



Legislation Text

File #: 22-718, Version: 1

Study session regarding commercial reach codes outreach efforts. (*Christina Fernandez, Chief Sustainability Officer; Phil Perry, Chief Building Official, and Melanie Jacobson, Integrative Designs 360*)

RECOMMENDATION

It is recommended that the City Council receive a report on commercial reach code efforts and provide staff with direction on draft commercial reach code language.

The purpose of this study session is to

1. Receive a presentation regarding the 2022 building electrification and energy efficiency reach code options available for local adoption; and
2. Receive an update on the additional outreach staff conducted to the business and development community regarding a potential building electrification reach code for new nonresidential construction; and
3. Provide direction to staff on the preferred reach code approach for new residential and non-residential construction so staff may proceed with developing the proposed ordinance for new residential and new nonresidential buildings; and
4. Provide direction to staff on the type of EV reach code to adopt for the 2022 code cycle.

BACKGROUND

On June 9, 2021, City Council adopted a local building electrification reach code that requires all new appliances in single-family and multi-family buildings to be electric (all-electric required). The All-Electric Reach Code applies to residential projects and allows the Director of Economic & Community Development to approve modifications for projects due to technical infeasibility. The 2019 residential energy reach code also exempted multi-family residential projects with 100 units or more that received valid entitlements within six months from the effective date of the local reach code.

During this time, Council also approved increased electric vehicle (EV) charging requirements for new single-family dwellings and multi-unit dwellings. The local requirements are based on the 2019 model EV reach code developed by Peninsula Clean Energy (PCE). The current local requirements reside in Section 15.22.020 of the local municipal code and include the following criteria:

- New one- and two-family dwellings and townhouses with attached private garages: For each dwelling unit, install a Level 2 EV Ready Space and Level 1 EV Ready Space.
 - Exception: For each dwelling unit with only one parking space, install a Level 2 EV Ready Space.
- New multifamily dwellings ≤ 20 units: one parking space per dwelling unit with parking shall be provided with a Level 2 EV Ready Space.

- New multifamily dwellings > 20 units: Install one Level 2 EV Ready Space in the first 20 dwelling units with parking spaces.
 - For each additional dwelling unit over 20, 25% of the dwelling units with parking space(s) shall be provided with at least one Level 2 EV Ready Space. Calculations for the required minimum number of Level 2 EV Ready spaces shall be rounded up to the nearest whole number.
 - In addition, each remaining dwelling unit with parking space(s) shall be provided with at least a Level 1 EV Ready Space.

On January 27, 2021, Council directed staff to continue to receive input from the business community on the proposed nonresidential reach code ordinances. As a result, City staff convened multiple stakeholder outreach efforts to gain knowledge and suggestions for consideration into the upcoming local municipal code changes. Stakeholders for the nonresidential reach code development include property owners, contractors, manufacturers, architects, and commercial tenants.

This staff report provides an overview of the 2022 Statewide Reach Code electrification related pathways and includes options for City Council to direct staff to proceed in the adoption of an energy reach code for new nonresidential buildings.

National and Regional Legislative Context

Local governments play a key role in addressing the ongoing climate crisis. The actions taken on a local level directly support climate action efforts happening at the federal level. Recent national and state legislation have shifted the role of governments in climate change mitigation. By way of Executive Order 14008, President Biden called for a “government-wide approach to climate change”. This call to action ordered climate considerations be an essential element of United States foreign policy and national security.

On August 16 2022, President Biden signed the Inflation Reduction Act dedicating significant funding to combat the climate crisis. Example of the criteria within the Inflation Reduction Act include rebates and tax credits for efficient appliances and home upgrades, tax credits for rooftop solar systems, and tax credits for electric vehicles. It also invests in technologies like solar, wind, and clean hydrogen, with provisions that encourage domestic sourcing of materials. The law is projected to yield significant reductions to GHG emissions, with independent and official government projections agreeing it will reduce about one billion metric tons of annual emissions in 2030, with total annual emissions reaching about a 40 percent drop below 2005 levels in the year 2030.

In 2021, Governor Newsom announced that the California Public Utilities Commission (CPUC) must establish a more ambitious electricity procurement target by 2030 and the California Air Resources Board (CARB) will accelerate progress and evaluate different pathways for achieving carbon neutrality by 2035. CARB is also directed through AB 32 to develop a scoping plan that details how the State of California will achieve the established GHG reduction goals.

