

GREEN BUILDING & REACH CODES **FREQUENTLY ASKED QUESTIONS**

- 1. I'm a current Mountain View resident that has natural gas appliances in my home - how will these reach codes affect me?**

The Reach Codes will not affect your existing gas appliances; the Reach Codes are applicable to new construction.

- 2. What if I need to replace a natural gas appliance in my home, such as a water heater, furnace, or stove? Does this mean I need to replace it with an electric version?**

The replacement of gas appliances is permitted for existing construction.

- 3. Do the reach codes apply to remodels or renovations?**

The Reach Codes are being applied to new construction. The exception would be a remodel/addition where less than 50% of existing habitable legal square footage remains of the floor and roof area.

- 4. Do the reach codes apply to repairs of existing systems or general maintenance?**

The repairs or maintenance to existing systems will not be affected by the Reach Codes.

SILICON VALLEY CLEAN ENERGY **FREQUENTLY ASKED QUESTIONS**

What is a Reach Code?

Every three years, cities adopt the new building code set by the state. Cities can adopt local amendments to the new energy code, known as Reach Codes, to exceed the State's minimum requirements. As part of this process in 2019, Mountain View is joining a regional effort to adopt codes that support the City's and the State's goals to reduce greenhouse gas (GHG) emissions and increase the use of renewable energy.

Why did Mountain View adopt a reach code requiring new buildings to be all-electric?

California has adopted a long-term goal of reducing GHG emissions 80 percent by 2050, and Mountain View has adopted targets that align with the State's goals. Natural gas use in buildings is one of the largest sources of GHG emissions in Mountain View, so meeting our GHG reduction goals will require reducing this source of emissions. The State is developing policies and programs to support these goals, including building codes that reduce energy use in buildings. As a leader in addressing climate change, Mountain View has chosen to exceed these minimum standards and ensure that new construction will not increase the City's GHG emissions through increased natural gas use. All-electric buildings are cheaper to construct than mixed-fuel buildings, and help building owners avoid costly future retrofits to meet the State's and City's climate change goals.

One of the biggest steps Mountain View has taken to reduce its GHG emissions is to participate in the formation of Silicon Valley Clean Energy (SVCE), which began supplying carbon-free electricity to Mountain View and other cities in Santa Clara County beginning in 2017. By ensuring that new construction utilizes this clean energy source instead of natural gas, Mountain View can avoid increasing both GHG emissions and air pollution. For more information on SVCE and how it supports regional GHG reduction efforts, please visit their website: <https://www.svcleanenergy.org/>

What are the benefits of all-electric buildings?

All-electric buildings can save money, improve air quality, and promote public health. All-electric buildings are cheaper to build than mixed-fuel buildings that include natural gas infrastructure, and when paired with the rooftop solar requirements in the new code, offer ongoing utility savings. Currently, buildings are responsible for one-third of regional air pollution. By requiring that new buildings avoid burning fossil fuels, this reach code helps reduce air pollution. Avoiding the use of natural gas in buildings also prevents the release of carbon monoxide and nitrogen dioxide, which can be toxic to people and pets.

Does PG&E have enough transmission capacity for the expected increase in electricity demand?

The simple answer is yes. PG&E and other transmission owners hand over control of their transmission assets to the California Independent System Operator (CAISO). When transmission constraints do exist on certain paths, the CAISO is able to dispatch additional generation to meet demand via other paths. Locally, constraints may exist at the individual circuit level, which would be identified by PG&E in the construction design phase and resolved accordingly prior to constructing a new building.

Does SVCE have enough generation capacity for the expected increase in electricity demand?

SVCE regularly reviews customer load compared to our energy contracts. We are required to provide a large scale report known as our Integrated Resource Plan, just as other load serving entities are required to do. Because the majority of load in any given city is primarily driven by existing buildings, the increased use of electricity in new construction represents a very minor increase in overall load. The overall impact from electrification when coupled with other distributed energy resources and load modification efforts is expected to increase electricity demand by only a few percentage points in the near term, and SVCE staff expects to fully meet demand.

What might be the positive or negative impact on a residential electricity bill in Mountain View for an all-electric home versus a mostly electric home with gas for the water heater and cooking appliances?

Considering the ban is for new construction, the impacts, if any, would only affect not-yet-built homes. As part of the mandatory cost-effectiveness study required to support a reach code, this comparison has already been calculated. When keeping construction costs the same between a mixed fuel (gas and electric) vs an all-electric home (single or multi-family), the all-electric home's utility bills are similar to or less than the mixed fuel home. This occurs because new all-electric buildings would include the readily available and highly efficient heat pump technologies for space and water heating further enhanced by solar PV and time of use rates, which become the default rate structure starting in late 2020.

Residents are concerned about the cost of getting the electricity to our city. Does it cost more for PG&E to deliver electricity generated by SVCE outside of their transmission area?

Regardless of where the electricity is generated or consumed within PG&E territory, all energy consumed within the PG&E service area is subject to distribution charges. SVCE customers pay the same Transmission Access Charges (TAC) and distribution system charges as a PG&E bundled customer and these charges are non-by passable.

What is the net impact of a natural gas ban on GHG emissions, given that some of California's electricity is generated by natural gas?

SVCE is committed to continuing to deliver carbon-free electricity to Mountain View. Any increased load from Mountain View's natural gas ban or similar initiatives in other SVCE member cities will be matched by SVCE's electricity procurement, which will be from carbon-free sources. SVCE serves the vast majority of residents and businesses in Mountain View, which means that for these customers, all of their electricity is from carbon-free sources.

