

DOCKETED

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City Council Meeting Agenda Report

Meeting Date: April 26, 2021

SUBJECT: Reach Codes – Adoption of Local Amendments to 2019 California Energy and 2019 Green Building Standards codes.

RECOMMENDATION

The staff recommends adopting a Reach Code Ordinance modifying Title 15 (Building and Construction) Chapter 15.60 Related to the California Energy Code and Chapter 15.22 Related to California Green Building Standard Code and Adopting New Local Amendments and Amendments to Title 24, Part 6 and Part 11 of the California Code of Regulations.

BACKGROUND

This report provides an overview of the Statewide cost-effectiveness study, details findings, and provides language recommended for the associated reach code.

Reach codes are local building codes amendments that go beyond the State's requirements for energy efficiency and green building standards. Reach codes require new buildings to use **only** electric energy sources to help reduce greenhouse gas emissions (GHGs) and increase the required amount of available electric vehicle charging infrastructure.

Some communities have elected to adopt reach codes that prohibit natural gas in new construction but include exceptions for both residential and non-residential construction. For single family residential projects cooking, fireplaces, outdoor grills, and Accessory Dwelling Units have been exempted. For non-residential projects exceptions have been given for commercial kitchens, life science research facilities. Additionally, general exceptions were given to all projects with planning entitlements, cost infeasibility, and technical infeasibility.

California state law allows local governments to amend the California Building Standards Codes to make them more stringent, provided required findings are made. The amendments must be necessary to address local climatic, geologic, environmental, or topographic conditions that affect the health, safety, and welfare of residents. Staff is proposing Reach Code amendments.

In addition, the California Energy Commission (CEC) requires that a cost-effectiveness study be conducted and filed in the case of local amendments to the Energy Code (Title 24, Part 6). It is required that the City demonstrate to the CEC, using a cost-effectiveness study, that the amendments to the code are financially responsible and do not represent an unreasonable burden to the non-residential and residential applicants. A cost-effectiveness study is not required for amendments to the Green Building Code (Title 24, Part 11).

Statewide Cost-Effectiveness Study for Energy Code Reach Codes

Funded by the California investor-owned utilities (IOUs), the California Statewide Codes and Standards Program (Statewide Program) led the development of a cost-effectiveness study for Energy Code reach codes that examined different performance-based approaches for new construction of

specific building types. There are two kinds of reach code approaches: performance-based ordinances and prescriptive ordinances. Performance-based ordinances mandate an increase in the overall energy efficiency required but leave flexibility for the builder on how to achieve this goal. In contrast, prescriptive ordinances mandate implementation of a specific measure (such as solar panels or cool roofs). The Statewide Program's analysis focused on performance-based ordinances but some conclusions about prescriptive measures can be made from the results.

Building Prototypes

The Statewide Program's analysis estimated cost-effectiveness of several building prototypes including one-story and two-story single-family homes, a two-story and five-story multifamily building, a three-story office building, a one-story retail building, and a four-story hotel. The single-family homes, multifamily homes, and office building prototypes are directly applicable to city of Daly City development.

Building appliance electrification options in California can generally be broken into three categories:

- **Natural Gas Ban**: No gas hookup allowed (via municipal ordinance), with limited exceptions. Is not tied to the building code and can be adopted indefinitely.
- **All-Electric Required**: Appliances must be electric (via Energy Code, Title 24 Part 6), with some exceptions. Must be re-adopted with every code cycle.
- **All-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. Must be re-adopted with every code cycle.

Electric Vehicle Charging Infrastructure

Electric Vehicle (EV) charging requirements in California can generally be broken into three categories:

- **EV Charging Installed**: All supply equipment is installed at a parking space, such that an EV can charge without additional equipment.
- **EV Ready**: Parking space is provided with all power supply and associated outlet, such that a charging station can be plugged in and a vehicle can charge.
- **EV Capable**: Conduit is installed to parking space, and building electrical system has ample capacity to serve future load. An electrician would be required to complete the circuit before charging is possible.

EV charging capacity and speed can be summarized as three categories:

- **Level 1**: Capable of charging at 120V, 20A. This is an equivalent to a standard home outlet.
- **Level 2**: Capable of charging at 240V, 30-40A. This is the service capacity typically used for larger appliance loads in homes
- **Level 3 (DC Fast Charging)**: Capable of charging at 20-400kW. This is the type of charger used for Tesla Superchargers and DC Fast Chargers at some supermarkets.

The 2019 California Green Building Code Update (Title 24, Part 11) increases requirements for electric vehicle charging infrastructure in new construction; including:

- New one- and two-family dwellings and townhouses with attached private garages: must be Level 2 EV-Capable
- Multi-family dwellings: 10% of parking spaces must be Level 2 EV-Capable

- Non-residential: 6% of parking spaces must be Level 2 EV-Capable

DISCUSSION

Building Appliance Electrification

Each option for building electrification has unique benefits and demerits.

Natural Gas Ban

Several cities, including the cities of Berkeley, Morgan Hill, and San Jose, have adopted (and are continuing to adopt) ordinances known as natural gas prohibitions, that are more aggressive than the all-electric and electric-preferred model reach codes. These natural gas bans eliminate the use of natural gas infrastructure and result in significant decreases in greenhouse gas emissions. However, natural gas bans often receive more opposition from residents and other stakeholders and are more difficult to implement.

All-Electric Required

The all-electric required model requires specific end-uses to install electric appliances, with exceptions. For multiple reasons including health, safety, economics, and environmental benefits, there is considerable interest in mandating all-electric new construction, or “building electrification”. All-electric buildings have electric appliances for space heating, water heating, clothes-drying, and cooking. The interest in building electrification stems from the fact that Peninsula Clean Energy is providing 90% carbon-free electricity and eliminating the use of natural gas can greatly reduce greenhouse gas emissions from the building sector at the local level.

All-Electric Preferred

The all-electric preferred approach encourages electrification by giving builders the choice of two options:

- Achieving a higher energy efficiency level than the Energy Code using mixed fuels (natural gas and electricity); or
 - Building an all-electric building at the minimum efficiency as required in the Energy Code.
- The Statewide Program’s study analyzed this approach.

The all-electric preferred model requires buildings to perform at a higher level when natural gas is installed to any end-use. Out of the three models, this model allows building designers and developers the greatest flexibility in building design. However, the allowance of gas infrastructure limits cost savings and greenhouse gas emissions savings that can be gained from this option.

A summary table of Reach Code ordinances that have been adopted or are currently being evaluated by San Mateo and Santa Clara County jurisdictions has been included in this report *see Attachment A*.

Electric Vehicle Charging Infrastructure

Local residents are showing a significant interest in electric vehicles. It is widely known that availability of EV charging infrastructure is a critical component to EV adoption. Meanwhile, it is significantly more expensive to install charging infrastructure as a retrofit than it is during new construction. As such, ensuring that newly constructed residential and non-residential parking has ample EV charging capability will reduce long-term costs of EV infrastructure installation, while helping to increase EV adoption and decrease transportation-related greenhouse gas emissions. While California's new minimum requirements are a step forward, it is unlikely that the requirements for multi-family dwellings and non-residential buildings are enough to keep pace with expected EV growth looking towards 2030.

FINDINGS

Building Appliance Electrification Reach Codes

Staff have worked with PCE's consultants to interpret the study's results and infer what options may or may not be cost-effective for the building types that are prevalent in the city of Daly City. Peninsula Clean Energy and Silicon Valley Clean Energy have also provided consultant support to assist cities in understanding the cost-effectiveness study results and adopting reach codes. Peninsula Clean Energy has assured staff that the proposed reach codes meet the requirements of the CEC for cost-effectiveness and are cost-effective over the lifetime of the building systems. Adding that, the results of the analysis show that all-electric buildings are typically less expensive to construct.

Recommended reach code requirements for newly constructed buildings are:

- All-Electric Required: Require new buildings to be all-electric with eight potential exceptions listed under **Reach Code Exceptions** below
- Solar PV: Require solar photovoltaic systems on new high-rise residential and non-residential buildings covering 15 percent of the roof area with exceptions allowed for shading or overgeneration.

Reach Code Exceptions

Exemption 1: All-Electric Building requirements shall not apply to projects with planning entitlements approved by the City prior to the effective date of this ordinance.

Exemption 2: If the applicant establishes that there is not an all-electric prescriptive compliance pathway for the building under the Energy Code, and that the building is not able to achieve the performance compliance standard applicable to the building under the Energy Code using commercially available technology and an approved calculation method, then the Building Official may grant a modification.

Exemption 3: Non-Residential Building containing a commercial kitchen may contain non-electric cooking appliances.

Exemption 4: Non-Residential Buildings that will be constructed to Office of Statewide Health Planning and Development (OSHPD) 1 Hospital Standards or OSHPD 3 Clinic Standards, may contain non-electric space-conditioning, water-heating systems, and process load systems.

Exemption 5: All-Electric building requirements shall not apply to new residential structures that designate 100% of the dwelling units to be affordable, excluding any onsite manager unit(s), for persons earning 80% or less of the Area Median Income (AMI), as evidenced by instruments recorded against the property that restrict the units as affordable for a period of at least 55 years.

Exemption 6: Accessory Dwelling Units (ADUs) or Junior Accessory Dwelling Units (JADUs) shall be exempt from the all-electric building provisions of this section.

Exemption 7: Non-residential buildings containing F, H, and L occupancies, as defined in the California Building Code.

Exemption 8: Buildings containing a Scientific Laboratory Area may contain non-electric space conditioning and water-heating systems.

Electric Vehicle Charging Infrastructure Reach Codes

Unlike amendments to the Energy Code, a cost-effectiveness study is not required for amendments to Title 24, Part 11, or the Green Building Code “CALGreen” which covers items such as electric vehicle (EV) charging infrastructure. However, to evaluate the financial impact on first costs, PCE/SVCE commissioned an analysis of the total cost of implementing various EV infrastructure measures. Staff have worked closely with Peninsula Clean Energy, Silicon Valley Clean Energy, and the Statewide Program’s team to establish new construction EV requirements which are more in-line with local EV adoption trends, while providing flexibility for the builder and keeping construction costs as low as possible.

Recommended requirements for EV infrastructure are:

Residential

- Single Family Dwelling: One dedicated “plug and play” Level 1 circuit, and one dedicated “plug and play” Level 2 EV circuit.
- Multi-Unit Dwelling, ≤ 20 units: Per unit, a single “plug and play” Level 2 EV circuit
 - Exception: Not required for units without parking
- Multi-Unit Dwelling, > 20 units: 75% of the units, a single “plug and play” Level 1 EV circuit; 25% of the units, a single “plug and play” Level 2 EV circuit
 - Exception: Not required for units without parking

“Plug and play” is defined as a full circuit installed including capacity to deliver electricity and outlet.

Non-Residential Office

- 10% of the parking spaces, Level 2 EV charging infrastructure installed
- 10% of the parking spaces, “plug and play” Level 1 EV circuits
- 30% of the parking spaces EV capable at the pinch points utilizing at least Level 2-sized conduit with panel capacity for 2kW per EV capable parking space

Non-Residential, Non-Office

- 6% of the parking spaces, Level 2 EV charging infrastructure installed
- 5% of the parking spaces, “plug and play” Level 1 EV circuits
- For parking lots with over 100 spaces, first hundred spaces must adhere to Level 1 & Level 2 requirements, with option to substitute 80kW DC fast charger for subsequent sets of 100 spaces.

FISCAL IMPACT

Reach code will be enforced and inspected by the Building Division and will require additional staff training and allocated time. All staff will need additional training to understand how the new requirements apply to building permit plan submittal, plan review and inspections. The Bay Area Regional Energy Network and Peninsula Clean Energy have developed training materials and can provide reach code trainings at no cost to the City aside from attendance.

ENVIRONMENTAL CLEARANCE

In accordance with CEQA Guidelines section 15378(b)(5), action on this item is not a project subject to CEQA because policy direction is an administrative action that will not result in a physical change to the environment.

NEXT STEPS

If and when Reach Codes are adopted, staff will submit the ordinance to the CEC and the California Building Standards Commission for approval. The CEC requires a period up to 60 days for public comment prior to issuing approval of the City's Reach Code. After the CEC's approval, staff will submit the proposed Reach Codes to the Building Standards Commission for final approval. The ordinance will become effective following final approval by the Building Standards Commission.

RECOMMENDATION

Staff recommends that the City Council introduce ordinances adopting updated local amendments to the 2019 California Energy Code and the 2019 California Green Building Standards Code.

Respectfully submitted,



Mario Sigala
Chief Building Official
Building Supervisor



Tatum Mothershead
Director of Economic and
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ATTACHMENTS:

- A. Reach Code Ordinance Summary Adoption Status Table for San Mateo & Santa Clara County
- B. Ordinance California Energy Code Amendments
- C. Ordinance California Green Building Standards Code Amendments
- D. 2019 Residential New Construction Cost-Effectiveness Study
- E. 2019 Nonresidential New Construction Cost-Effectiveness Study
- F. 2019 Mid-rise Multifamily Buildings Cost-Effectiveness Study
- G. 2019 Residential Accessory Dwelling Units Cost-Effectiveness Study