In January 2021 Executive Order N-79-20 was issued by Governor Newsom in January 2021. The order called for the phasing out of new internal combustion passenger vehicles by 2035 and established that 100% of in-state sales of new passenger cars and truck to be zero-emission by 2035.

Most recently, Governor Newsom signed sweeping climate measures ranging from climate legislation to

advance carbon neutrality, transition away from oil, increase access to clean, reliable and affordable energy, and to protect Californians from extreme effects of climate change. The California Climate Commitment is a comprehensive plan that invests \$54 billion to fight climate change. Furthermore, as a part of the Commitment, the Governor codified the statewide carbon neutrality goal to dramatically reduce climate pollution (AB 1279), building upon Executive Order B-55-18, issued by Governor Brown in 2018. The package also established a pathway toward the state's clean energy future by creating clean electricity targets of 90% by 2035 and 95% by 2040 with the intent of advancing the state's trajectory to the existing 100% clean electricity retail sales by 2045 goal.

On September 22, 2022, CARB announced a new comprehensive plan to meet federal ozone standards over the next 15 years. The plan includes the ban on new sales of natural gas heaters, water heaters, and furnaces by 2030. The vote supports meeting EPA regulations limiting ozone in the atmosphere to 70 parts per billion as much of California still exceeds the federal limit (typically experienced as smog). One of the key strategies in the 2022 State Implementation Plan (SIP) Strategy is the proposed zero-emissions space and water heaters measure.

The evolving regulatory efforts are long-term goals and require local governments to actively participate in the mitigation of the climate crisis. To support climate action goals, California jurisdictions are adopting local building electrification and electric vehicle charging infrastructure reach codes.

Reach Code Adoption Process

Every three years, the State of California adopts new building standards that are organized in Title 24 of the California Code of Regulations, referred to as the California Building Standards Code. The 2019 Code became effective on January 1, 2020, and the 2022 Code will become effective on January 1, 2023. Jurisdictions can adopt reach codes that set conditions above minimum state code requirements. However, these reach codes must be filed with the California Building Standards Commission (BSC).

If local amendments require energy efficiency or conservation measures, such as higher performance envelope or battery storage, the California Energy Commission (CEC) requires that the amendments be supported by a cost-effectiveness study and filed as amendments to the Energy Code (Title 24, Part 6).

The City may also adopt electrification ordinances that amend different Parts of the California Building Standards Code or may amend other state or municipal codes. The type of amendment will depend on the specific requirements that must be followed for the ordinance to be legally enforceable. Ordinances that determine the fuel-type (all-electric construction) may be amended through Title 24, Part 11 (CALGreen) or as a municipal code amendment (Health and Safety Code) and only require the review and approval by the BSC.

Requirements solely based on fuel-type (all-electric) do not require supporting cost-effectiveness analyses due to the absence of efficiency or energy conservation requirements, and therefore bypass the review and approval process with the CEC. However, jurisdictions can utilize cost-effectiveness studies as supporting documentation as the analyses can demonstrate to the public that amendments to the code are financially responsible and do not represent an unreasonable burden to the residential and nonresidential building owners and occupants.

2022 California Energy Code New Construction Highlights

The 2022 California Energy Code differs from the current 2019 California Energy Code, particularly as it pertains to new residential and non-residential buildings. For new construction, the 2022 Energy Code encourages electric heat pump technology, establishes electric-ready requirements when natural gas end uses are installed, expands the previous solar photovoltaic (PV) system requirements and battery storage standards, and strengthens ventilation standards to support improved indoor air quality.

The CEC established heat pumps as the prescriptive baseline for new construction. This change sets energy budgets based on efficient heat pumps for space or water heating with the goal of encouraging builders to install heat pumps over gas-fueled HVAC units. A performance credit is also available for buildings that are designed as all-electric. The 2022 Energy Code is considered electric preferred because of this performance credit.

New residential buildings require “electric-readiness”, where a dedicated 240-volt outlet and space (with plumbing for water heaters) is required for each installed gas-fueled appliance so electric appliances can eventually replace gas counterparts. Additionally, residential homes will be required to comply with increased minimum kitchen ventilation requirements to better exhaust pollution from gas cooking and improve indoor air quality. In addition to PV requirements, new residential buildings will be subject to battery-ready requirements or “Energy Storage System” (ESS) readiness.

