) of the CEnC is amended to read as follows:

A. **All newly constructed buildings.** Sections 110.0 through 110.12 apply to all newly constructed buildings within the scope of Section 100.0(a). In addition, newly constructed buildings shall meet the requirements of Subsections B, C, D or E, as applicable.

1. For building permit applications filed on or after January 1, 2023, all newly constructed buildings that are three stories or less shall be all-electric buildings notwithstanding any other provisions in this California Energy Code.

2. For building permit applications filed on or after January 1, 2026, all newly constructed buildings that are four stories or more shall be all-electric buildings notwithstanding any other provisions in this California Energy Code.

3. For the purposes of all-electric building requirements, a newly constructed building as defined in section 100.1 shall not include newly constructed additions and improvements, including tenant improvements, in existing buildings as defined in the CBC.

4. If a building permit applicant establishes to the satisfaction of the building official that compliance with this subsection is infeasible, the building official may grant a modification to the requirements of this subsection.

B. The following definition is added to Subsection 100.1(b) to read as follows:

ALL-ELECTRIC BUILDING: is a building that does not have natural gas piping or propane plumbing installed on a lot or within a building, and that uses electricity as the sole source of energy for its space heating, water heating (including indoor and outdoor

pools and spas), cooking appliances, outdoor kitchens, outdoor fireplaces, and clothes drying appliances. All-electric buildings may include solar thermal pool heating.

SECTION 3.

Chapter 15.38 is hereby added to the Sacramento City Code to read as follows:

Chapter 15.38 AMENDMENTS TO THE CALIFORNIA GREEN BUILDING STANDARDS CODE

15.38.010 Amendments to the CGC.

The CGC is amended as set forth in this chapter.

15.38.020 Title lines.

For the purposes of this chapter, and notwithstanding the provisions of section 1.04.060, the title lines (or "catchwords") in this chapter shall be deemed to be part of such sections.

15.38.030 Local amendments to the CGC.

A. Tier 2 of Subsection A4.106.8.2 is added to read as follows:

A4.106.8.2 New Multifamily Dwellings

Tier 2. For new multifamily dwellings, twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. An electric vehicle charging station shall be installed in at least one electric vehicle charging space.

B. A4.106.8.2.1 is added to read as follows:

A4.106.8.2.1 Technical Requirements

The EV spaces required by Section A4.106.8.2 shall be designed and constructed in accordance with Sections 4.106.4.2.1, 4.106.4.2.2, 4.106.4.2.3, 4.106.4.2.4, and 4.106.4.2.5.

C. Tier 2 of Subsection A4.106.8.3 is added to read as follows:

A4.106.8.3 New Hotels and Motels

Tier 2. For new hotels and motels, twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. An electric vehicle charging station shall be installed in at least one electric vehicle charging space.

D. A4.106.8.3.1 is added to read as follows:

A4.106.8.3.1 Technical Requirements

The EV spaces required by Section A4.106.8.3 shall be designed and constructed in accordance with Sections 4.106.4.3, 4.106.4.3.2, 4.106.4.3.3, 4.106.4.3.4, 4.106.4.3.5, and 4.106.4.3.6.

E. Tier 2 Subsection 5.106.5.3.2 is amended to read as follows:

A5.106.5.3.2 New Nonresidential

Tier 2. For new nonresidential, twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. An electric vehicle charging station shall be installed in at least one electric vehicle charging space.

F. A5.106.5.3.5 is added to read as follows:

A5.106.5.3.5 Technical Requirements

Raceways for electric vehicle charging spaces are required to be installed at the time of construction and shall be installed in accordance with the California Electrical Code Construction plans and specifications shall include, but are not limited to, the following:

1.The type and location of the EVSE.

2.The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.

3.Plan design shall be based upon 40-ampere minimum branch circuits.

4.Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.

5.The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.