For customers that receive their power from PG&E or another energy service provider besides SVCE, there are still net benefits from electrifying buildings, as GHG emissions from electricity generation in California are consistently decreasing. Converting efficiencies between gas and electric, shifting 100% gas utilizing appliances (stove, water heater, furnace) to an electric appliance with a power supply consisting of 35% natural gas is essentially GHG-neutral and growing more favorable as fossil fuel use continues to decrease in CA. Further, all increases in electric demand need to be met by SVCE procurement to ensure the marginal increases in our territory are handled using clean power sources.

California law requires energy service providers to increase the percentage of electricity generated by renewable sources, ultimately requiring 60% of electricity to be from renewable sources by 2030, and all electricity consumed in California to be carbon-free by 2045. As use of renewables have increased in CA, fossil fuel usage has decreased. Natural gas is down from 45% of CA power mix ten years ago to 35% today. Coal is down from 18% to just 3% today. Renewables have increased from 11% to 31% over that same period. This means average emissions from electricity use in homes is constantly decreasing, while emissions from natural gas appliances in homes remain the same.

The cost of new generation coming from carbon-free sources is competitive to and often less costly than new natural gas power plants. The market is changing even in the peaker power plant market with large scale energy storage (batteries, pumped hydro, other) taking the place of natural gas (or other fossil fueled) peaker plants. Here are a few local examples:
www.greentechmedia.com/articles/read/oakland-to-swap-jet-fueled-peaker-plant-for-urban-battery
www.svcleanenergy.org/news/four-bay-area-community-energy-agencies-kick-off-new-program-to-provide-local-resiliency/

Considering the recent public safety power shutoffs, will a natural gas ban make buildings less resilient?

PG&E is also required to shut down gas service during fires and/or earthquakes. Gas service was shutoff 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.

What about fuel cells, which use natural gas to produce electricity without combustion, reducing GHG emissions by 60% compared to combusting natural gas?

If all electricity were produced in this fashion, emissions within PG&E territory would actually increase compared to their current power mix. Even PG&E purchases most of their electricity (about 85%) from sources currently cleaner than this method. Compared to what SVCE purchases, the increased GHG emissions from using natural gas this way would be dramatically worse, as all SVCE sources are cleaner. Any use of this technology in PG&E territory would rapidly move emissions in the wrong direction.

For more information regarding these questions, please visit their website:

https://peninsulareachcodes.org/wp-content/uploads/2019/06/A-Better-Building-Code_06-13-2019.pdf

Table 101.10 Mandatory New Construction Green Building Requirements

Project Type	Electric Requirements ¹	Natural Gas Allowed ²	Energy Requirements	EV Parking Requirements ^{3,4,6,5}	Bird-Safe Glass For Exterior of Structure ⁶	Green Building Standard and Requirement
SFR/Duplex	Heat/Cooling, Water Heater, Clothes Dryer, Fireplaces and Fire Pits and Cooking Appliances	N/A	Title 24, Part 6 PV Installation per CEC, prewired to expand system to accommodate an all-electric building to 100% of annual kWh consumption offset	1-EV2 Ready & 1-EV1 Installed	Not Required	Meet Mandatory CALGreen & MVGBC Requirements
Multi-Family 3-Units +	Heat/Cooling, Water Heater, Clothes Dryer, Fireplaces and Fire Pits and Cooking Appliances	N/A	Title 24, Part 6 PV Installed on 50% of Roof Area	15% EV2 Installed - Level 3/DC Fast Charger for every 100 spaces	Not Required	Meet Mandatory CALGreen, MVGBC Requirements, & Meet the Intent of LEED® Gold
Mixed Use	Heat/Cooling, Water Heater, Clothes Dryer, Fireplaces and Fire Pits and Cooking Appliances	N/A	Title 24, Part 6 PV Installed on 50% of Roof Area	Apartments: 15% EV2 Installed Commercial: Per Table A5.106.5.3.2 Entire Site: Level 3/DC Fast Charger for every 100 spaces	Required in Buildings ≥ 10,000 sq. ft.	Meet Mandatory CALGreen, MVGBC Requirements, & Meet the Intent of LEED® Gold
Hotel	Heat/Cooling, Water Heater, Clothes Dryer, Fireplaces and Fire Pits and Cooking Appliances	N/A	Title 24, Part 6 PV Installed on 50% of Roof Area	Per Table A5.106.5.3.2	Required in Buildings ≥ 10,000 sq. ft.	Meet Mandatory CALGreen, MVGBC Requirements & Meet the Intent of LEED® Gold
Commercial	Heat/Cooling, Water Heater, Clothes Dryer, Fireplaces and Fire Pits and Cooking Appliances	F, H, L Occupancies	Title 24, Part 6 PV Installed on 50% of Roof Area	Per Table A5.106.5.3.2	Required in Buildings ≥ 10,000 sq. ft.	Meet Mandatory CALGreen, MVGBC Requirements, & Meet the Intent of LEED® Gold

¹Fireplaces and fire pits fueled by oil or other nongas- or nonwood-burning appliances, not in direct violation of this code, may be submitted for chief building official consideration per Sections 102.3, 102.3.1 and 102.3.2.

²Prewiring is required for future use of electric appliances where natural gas is installed.

³Calculation for spaces shall be rounded up to the nearest whole number.

⁴EV Ready shall be provided for all non EV Installed spaces on-site.

⁵Level 3 shall be SAE J1772 (IEC Type 1) or alternative approved by the chief building official.

⁶The most restrictive: (a) Table 101.10 or (b) the appropriate Precise Plan will govern.