The 2022 Energy Code includes a substantial change that establishes combined solar PV and battery standards for specific commercial occupancy types. Select nonresidential buildings are required to install systems that are sized to maximize onsite use of solar energy and avoid electricity demand during times when the grid must use gas-powered plants. The 2022 Energy Code also includes improved building envelope efficiency standards and grid integration equipment standards like demand-responsive controls.

2022 CALGreen Electric Vehicle Charging Highlights

The California BSC approved the new version of CALGreen in December 2022. CALGreen contains additional voluntary provisions that local jurisdictions can adopt. Many of the updates impact EV infrastructure to advance the state’s strategic goals of electrification as a path towards decarbonization. The changes also support Executive Order N-79-20, which mandates 100% of in-state sales of new zero-emission passenger vehicles (ZEV) by 2035. Major changes to EV charging impact multi-family, hotels/motels, and nonresidential new construction.

The following tables outline the mandatory 2022 CALGreen EV charging requirements.

Occupancy Type	2022 CALGreen Mandatory Provision
One- and Two-Family Homes, Town- homes with Private Garages	New Construction: • All EV Capable • Raceway • Service Panel and/or Subpanel Capacity and Space(s)
Multi-Family Dwellings, Hotels and Motels	New Construction: • 10% of parking spaces to be EV Capable • 25% of parking spaces require EV Ready w/Low Power Level 2 Receptacles • 5% of parking spaces in buildings with 20 + units require Level 2 EV Supply Equipment (EVSE) • Spaces identified on plans

	Existing Buildings: • 10% of new added parking spaces for existing buildings to be EV Capable Spaces • 10% of altered spaces to be EV Capable
--	--

Table I Mandatory 2022 CALGreen Requirements for Residential Construction

Total Number of Parking Spaces	Number of Required EV Capable Spaces	Number of EVCS (EV Capable provided with EVSE)
0-9	0	0
10-25	4	0
26-50	8	2
51-75	13	3
76-100	17	4
101-150	25	6
151-200	35	9
201+	20% of total	25% of EV Capable Spaces

Table II Mandatory 2022 CALGreen Requirements for Nonresidential New Construction

EV requirements for nonresidential new construction depend on the total number of parking spaces and require a combination of EV Capable Spaces and/or EV Capable Spaces with EVSE (Electric Vehicle Charging Stations). Additionally, 2022 CALGreen consists of mandatory electrical panel capacity requirements for future installation of medium- and heavy-duty EVSE. The building types impacted by this requirement extend to grocery stores, retail, and warehouse buildings with planned off-street loading spaces.

Adopted Reach Codes in Other Cities

During the 2019 code cycle, 54 California jurisdictions adopted local energy reach codes. Over 30 jurisdictions locally adopted all-electric only ordinances, and many cities included limited exceptions such as exemptions for commercial kitchens and laboratories. Additionally in the past two years, at least 10 jurisdictions have adopted a municipal code ordinance (gas moratorium) prohibiting all new natural gas hookups or infrastructure.

Biotech and laboratory spaces were found to represent most of the new commercial construction permits issued by the City. Staff acknowledges that specific nonresidential exceptions are necessary to encourage new commercial construction and employment opportunities as biotech, manufacturing, and food processing sectors are key employment generators in the City. California jurisdictions with specific laboratory exceptions include Alameda, Belmont, Cupertino, Daly City, Hercules, Los Altos, Mountain View, Redwood City, San Carlos, Santa Clara County, Santa Barbara, San Mateo County, and Sunnyvale.

Like California, the State of Massachusetts updates the building code every three years and allows municipalities to adopt requirements that exceed base building energy code requirements (Stretch Code). Towns like Cambridge, MA that have biomedical and manufacturing companies operating in the community have also adopted increased energy efficiency requirements for nonresidential construction with exceptions. The Town requires supermarkets, laboratories, and conditioned warehouses larger than 40,000 sq ft to meet the performance modeling requirements of the stretch code. Due to the reality that these building types often have large and unusual energy loads, supermarkets, laboratories, and conditioned warehouses less than 40,000 sq ft are exempt from the local enhanced efficiency requirements.