15.38.040 Effective Date of Local Amendments to the CGC.

Sections A4.106.8.2 Tier 2, A4.106.8.2.1, A4.106.8.3 Tier 2, A4.106.8.3.1, A5.106.5.3.2 Tier 2, and A5.106.5.3.5 are applicable to building permit applications filed on or after January 1, 2023, for new construction three stories or less and are applicable to building permit applications filed on or after January 1, 2026, for new construction four stories or more.

SECTION 4.

A. Section 17.108.060 is hereby amended to add the following definitions:

"Electric vehicle charger" means off-board charging equipment used to charge an electric vehicle.

“Electric vehicle charger level 2” means a 208-240 volt electric vehicle.

“Electric vehicle direct current fast charger” means at least a 400 volt electric vehicle charger.

“Electric vehicle charging space” means a parking space intended for future installation of EV charging equipment and charging of electric vehicles.

“Electric vehicle charging stations” means one or more electric vehicle charging spaces served by electric vehicle charger(s) or other charging equipment allowing charging of electric vehicles.

B. Except as amended by subsection A above, all provisions of section 17.108.060 remain unchanged and in full effect.

SECTION 5.

A. Subsection H of section 17.608.020 of the Sacramento City Code is hereby amended to read as follows:

H. Accessibility and electric vehicle charging.

1. If a building permit requires an existing off-street parking facility to comply with any building standards or other requirements in the Sacramento City Building Code related to accessibility, or if accessible parking spaces are otherwise created, the number of parking spaces required by this title may be reduced, redesigned, and restriped as

necessary without issuance of a permit under this title. ~~The California Building Code. The required number of spaces in off-street parking facilities that are restriped or redesigned to meet accessibility requirements may be reduced as necessary to comply with Title 24 of the California Building Code.~~

2. If a building permit requires an existing off-street parking facility to comply with any building standards or other requirements in the Sacramento City Building Code related to electric vehicle charging spaces or if electric vehicle charging spaces are otherwise created, the number of parking spaces required by this title may be reduced, redesigned and restriped, as necessary without issuance of a permit under this title.

B. Except as amended by subsection A above, all provisions of section 17.608.020 remain unchanged and in full effect.

SECTION 6.

Section 17.608.040 of the Sacramento City Code is hereby amended as follows:

A. Subsection F.2.c is hereby added to read as follows:

c. Electric vehicle charging spaces and electric vehicle charging stations. The number of electric vehicle charging spaces and electric vehicle charging stations are determined by the Sacramento city building code. Electric vehicle charging stations shall be clearly marked "EV CHARGING ONLY."

B. Subsection M is hereby amended to read as follows:

M. Directional signage. If a development project includes directional signage to an off-street vehicle parking facility, the signage shall also indicate the location of bicycle parking and the existence of electric vehicle charging stations.

C. Subsection O is hereby added to read as follows:

O. Electric vehicle charging spaces and electric vehicle charging stations.

1. Electric vehicle charging stations and electric vehicle charging spaces shall comply with the requirements in the Sacramento city building code.

2. All off-street parking facilities, shall provide electric vehicle charging stations and electric vehicle charging spaces in compliance with the provisions in the Sacramento city building code.

D. Except as amended by subsections A, B, and C above, all provisions of section 17.608.040 remain unchanged and in full effect.

SECTION 7.

A. Subsection A.1.h is hereby added to section 17.608.060 to read as follows:

> h. Additional electric vehicle charging station. One electric vehicle charging station utilizing an electric vehicle charger level 2 or an electric vehicle direct current fast charger may be substituted for a maximum of two parking spaces or 10% of the required on-site parking spaces, whichever is greater.

B. Except as amended by subsection A above, all provisions of section 17.608.060 remain unchanged and in full effect.

SECTION 8.

If any provision of this Ordinance or its application to any person or circumstance is held invalid or ineffective by any court of competent jurisdiction, or by reason of any preemptive legislation, that invalidity shall not affect the validity of the remaining provisions of this Ordinance. The City Council declares that it would have passed this Ordinance and each section, subsection, subdivision, sentence, clause, and phrase, irrespective of the fact that any one or more sections, subsections, subdivisions, sentences, clauses, phrases, or words be declared invalid.

