



City of Culver City

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Staff Report

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CC - ACTION ITEM: (1) Presentation Regarding the Consideration of Electrification Reach Codes that May Potentially Limit or Prohibit Gas in New Construction; (2) Receipt of Public Comment on Electrification Reach Code Amendments to the City CALGreen Code; (3) Direction on Building Electrification Reach Code Approaches and Exemptions Allowing Gas Hook Ups; (4) Direction on a Potential Electrification Reach Code Ordinance; and (5) Direction on Other Reach Code Policies to Pursue.

Meeting Date: October 10, 2022

Contact Person/Dept.: Tim Koutsouros, Planning and Development Services Department

Phone Number: (310) 253-5800

Fiscal Impact: Yes No **General Fund:** Yes No

Attachments: Yes No

Commission Action Required: Yes No

Public Notification: (E-Mail) Meetings and Agendas - City Council (10/05/2022)

Department Approval: Jesse Mays, Assistant City Manager (09/27/2022)

RECOMMENDATION

Staff recommends the City Council (1) receive a presentation regarding the consideration of electrification reach codes; (2) receive public comment on electrification reach code amendments to the City CALGreen Code; (3) provide direction on building electrification reach code approaches and exemptions allowing gas hook ups; (4) provide direction on a potential Electrification Reach Code Ordinance; and (5) provide direction on other reach code policies to pursue.

BACKGROUND

On November 18, 2019, the City Council conducted a public hearing on Reach Codes. The City Council adopted a reach code ordinance on December 9, 2019, and the ordinance went into effect on January 9, 2020. These reach codes were known as Reach Code Phase 1 and they contained the following requirements:

- greywater requirements when adding a laundry fixture
- solar systems requirements (1 kilowatt per 10,000 square feet) for new construction and major renovations of structures over 10,000 sf,
- light pollution reduction measures with backlight, uplight, and glare requirements
- landscape water use reduction measures for soil moisture sensors
- construction waste reduction enhancement of 75 percent recycled construction material
- shower facilities for bike parking
- vegetation management in defensible space in wildland-urban interface areas

Reach Code Phase 1 items were readopted by council on September 19, 2022 as part of the 2023 California Building Standards Code adoption.

Electrification Reach Code

During the November 18, 2019 City Council meeting, there was lengthy public testimony in support of and opposition to full electrification standards in Culver City. In recognition that an electrification reach code required additional public input and review, the City Council directed staff to conduct public outreach prior to further consideration by Council of electrification reach code standards.

Staff conducted the requested public outreach for electrification between 2020 and 2022 and this report includes those findings. It also provides an overview of national and regional climate action initiatives, common electrification reach code gas hook-up exemptions, overview of cost-effectiveness, and includes potential approaches for City Council to direct staff to proceed in the adoption of an electrification reach code for the 2023 code cycle.

The City has demonstrated leadership in sustainability with its proposed General Plan update, including the Climate Protection Element. The Climate Protection Element consists of goals for a carbon neutral community by reducing greenhouse gas (GHG) emissions and decarbonizing buildings. The interest in building electrification stems from the fact that buildings are the community's second largest GHG contributor behind transportation. The Clean Power Alliance (CPA) provides virtually 100% carbon-free electricity, which can greatly reduce greenhouse gas emissions from the building sector. Where electricity users have opted out of participation in the CPA, Southern California Edison (SCE) provides a minimum of 43% and up to 100% carbon-free electricity.

National and Regional Climate Action

Local governments play a key role in addressing the ongoing climate dilemma. The actions taken on a local level directly support the 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 requires active coordination efforts between all facets of government and strong collaboration with community-based organizations, the private sector, and the City's local workforce.

Furthermore, Executive Order B-55-18, issued by Governor Brown in 2018, set a statewide goal to achieve carbon neutrality as soon as possible, no later than 2045. The expectation is to achieve and maintain net negative emissions thereafter. 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 AB32 to develop a scoping plan that details how the State of California will achieve the established GHG reduction goals.

Recently, in the State of California, 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.

The evolving regulatory efforts are long-term goals and require local governments to actively participate in the mitigation of the climate dilemma. 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. Cities and counties can adopt reach codes that set conditions above the minimum state code requirements. However, these reach codes must be filed with the California Building Standards Commission.

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). A cost-effectiveness study and filing with the CEC is not required for amendments that do not require efficiency or conservation, such as only requiring electrification, and the amendments can be made to the Green Building Standards Code (Title 24, Part 11, also known as CALGreen). However, a cost-effectiveness study 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.