DISCUSSION

Building Electrification Reach Codes for New Construction

Building electrification reach codes focus on prioritizing electricity end uses over natural gas end uses and/or requiring enhanced efficiency above statewide energy code standards.

Building appliance electrification options in California are generally be broken into five categories:

- OPTION 1 - Efficiency: All new construction exceeds minimum energy code (via Energy Code, Title 24, Part 6).
- OPTION 2 - Electric Preferred: Allows mixed-fuel buildings with high energy performance, requiring additional energy efficiency measures, battery storage, and/or pre-wiring for buildings to be electric-ready (via Energy Code, Title 24 Part 6).
- OPTION 3 - Electric Only: Appliances must be electric (via Green Building Code, Title 24 Part 11).
- OPTION 4 - All-Electric Municipal Ordinance: No gas hookup allowed (via municipal ordinance).
- OPTION 5- Electric Only Plus Efficiency: All new construction is electric only and exceeds minimum energy code (via Green Building Code, Title 24 Part 11 and Energy Code, Title 24 Part 6).

Each option for building electrification has benefits and challenges. Considerations for each of the reach code approaches listed above is described further below.

OPTION 1 - Efficiency: (All-electric and mixed-fuel buildings exceed State requirements)

The Efficiency reach code amends the California Energy Code (Title 24, Part 6) and requires all new construction of any kind (mixed-fuel and all-electric) exceed minimum energy code standards. This option achieves results higher than the base energy code while requiring enhanced efficiency for buildings constructed with either fuel type. A benefit of this option is that it preserves the choice of fuel type for the applicant, while requiring enhanced efficiency requirements. This ordinance also allows for specific measures, such as cool roof or additional PV, to be incorporated into the requirements. This type of ordinance must be approved by the CEC and re-adopted with every code cycle.

The Efficiency reach code ordinance differs from the current reach code in effect, as it allows for both fuel types and requires enhanced efficiency beyond baseline energy code standards.

OPTION 2 - All-Electric Preferred (Only mixed-fuel buildings have increased requirements)

The all-electric preferred option encourages electrification by giving builders two options: 1) Achieving a higher energy efficiency level than the Energy Code using mixed fuels (fuel gas and electricity); or 2) Building an all-electric building at the minimum efficiency as required in the Energy Code. There are limited incremental greenhouse gas emissions reductions that can be attained by pursuing this model, compared to the All-Electric Required Municipal Ordinance or All-Electric Required Building Code Amendment. This type of ordinance must be approved by the CEC and re-adopted with every code cycle.

The All-Electric Preferred reach code ordinance differs from the current reach code in effect, as it allows for both fuel types and requires enhanced efficiency beyond baseline energy code standards for new mixed-fuel buildings only. All-electric buildings are not required to perform at a higher standard under this approach, which aligns with the City's 2019 energy reach code.

OPTION 3 - All-Electric Required (Appliances must be all-electric)

The all-electric required model requires specific end-uses to install electric appliances, including space heating, water heating, clothes-drying, and cooking, with limited exceptions. This approach does not require the City to gain approval from the CEC or submit supporting cost-effectiveness analyses. The requirements would be locally amended under the California Green Building Standards Code (Title 24, Part 11) and would be required to be renewed every three years.

The All-Electric reach code is the option that is most like the approach the City adopted for the 2019 residential energy reach code requirements. The main difference is the mechanism for adoption used for the 2019 reach code was the Energy Code (Title 24, Part 6). However, mandating electricity as the fuel type does not constitute an energy efficiency or conservation standard and is outside the scope of PRC section 25402.1(h)(2). This approach is anticipated to achieve the same level of projected GHG reductions as the All-Electric Municipal Ordinance (natural gas ban), since it requires specific end-uses to install electric appliances, with exceptions. PCE has provided model CALGreen ordinance amendment language for new all-electric buildings and substantial remodels.

OPTION 4 - All-Electric Municipal Ordinance (Natural gas “ban”)

The all-electric municipal ordinance is also referred to as a gas prohibition, that is more aggressive than the all-electric and electric-preferred model reach codes. These ordinances eliminate the installation of gas infrastructure at the property with limited exceptions, and thus guarantee significant decreases in greenhouse gas emissions. This approach is the longest lasting, as it is not tied to the three-year building code cycle and instead uses jurisdictional authority to amend the Health and Safety Code.

The All-Electric Municipal Ordinance option is like the City's current reach code, in that it requires electric appliances for all new buildings. However, the mechanism used to adopt the requirements and the intent behind the mechanism differs from a typical building code amendment (i.e., Title 24, Part 6 or Title 24, Part 11). Similarly, PCE has also provided model municipal code ordinance amendment language for new all-electric buildings and substantial remodels (i.e., Health and Safety Code).

OPTION 5- Electric Only Plus Efficiency (Electric only with increased requirements)

The Electric Only Plus Efficiency approach requires appliances to be electric and includes a package of efficiency and solar PV), with some exceptions. This type of ordinance must be approved by the CEC and re-adopted with every code cycle. The Statewide Reach Code Team has characterized this approach as the pathway that will have the biggest impact in reducing GHG emissions.

The City has the authority to adopt specific exemptions for the proposed building electrification reach code requirements. The exemptions considered for adoption are detailed in the discussion section below.

Potential Energy Reach Code Exceptions for New Construction

The following are potential limited exceptions that can be included in the local energy reach code.

- Specialized equipment for Industrial processes, laboratories, and medical uses.
- Multifamily residential building projects that have been granted entitlements within a year of the ordinance adoption.
- Water heating or space heating in an attached Accessory Dwelling Unit in which new services are provided by existing systems from an existing mixed fuel building.
- Commercial Food Heat-Processing Equipment.
- Back-up power for Critical Facilities necessary to protect public health or safety in the event of an electric grid outage.
- Process Loads in a Newly Constructed Manufacturing and Industrial Facility. For Manufacturing and Industrial facilities with unknown tenants, exemptions may be provided pending review of initial tenant occupancy.
- Swimming pools and Spas.
- If there is not an all-electric prescriptive pathway for a building under the state Energy Code, and the building is unable to achieve the Energy Code's performance compliance pathway using commercially available technology and an approved calculation method, then the building official may grant a modification.

When a building is granted a fuel-gas exemption, it is customary to require the location of fuel gas appliances to be prepared for future electrification to reduce future retrofit costs (electric-readiness).

Nonresidential Reach Codes Community Engagement

During the month of September 2021, City staff conducted multiple meetings with the biotechnology businesses and local development community to discuss proposed building electrification requirements and gather feedback. Throughout this time, City staff also held one-on-one meetings with several representatives from the business development community. During the meetings, staff shared details regarding possible nonresidential reach codes and recorded comments and concerns on particular requirements. Details of the stakeholder feedback received during this phase of the public stakeholder outreach process can be found in Staff Report 21-791. Per Council direction, staff continued outreach efforts with the business development community to support nonresidential reach code development in 2022.

In March of 2022, City staff sent out an industry survey to local community stakeholders and received responses from twelve (12) stakeholder participants. The participants comprised of a range of local business owners, operators and developers. The participants work on various project types, including; office, manufacturing, warehouse, retail, biotech labs, office, laundry/dry cleaning, restaurants, and light industrial. The stakeholders were asked how they anticipated proposed electrification requirements might impact a new construction project their organization works on. The majority of participants (half) anticipate building electrification requirements will add a significant (large) impact to a project scope of work. A quarter of participants anticipate such requirements will add a minimal (small) impact to a project scope of work.

Within the industry survey, City staff asked stakeholders to comment on the potential to align the proposed requirements with the upcoming 2022 building code cycle. Furthermore, stakeholders were asked to assess if their new construction project could adapt to the new requirements by the January 1, 2023 effective date. Over half of participants indicated they could not adapt to requirements by that time, while a quarter of participants stated they could easily adapt to requirements by the proposed effective date. Half of the stakeholder participants confirmed that their organization currently had projects submitted for Planning review at the time of responding the survey or intended to submit an application to the City for development in the next five years.

General feedback from businesses showed an openness to adapt to an electrification reach code if the requirements were phased in or a grace period was allowed for certain entitled projects. It is also worth noting that feedback from the industry suggests concerns related to the timeline requirements for PG&E in relation to development. Since requests to PG&E to bring power to a new area may take up to two years, having an adequate amount of lead time to prepare for nonresidential reach codes is critical for a project's success.

The survey also asked stakeholders how increased electric vehicle charging station requirements above the California Green Building Standards Code (Title 24, Part 11) will impact future non-residential construction projects. The majority of participants indicated a large impact to a project scope of work. Some stakeholders commented that adding additional EV charging requirements may induce parking demand, increase traffic congestion, and charging facilities will not reduce peak-hour vehicle trips. Other considerations raised by stakeholders included considerations to increasing panel capacity demand with additional electric vehicle charging requirements.

In July 2022, City staff issued an additional survey focused on local business owners in South San Francisco. Staff received submissions from forty-five (45) local business owners representing different nonresidential occupancy types, including retail, offices, restaurants, medical offices, grocery stores and restaurants. The existing businesses that participated in the survey primarily use natural gas for ovens, stovetops, and water heaters. The majority of local business owner participants indicated no interest in transitioning to an all-electric alternative, while a quarter of participants confirmed interest in transitioning to an all-electric alternative. Some participants who rent tenant spaces indicated that this decision would be determined by their landlord. A few participants commented that they find electric appliances easier to use and the current business establishment already has electric appliances installed for most or all end uses that serve business operations. A number of participants indicated a willingness to transition if the City provides incentives and/or rebates to support electrification and if the requirements were found to be cost-effective.

A few local business owners also commented that some hesitation comes from being unfamiliar with the options for electric appliances and asked that the City inform the community on the environmental, health, and economic benefits of electrification through outreach. The hesitation towards electrification also stems from concern over the expense of electricity over gas.

Multiple stakeholders and business owners commented that the City should consider specific exemptions from all-electric requirements for businesses, including exceptions for commercial cooking. Induction appliances minimize indoor air pollution and burn risk due as induction technology conveys less heat and directly heats the cookware (stainless steel or cast iron). However many individuals are hesitant to use induction technology due to the preference of cooking with a flame over electricity. Peninsula Clean Energy (PCE) also maintains an

induction cooking information hub. This PCE webpage gives residential and commercial resources on induction appliances and lists additional resources for available rebates.

Similar to previous outreach efforts, City staff received feedback in favor of exemptions for fuel-gas in laboratory spaces within a new building. An exception for biotech and laboratory spaces allows the City to still require electric end uses for other components of the building while giving the applicant flexibility. Laboratories pose specific challenges to all-electric construction since these buildings often contain specialized equipment that require gas.

Staff also notes that PCE has recently been involved in conversations with a neighboring Bay Area city that is considering excluding exceptions for laboratories based on discussions with a design build firm that specializes in all-electric design and construction for biotech and medical lab facilities. Although there are valid concerns around space heating costs and backup power, especially for facilities that operate 24/7, there are anticipated cost savings associated with transitioning the typical central plant design using built-up water-cooled chiller and gas boilers to all-electric modular air-cooled heat pumps. The following cost savings are associated with this design change:

- Mechanical equipment (condensing boilers, cooling towers including pumps and filtration, and water-cooled chillers).
- Boiler and chiller room construction costs, and real estate value (the heat pumps are located outdoors).
- Natural gas service and piping.

The savings from avoiding the boiler and chiller room construction costs and natural gas service infrastructure, can bring an all-electric plan into cost parity with the traditional fossil fueled plants. Operational cost parity and savings are found when including water utility cost savings from avoiding a traditional chiller and cooling tower. Operational cost savings are even more significant when electric loads are offset with on-site solar. The experience of industry experts involved with electrification of biotech labs continues to change as technology evolves, which may provide the City with future alternatives for nonresidential reach code policy.

Numerous community and industry stakeholders expressed concern over power outages and the reliability of the electric grid. The City may consider allowing backup power by exemption for Critical Facilities, including buildings with biotech lab spaces to address this concern.

Electric Vehicle Charging Infrastructure Reach Codes

Staff is also seeking Council direction on the potential EV reach code options for new nonresidential construction. There are two model code options for enhanced electric vehicle charging requirements: 1) 2022 CALGreen Tier 1 or Tier 2 elective measures and 2) PCE EV Model Reach Code.

2022 CALGreen's most impactful provisions focus on electric vehicle (EV) infrastructure to advance the state's strategic goals of electrification as a main driver towards decarbonization. The upcoming statewide green building code includes voluntary requirements that jurisdictions can consider for adoption (Tier 1 and Tier 2). The voluntary tiers go above the mandatory requirements for new construction outlined in Chapter 4 (residential) and Chapter 5 (non-residential).

For the 2022 model EV reach code, PCE built upon the stakeholder engagement feedback from the 2019 building code cycle and created a model EV zoning amendment in addition to the typical CALGreen amendment. The EV zoning code amendment is not tied to the building code cycle and can be adopted indefinitely like the All-Electric Municipal Ordinance. California jurisdictions with EV zoning amendments include Alameda and San Luis Obispo. The City's 2019 EV requirements for new residential buildings were amended via CALGreen.

Staff asks Council to consider the potential EV reach code options and advise staff on which model code approach to pursue to create the 2022 local electric vehicle charging amendments for new nonresidential buildings.

Electrification of Existing Buildings:

In addition to new construction reach codes, several California cities have adopted reach codes that impact existing buildings. This section outlines considerations for existing building electrification and four approaches that the city may pursue to address existing buildings, including; an End of Flow Ordinance, a Time of Sales Disclosure Ordinance, a Burnout Ordinance, or In-Lieu Fees.

The electrification of an existing building is more complex than building a new all-electric building. An existing building that has been built with both gas and electricity will typically require additional infrastructure changes to switch to an all-electric building. The process of changing appliances from gas to electric is commonly referred to as “fuel-switching”. These upgrades typically come with a higher cost and can create equity issues surrounding building electrification. Some existing building electrification requirements are considered zero cost and other measures will require programs to close the cost gap. Peninsula Clean Energy (PCE) is developing existing building decarbonization resources, including strategy framework examples, model code language, and policy planning tools, to support these concerns.

The type of existing building reach codes available for jurisdictions to adopt vary in approach and each have unique challenges. Since the majority of GHG emissions from the building sector are associated with the existing building stock, some jurisdictions have adopted reach codes for existing buildings to meet climate action plan goals. The four existing building approaches described below are provided for the City Council to consider and provide directional feedback to staff for the desired policy action.

End of Flow Ordinance (By a certain date, fuel gas lines are capped/decommissioned in existing buildings)

The “End of Flow Ordinance”, also known as a “Date Certain” approach, would require that all fuel gas lines are capped or decommissioned in existing buildings by a specific date. PCE considers this approach to be “no-cost signaling policy” that helps with individual and statewide planning around building electrification and decarbonization. The End of Flow language can be integrated into the passing of a new construction ordinance or a declaration by City Council. By the date specified, all gas-powered and mixed-fuel buildings would be required to retrofit to electric-only under this approach. This approach would require additional research on legal ramifications or liability issues that may arise from this type of policy. This approach would require an investment by the City in compliance efforts and support for the community (i.e., equity considerations).

In February 2022, the Half Moon Bay City Council approved a Building Electrification Ordinance that impacts both new and existing buildings and includes an “End of Flow” requirement. No later than January 1, 2045, all

buildings within Half Moon Bay are required to be all-electric or all-electric conversions and all fuel gas lines will be capped and/or decommissioned. The decision to terminate gas service within the City was driven by the State's commitment to carbon neutrality by 2045 and Council identifying electrifying buildings as a necessary strategy to achieve the City's 2030 and 2045 GHG reduction targets. The requirements exempt commercial greenhouses, wastewater treatment facilities, and fuel gas generators until January 1, 2045. Additionally, portable propane appliances for use outside of the building, including outdoor cooking and outdoor heating appliances, are exempt from the End of Flow Ordinance.

Time of Sale Disclosure Ordinance (Requires disclosure of fossil fuel end uses at time of sale)

A second approach that is considered a “no-cost signaling policy” is the “Time of Sale Disclosure”. The intent of this approach is to require a building owner to disclose which end-uses or systems in the building use fossil fuels at the time of sale. Similar to the End of Flow Ordinance, this approach could be integrated into the passing of a new construction reach code ordinance. Time of Sale approaches are triggered when a building changes ownership and some jurisdictions use this approach to require home or building energy assessments.

The City of Piedmont requires each residential home sale to provide a Home Energy Score or a Home Energy Audit to prospective buyers. The report must be prepared within 5 years of the sale of the building. Since there are typically no building permits issued at time of sale, the ordinance requires a Home Energy Score Report or Home Energy Audit Report to be included in the time of sale disclosure documents. The intent is that the reports will provide the new owner valuable information on the condition of the home, as well as a roadmap for increasing the energy efficiency of the home when planning future renovations.