Adopted by the City of Sacramento City Council on by the following vote:

Ayes:

Noes:

Abstain:

Absent:

_____
MAYOR

Attest:

_____
City Clerk

Passed for Publication:
Published:
Effective:

ORDINANCE NO.

Adopted by the Sacramento City Council

Date Adopted

AN ORDINANCE AMENDING AND ADDING VARIOUS PROVISIONS OF TITLE 15 AND TITLE 17 OF THE SACRAMENTO CITY CODE AND ADOPTING LOCAL AMENDMENTS TO THE CALIFORNIA BUILDING STANDARDS CODE, RELATING TO GREEN BUILDING STANDARDS INCLUDING ELECTRIFICATION

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Based upon this express finding, the following building standards in the 2019 California Building Standards Code are amended or added:

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D. Express Finding Number 2: Geological

Sacramento is subject to ground tremors from seismic events as the City is located in a Design Category D, which relates to a high risk of earthquakes. The high-risk seismic zone is defined based on the proximity to known fault lines, soil type, and known mapped spectral accelerations. Large portions of Sacramento have very poor soil conditions, including liquefiable soil. The soil is often expansive in nature and very acidic which leads to pre-mature deterioration of plumbing piping installed in the ground. Although non-metallic gas pipe is not susceptible to deterioration, there are many homes built with metallic gas pipe infrastructure. The elimination of natural gas infrastructure in new dwellings would reduce the hazards associated with gas leaks during seismic events.

Based on this express finding, the following building standards in the 2019 California Building Standards Code are amended:

● 2019 California Energy Code sections 100.0(e)(2)(A) and 100.1(b) (prohibiting gas infrastructure, thereby decreasing the impact of greenhouses gases).

E. California Energy Code

The City Council finds that the modifications made to the California Energy Code in this ordinance are cost-effective for new buildings three stories or less as required by California Public Resources Code section 25402.l(h)(2). This finding of cost-effectiveness is based on the August 1, 2019 California Energy Standards 2019 Cost-effectiveness study: Low-Rise Residential New Construction, and the July 25, 2019 California Energy Codes and Standards 2019 Nonresidential New Construction Reach Code Cost Effectiveness Study. The cost-effectiveness studies have determined specific modifications to the 2019 California Energy Code for climate zone 12 are cost-effective. Further, pursuant to California Public Resources Code section 25402.1(h)(2), the City Council finds that the amendments made to the California Energy Code in this ordinance for new buildings three stories or less will require diminution of energy consumption levels to those permitted by the 2019 California Energy Code.

It is anticipated that cost-effectiveness studies for new buildings four stories or more will be published prior to the January 1, 2026 effective date for new buildings four stories or more.

SECTION 2.

Chapter 15.30 is hereby added to the Sacramento City Code to read as follows:

Chapter 15.30 AMENDMENTS TO THE CALIFORNIA ENERGY CODE

15.30.010 Amendments to the CEnC.

The CEnC is amended as set forth in this chapter.

15.30.020 Title lines.

For the purposes of this chapter, and notwithstanding the provisions of section 1.04.060, the title lines (or "catchwords") in this chapter shall be deemed to be part of such sections.

15.30.030 Local amendments to the CEnC.

A. Subsection 100.0(e)(2)(A) of the CEnC is amended to read as follows:

A. **All newly constructed buildings.** Sections 110.0 through 110.12 apply to all newly constructed buildings within the scope of Section 100.0(a). In addition, newly constructed buildings shall meet the requirements of Subsections B, C, D or E, as applicable.

1. For building permit applications filed on or after January 1, 2023, all newly constructed buildings that are three stories or less shall be all-electric buildings notwithstanding any other provisions in this California Energy Code.

2. For building permit applications filed on or after January 1, 2026, all newly constructed buildings that are four stories or more shall be all-electric buildings notwithstanding any other provisions in this California Energy Code.

3. For the purposes of all-electric building requirements, a newly constructed building as defined in section 100.1 shall not include newly constructed additions and improvements, including tenant improvements, in existing buildings as defined in the CBC.