DISCUSSION

Building Electrification Reach Codes

Building electrification reach codes focus on 1) requiring or prioritizing electricity end uses over natural gas end uses and/or 2) requiring enhanced efficiency above statewide energy code

standards. Building reach approaches in California can generally be broken into five categories and are listed below in order from least to farthest reaching:

- Efficiency: All new construction exceeds minimum energy code (via Energy Code, Title 24, Part 6).
- Electric Preferred: Allows mixed-fuel (gas and electric) 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).
- Electric Only: Appliances must be electric (via CALGreen, Title 24 Part 11), with some gas hookup exceptions.
- All-Electric Municipal Ordinance: No gas hookup allowed (via municipal ordinance), with limited exceptions.
- All-Electric Required plus Efficiency and/or Solar PV: Appliances must be electric and include a package of efficiency and solar PV measures (via Energy Code, Title 24 Part 6), with some gas hookup exceptions.

A 2019 Jurisdictional summary of Adopted Electrification Reach Code Ordinances is included as Attachment 5. Each approach for building electrification has unique benefits and drawbacks. Considerations for each of the reach code approaches listed above is described below.

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 approach 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, which is an administrative process the City will need to consider triennially. The Efficiency pathway is a new approach introduced by the Statewide Reach Code Team for the 2022 code cycle.

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

The all-electric preferred approach 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.

The biggest benefit of the all-electric preferred model is the preservation of the owner's choice between all-electric and mixed fuel. The tradeoff is limited incremental greenhouse gas emissions reduction and a lower cost effectiveness that can be attained by pursuing this model, compared to

the All-Electric Required Municipal Ordinance or Electric Only Building Code Amendment. This type of ordinance must be approved by the CEC and re-adopted with every code cycle. The state's 2022 Energy Code already represents an All-Electric Preferred model in several ways, such as improved TDV performance, pre-wiring for gas appliances, higher ventilation rates for gas stoves, and solar PV and Energy Storage System (ESS) requirements. This local amendment would tip the scales even more toward all-electric new construction. A benefit of this approach is that it preserves fuel options but encourages electric designs.

Electric Only (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 gas hookup exceptions. All-electric packages have lower GHG emissions than mixed-fuel packages. A benefit to the all-electric approach is that every three years it is revisited and reevaluated during the building code adoption triannual cycle. During the reevaluation process new technology and approaches may be studied and the findings can be incorporated to fit the community's current needs. 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).

All-Electric Municipal Ordinance

Another option is to adopt an all-electric municipal ordinance, also referred to as a gas prohibition, that is more aggressive than the all-electric and electric-preferred model reach codes. An all-electric municipal ordinance eliminates the installation of gas infrastructure at properties with limited exceptions, and thus guarantees 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.

Electric Only Plus Efficiency (Electric only with increased requirements)

Electric Only Plus Efficiency approach requires appliances to be electric and requires 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 and achieving decarbonization of new buildings. This approach is the most stringent of the options provided by the State because it mandates a fuel-type and requires the building to perform higher than California Energy Code standards. The Electric Only Plus Efficiency pathway is a new approach introduced by the Statewide Reach Code Team for the 2022 code cycle.

Common Gas Hook-up Exemptions

A review of 2019 All-Electric approaches taken by other jurisdictions yields the following summary of

common gas hook-up exceptions:

- Emergency generators
- Infeasibility: 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.
- Specialized equipment for Industrial processes, laboratories, and medical uses.
- Commercial cooking equipment
- Multifamily residential building projects that have been granted entitlements within a year of the ordinance adoption. Water heating, cooking, or space heating for an Accessory Dwelling Unit and/or JADU in which new services are provided by existing systems from an existing mixed fuel building.
- Swimming pools and Spas
- Indoor and or outdoor Fire Features/Fireplaces
- Residential cooking equipment
- Police/Fire/Emergency Operations

Where buildings utilize these exceptions, it is customary to require the location of fuel gas appliances to be prepared for future electrification to reduce future retrofit costs.

Renewable Energy and Reach Codes

Building electrification reach codes can have a greater impact when buildings are powered by carbon-free and renewable energy sources. Community Choice Aggregation (CCA) programs allow local governments to procure power on behalf of residents, businesses, and municipal accounts from an alternative supplier, while still receiving transmission and distribution services from the existing local utility provider. Culver City participates in the local CCA, Clean Power Alliance, which delivers a percentage of power generated by renewable sources to residents and businesses. Furthermore, CPA and SCE are committed to providing renewable and carbon-free sources of energy to customers through a mix of wind, solar, geothermal, and small hydropower.