Burnout Ordinance (Requires electric appliances to replace gas counterparts at end of life or during changeout for remodel)

A “Burnout Ordinance” would allow gas or propane appliances that are currently installed to continue to be used until the end of their useful life (defined by either changeout for remodel or wearing out). At the time of replacement, those gas appliances would be required to be replaced with an electric alternative. This approach may focus on one types of gas appliance (e.g., water heating) or all types of gas appliances. A jurisdiction may consider targeting appliances that contribute the most to GHG emissions. A burnout ordinance can be effective in requiring building electrification over time and reducing emissions simultaneously. Considerations must be given to the upfront costs that the owner will accrue, particularly in older buildings. Electrical panel upgrades may also be necessary, which can increase the cost of installing electric alternatives. Additional installation timelines are typical to replacing gas appliances with electric appliance. The additional timeline can be a barrier for building owners seeking to quickly replace an appliance, such as a water heater.

In-Lieu Fees (Requires owner to pay a fee to keep gas appliances installed)

Another approach that the City may take for existing building electrification is to establish In-lieu fees. The approach requires that a building owner either electrify their building's end uses or incur a fee to keep the gas appliances. In-lieu fees can be used to penalize non-compliance and discourage the use of exemptions. This approach would raise funds to support decarbonization elsewhere in the jurisdiction. The fee amount may be determined based on a societal cost of carbon, the cost of the future electrification retrofit, or a different approach. The in-lieu fee is typically aimed at commercial buildings.

The intent for the funds generated from the in-lieu fee is to support other electrification efforts (i.e., funding low-income electrification). As an example, a commercial building owner that is replacing an appliance is given two choices: 1) to electrify the appliance or system or 2) pay a fee to offset the installation of the gas appliance. The commercial building owner would be required to pay a fee (typically based on therms/year). The jurisdiction then can use the funds to electrify equivalent therms in low-income homes.

The use of in-lieu fees to support building electrification is not a common approach amongst jurisdictions at this time. The City of San Luis Obispo performed an in-lieu fee study to supplement 2019 local reach code efforts to develop the technical framework and technical estimate for a carbon-offset fee that would apply under a local reach code for new buildings. The study expressed the in-lieu fee as a cost per therm and calculated at \$27.33 per therm generated. The study found that therms generated will vary by development application, depending on the type and size of the new building(s). The San Luis Obispo City Council did not include the in-lieu fee as an option under the 2019 local energy reach code. However, their efforts may serve as a blueprint to other cities when considering this approach.

NEXT STEPS

If directed by City Council to adopt a particular approach for the local energy reach code and/or EV ordinance, staff will refine the proposed amendments and will utilize the resources provided by the Statewide Reach Code Program and PCE to further investigate the cost-effectiveness study results and how they impact the building types that are prevalent in the City of South San Francisco. Staff will develop an appropriate policy direction with respect to the permit data analyzed, cost-effectiveness, social equity, and the building types impacted.

FISCAL IMPACT

The Energy Code and Green Building Code amendments parallel the structure and terms of the State code and as such any incremental plan check and inspection time should be minimal. The electric readiness provisions will require plan checkers and inspectors to apply additional check lists to mixed-fuel buildings. These items are relatively simple and are not expected to require significant additional staff time. Any incremental costs of administering these requirements will be covered through existing permit fees.

RELATIONSHIP TO STRATEGIC PLAN

This report meets the City's objectives of creating and maintaining a sustainable city.

CONCLUSION

It is recommended that the City Council receive a report on commercial reach code efforts and provide staff with direction on draft commercial reach code language.

The purpose of this study session is to

1. Receive a presentation regarding the 2022 building electrification and energy efficiency reach code options available for local adoption; and
2. Receive an update on the additional outreach staff conducted to the business and development community regarding a potential building electrification reach code for new nonresidential construction;

and

3. Provide direction to staff on the preferred reach code approach for new residential and non-residential construction so staff may proceed with developing the proposed ordinance for new residential and new nonresidential buildings; and
4. Provide direction to staff on the type of EV reach code to adopt for the 2022 code cycle.