4. If a building permit applicant establishes to the satisfaction of the building official that compliance with this subsection is infeasible, the building official may grant a modification to the requirements of this subsection.

B. The following definition is added to Subsection 100.1(b) to read as follows:

ALL-ELECTRIC BUILDING: is a building that does not have natural gas piping or propane plumbing installed on a lot or within a building, and that uses electricity as the sole source of energy for its space heating, water heating (including indoor and outdoor

pools and spas), cooking appliances, outdoor kitchens, outdoor fireplaces, and clothes drying appliances. All-electric buildings may include solar thermal pool heating.

SECTION 3.

Chapter 15.38 is hereby added to the Sacramento City Code to read as follows:

Chapter 15.38 AMENDMENTS TO THE CALIFORNIA GREEN BUILDING STANDARDS CODE

15.38.010 Amendments to the CGC.

The CGC is amended as set forth in this chapter.

15.38.020 Title lines.

For the purposes of this chapter, and notwithstanding the provisions of section 1.04.060, the title lines (or "catchwords") in this chapter shall be deemed to be part of such sections.

15.38.030 Local amendments to the CGC.

A. Tier 2 of Subsection A4.106.8.2 is added to read as follows:

A4.106.8.2 New Multifamily Dwellings

Tier 2. For new multifamily dwellings, twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. An electric vehicle charging station shall be installed in at least one electric vehicle charging space.

B. A4.106.8.2.1 is added to read as follows:

A4.106.8.2.1 Technical Requirements

The EV spaces required by Section A4.106.8.2 shall be designed and constructed in accordance with Sections 4.106.4.2.1, 4.106.4.2.2, 4.106.4.2.3, 4.106.4.2.4, and 4.106.4.2.5.

C. Tier 2 of Subsection A4.106.8.3 is added to read as follows:

A4.106.8.3 New Hotels and Motels

Tier 2. For new hotels and motels, twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. An electric vehicle charging station shall be installed in at least one electric vehicle charging space.

D. A4.106.8.3.1 is added to read as follows:

A4.106.8.3.1 Technical Requirements

The EV spaces required by Section A4.106.8.3 shall be designed and constructed in accordance with Sections 4.106.4.3, 4.106.4.3.2, 4.106.4.3.3, 4.106.4.3.4, 4.106.4.3.5, and 4.106.4.3.6.

E. Tier 2 Subsection 5.106.5.3.2 is amended to read as follows:

A5.106.5.3.2 New Nonresidential

Tier 2. For new nonresidential, twenty (20) percent of the total number of parking spaces on a building site, provided for all types of parking facilities, but in no case less than one, shall be electric vehicle charging spaces (EV spaces) capable of supporting future EVSE. Calculations for the required number of EV spaces shall be rounded up to the nearest whole number. An electric vehicle charging station shall be installed in at least one electric vehicle charging space.

F. A5.106.5.3.5 is added to read as follows:

A5.106.5.3.5 Technical Requirements

Raceways for electric vehicle charging spaces are required to be installed at the time of construction and shall be installed in accordance with the California Electrical Code Construction plans and specifications shall include, but are not limited to, the following:

1.The type and location of the EVSE.

2.The raceway(s) shall originate at a service panel or a subpanel(s) serving the area, and shall terminate in close proximity to the proposed location of the charging equipment and into listed suitable cabinet(s), box(es), enclosure(s) or equivalent.

3.Plan design shall be based upon 40-ampere minimum branch circuits.

4.Electrical calculations shall substantiate the design of the electrical system, to include the rating of equipment and any on-site distribution transformers and have sufficient capacity to simultaneously charge all required EVs at its full rated amperage.

5.The service panel or subpanel(s) shall have sufficient capacity to accommodate the required number of dedicated branch circuit(s) for the future installation of the EVSE.

15.38.040 Effective Date of Local Amendments to the CGC.

Sections A4.106.8.2 Tier 2, A4.106.8.2.1, A4.106.8.3 Tier 2, A4.106.8.3.1, A5.106.5.3.2 Tier 2, and A5.106.5.3.5 are applicable to building permit applications filed on or after January 1, 2023, for new construction three stories or less and are applicable to building permit applications filed on or after January 1, 2026, for new construction four stories or more.