When considering local energy reach codes, another energy source that may come up for discussion is renewable natural gas (RNG). RNG is produced from the decay of waste in landfills, digesters at wastewater treatment plants, dairy, and agriculture operations, as well as other bio-energy and synthetic options. Methane capturing from these sources is a critical component of the overall approach to mitigating California's climate crisis.

Recently, California gas utilities like SoCal Gas, announced strategy frameworks for renewable natural gas. SoCal Gas submitted a request to the CPUC to begin offering renewable natural gas for building use at a premium compared to its base product. RNG is advertised as a sustainable sourced

gas that can be dropped into the existing pipeline network (drop-in fuel) and requires no physical change out of building infrastructure.

However, there are challenges with RNG. Mainly, that the energy source is scarcely available today and potential future supply from sustainable sources remains limited. RNG is shown to be more expensive than fossil gas, while renewable energy sources for electricity is competitive in pricing when compared to electricity from gas power plants (and is continuing to get cheaper).

There is no doubt that sustainably produced renewable gas plays a role in reducing emissions. RNG will likely be impactful in harder-to-decarbonize sectors like industrial and heavy machinery applications. But the anticipated timing of RNG, its scarcity and high cost, is unlikely to act as a large enough replacement share of the State's natural gas needs. Additionally, RNG largely consists of methane, does not address gas system leakage, and will not contribute to improving indoor air quality or life safety concerns.

The All-Electric Required Plus Efficiency and/or Solar PV, All-Electric Required (limited gas hook up exemptions), All-Electric Preferred (mixed-fuel), and Efficiency approaches are amendments through the triannual Building Standards Code adoption process giving the ability to consider new technologies as they become readily available.

Electric Vehicle Charging Infrastructure Reach Codes

The 2022 California Green Building Standards Code (CALGreen), along with all other parts of the Building Code, will be in effect January 1, 2023. This includes the statewide new construction requirements for Electric Vehicle (EV) charging infrastructure.

EV charging requirements in California can generally be broken into three categories:

- **EV Charging Station**: 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 driver-provided supply equipment can be plugged in, and a vehicle can charge.
- **EV Capable**: Conduit is installed to the parking space and building electrical panel and transformers have reserved capacity to serve future load. An electrician would be required to complete the circuit and/or increase the gauge of upstream wiring before charging is possible.

EV charging capacity can be summarized as three categories:

- **Level 1**: Capable of charging at 110/120V, 16A. This is equivalent to a standard home outlet.
- **Level 2**: Installation of a 208/240V, 40A circuit or 208/240V, 20A circuit for low-power. 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 2022 California Green Building Code update (Title 24, Part 11) increased 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,
 - 25% must be Low Power Level 2 EV Ready, and
 - 5% must be Level 2 EV Charging Stations
- Non-residential:
 - 15% of parking spaces must be Level 2 EV Capable, and
 - 5% must have Level 2 EV Charging Stations

The effective Culver City Zoning code section 17.320.035 O. has the following enhanced EV requirements:

- Multi-family dwellings:
 - 20% of parking spaces must be EV Capable, (reach)
 - 10% must be EV Ready, and
 - 10% must be EV Charging Stations (reach)
- Non-residential:
 - 20% of parking spaces must be EV Capable, a minimum of 2, and (reach)
 - 10% must be EV Ready, a minimum of 2, and (reach)
 - 10% must have EV Charging Stations, a minimum of one. (reach)

Overall, the Culver City zoning code enhancements reach past the 2022 California Green Building Standards Code and no further enhancements are recommended.

Community Outreach

The City hosted nine (9) public outreach meetings between January and February 2020. The outreach program was developed to explain the basics of reach code standards: what they are, how reach codes reduce energy consumption, and how reach codes contribute to healthier communities. The meetings provided a forum for stakeholders to express their own thoughts regarding reach codes. The 2020 reach code public meeting results are found in Attachment 1 “Reach Code Public Meeting Results”.

In August of 2022, City staff reenergized the public outreach related to electrification reach codes. Additional public outreach meetings were held on August 25, August 29, and August 31, 2022. The overall objective and educational content of the meetings aligned with the 2020 reach code outreach efforts. The 2022 reach code public meeting results are found in Attachment 2 “Reach Code Public Meeting Results”.

There was a shift between the public comments received between the 2020 and 2022 public meetings with an increase in general support of Electric Only. In 2020 there was discussion related to gas cooking equipment in residential and commercial uses whereas in 2022 gas cooking equipment discussion was related only to commercial use.

There were differing public views on the approach and amount of reach but the predominant outcome from the public outreach meetings was general support for some level of electrification with exemptions. As a result of feedback received from the community, staff learned of the following preferences for potential all-electric reach codes:

- All-electric codes to apply to only new construction
- Provide a long enough implementation period
- A “grace period” after effective date
- Natural gas exemptions for specific end uses (i.e., commercial kitchen)
- Align as closely as possible with next building code cycle (effective January 1, 2023)
- Consider panel capacity challenges for new ADUs

Recommended Next Steps on Electrification Reach Codes

At this time, after review of federal, state, and local GHG reduction goals and an analysis of the public comments received during the public outreach, staff recommends modifying the Green Building Standards Code (Title 24, Part 11). Staff seeks the Council’s direction on which policies to incorporate.

If directed by Council, staff will bring the proposed amendments and related ordinances to City Council for review and approval. The proposed ordinance will take in consideration the results of the statewide cost-effectiveness studies and consider the community and stakeholder feedback staff received throughout the public engagement activities.

Where the ordinance approach is an amendment to the Building Code, the item will be a public hearing and will require two meetings for introduction and adoption. Following City Council approval of the ordinance, staff will file the necessary paperwork with the California Building Standards Commission and California Energy Commission (if the ordinance amends the California Energy Code). In the event that the reach code amends the energy code, after filing with the California Energy Commission, a 15-day public comment period will begin and will be administered by the California Energy Commission. City staff will be asked to respond to public comments on an as-needed basis. After undergoing state approvals and filing with the Building Standards Commission, the City may begin local enforcement.

Other Potential Reach Code Items

Staff seeks the City Council’s direction on whether there are other reach code topics that it would like to consider in the future, such as heat pumps and/or passive heating and cooling requirements. Depending on Council’s direction, staff will return at a later meeting with additional information on these topics.

FISCAL ANALYSIS

There is minimal fiscal impact to the City associated with adopting energy reach code when utilizing the UOI cost effective surveys. The additional costs may include additional training of plan checking, inspection and permitting staff, updating handouts and websites, indirect training time of applicants,

and conducting outreach to the community.

As outlined in the Background Reach Code Adoption Process section of this report the local amendment aims to be cost effective so that it does not represent an unreasonable cost burden over the life cycle of the building. Cost-effectiveness is commonly measured by either:

1. Benefit-to-cost ratio: the benefit equals the total energy savings (either on bill or Time Dependent Valuation (TDV)) expected from the energy conservation against the cost of installing the measure(s). Incremental costs include the marginal equipment and installation/construction costs and may include the replacement and maintenance costs over the study period. A ratio of at least 1.0 is considered cost-effective.
2. Simple payback: the up-front installation cost divided by the annual utility savings. The resulting value indicates the number of years it takes to pay back the initial cost. Generally, a measure is considered cost-effective when it pays back in less than 15 years, but that length of time may vary between 10-20 years depending on the measure.

TDV is an energy budget metric meant to incorporate the societal and environmental impacts into the cost of energy by accounting for the energy used at the building site and consumed in producing and in delivering energy to a site such as power generation and loss.

ATTACHMENTS

1. "2020 Reach Code Public Meeting Results"
2. "2022 Reach Code Public Meeting Results"
3. A Summary of Ordinance Pathways - New Construction
4. 2022 Cost-Effectiveness Study: Single Family New Construction
5. 2019 Adopted Reach Codes AHJ Summary

MOTIONS

That the City Council:

1. Discuss and receive public comment on the consideration of electrification reach codes amendments to the City CALGreen Code that could potentially limit or prohibit gas in new construction;
2. Provide direction to the City Manager on one of the following building electrification reach code approaches: All-Electric Required Plus Efficiency and/or Solar PV, All-Electric Model Ordinance (gas prohibition), Electric Only (limited gas hook up exemptions) CALGreen, All-Electric Preferred (mixed-fuel), Efficiency;
3. Provide direction on building electrification reach code exemptions allowing gas hook ups;

4. (If desired), provide direction to return to council with an Electrification Reach Code Amendment ordinance;

5. (If desired), provide direction on other reach code policies to pursue; and

6. Provide other direction to the City Manager as deemed appropriate.