SECTION 4.

A. Section 17.108.060 is hereby amended to add the following definitions:

"Electric vehicle charger" means off-board charging equipment used to charge an electric vehicle.

“Electric vehicle charger level 2” means a 208-240 volt electric vehicle.

“Electric vehicle direct current fast charger” means at least a 400 volt electric vehicle charger.

“Electric vehicle charging space” means a parking space intended for future installation of EV charging equipment and charging of electric vehicles.

“Electric vehicle charging stations” means one or more electric vehicle charging spaces served by electric vehicle charger(s) or other charging equipment allowing charging of electric vehicles.

B. Except as amended by subsection A above, all provisions of section 17.108.060 remain unchanged and in full effect.

SECTION 5.

A. Subsection H of section 17.608.020 of the Sacramento City Code is hereby amended to read as follows:

H. Accessibility and electric vehicle charging.

1. If a building permit requires an existing off-street parking facility to comply with any building standards or other requirements in the Sacramento City Building Code related to accessibility, or if accessible parking spaces are otherwise created, the number of

parking spaces required by this title may be reduced, redesigned, and restriped as necessary without issuance of a permit under this title.

2. If a building permit requires an existing off-street parking facility to comply with any building standards or other requirements in the Sacramento City Building Code related to electric vehicle charging spaces or if electric vehicle charging spaces are otherwise created, the number of parking spaces required by this title may be reduced, redesigned and restriped, as necessary without issuance of a permit under this title.

B. Except as amended by subsection A above, all provisions of section 17.608.020 remain unchanged and in full effect.

SECTION 6.

Section 17.608.040 of the Sacramento City Code is hereby amended as follows:

A. Subsection F.2.c is hereby added to read as follows:

c. Electric vehicle charging spaces and electric vehicle charging stations. The number of electric vehicle charging spaces and electric vehicle charging stations are determined by the Sacramento city building code. Electric vehicle charging stations shall be clearly marked "EV CHARGING ONLY."

B. Subsection M is hereby amended to read as follows:

M. Directional signage. If a development project includes directional signage to an off-street vehicle parking facility, the signage shall also indicate the location of bicycle parking and the existence of electric vehicle charging stations.

C. Subsection O is hereby added to read as follows:

O. Electric vehicle charging spaces and electric vehicle charging stations.

1. Electric vehicle charging stations and electric vehicle charging spaces shall comply with the requirements in the Sacramento city building code.

2. All off-street parking facilities, shall provide electric vehicle charging stations and electric vehicle charging spaces in compliance with the provisions in the Sacramento city building code.

D. Except as amended by subsections A, B, and C above, all provisions of section 17.608.040 remain unchanged and in full effect.

SECTION 7.

A. Subsection A.1.h is hereby added to section 17.608.060 to read as follows:

> h. Additional electric vehicle charging station. One electric vehicle charging station utilizing an electric vehicle charger level 2 or an electric vehicle direct current fast charger may be substituted for a maximum of two parking spaces or 10% of the required on-site parking spaces, whichever is greater.

B. Except as amended by subsection A above, all provisions of section 17.608.060 remain unchanged and in full effect.

SECTION 8.

If any provision of this Ordinance or its application to any person or circumstance is held invalid or ineffective by any court of competent jurisdiction, or by reason of any preemptive legislation, that invalidity shall not affect the validity of the remaining provisions of this Ordinance. The City Council declares that it would have passed this Ordinance and each section, subsection, subdivision, sentence, clause, and phrase, irrespective of the fact that any one or more sections, subsections, subdivisions, sentences, clauses, phrases, or words be declared invalid.

Adopted by the City of Sacramento City Council on by the following vote:

Ayes:

Noes:

Abstain:

Absent:

_____
MAYOR

Attest:

_____
City Clerk

Passed for Publication:
Published:
Effective: