



Zero Emission Building Reach Codes: A Key Climate Action Strategy for Cities and Counties

Residential and commercial buildings are one of the largest sources of carbon emissions for cities and counties in California, and roughly half of building emissions come from on-site combustion appliances like gas or propane furnaces and water heaters. Reducing these emissions is critical to achieve municipal and state climate goals.

The California Energy Commission (CEC) adopted a new building energy code (Title 24, Part 6) that went into effect in January 2020. While the new code has made progress on removing barriers to low-carbon electric space and water heating, it does not encourage the lower-carbon electric options over the standard gas-heated designs.



This means that the new building energy code does not reduce carbon emissions as much as is necessary to achieve local climate action plans and state climate goals. However, cities and counties can drive significant carbon reductions in their building sector by adopting a local energy ordinance (a.k.a. a reach code).

Accelerating the transition of new buildings to very-low carbon, “2050-ready” buildings, is essential for the following reasons:

1. **Build it right from the start:** It costs no more to build a very low emissions building from the start, but it can be quite costly to retrofit an existing building later.
2. **“2050-ready”:** To achieve the Paris climate goals, building emissions will need to be reduced by 90 percent or more.¹ To avoid the costs and challenges of retrofitting new homes and buildings by 2050, it is important to build them today with 2050 in mind. While new buildings represent a small share of the building stock each year, they will add up to a significant share of the building stock by 2050.
3. **Avoid stranded gas infrastructure:** Gas distribution pipeline extensions to new homes are expected to become stranded assets well before the end of their useful life as more buildings electrify over the coming years. Stopping investments in new gas infrastructure is a no-regrets and fiscally prudent strategy to avoid saddling ratepayers and taxpayers with the costs of maintaining and ultimately decommissioning stranded gas infrastructure.
4. **Local and global leadership opportunity:** Local government leadership is critical to pave the way for a statewide low-carbon code in the 2022 update. This leadership offers a key opportunity for global impact as many developing countries are rapidly urbanizing and looking to California for leadership building codes.

¹ <https://www.nrdc.org/experts/pierre-delforge/cutting-emissions-buildings-critical-climate-fight>

The opportunity

Local leadership is needed across California to jump start building electrification. The immediate opportunity is for cities and counties to adopt zero emission building ordinances.

Reach codes can cover new residential homes (single-family and low-rise multi-family), as well as mid- and high-rise multi-family, commercial buildings, and even existing building retrofits. Sector development priorities will depend on interest by local jurisdictions.

Why new buildings?

Converting existing buildings to high-efficiency electric heat and hot water can be challenging because of retrofit costs and limited building owner awareness and interest. However, using very-low carbon technologies in new homes and buildings typically costs less than standard gas designs.

Why high-efficiency electric heating?

With a rapidly decarbonizing electricity grid, space and water heating buildings is quickly becoming a large source of building emissions. Currently available, high-efficiency electric heat pump technology can reduce carbon emissions by 50 percent or more relative to the most efficient gas-fired alternatives. And as the grid continues to get cleaner over time, emissions from electric heating will continue to drop. High-efficiency electric heating can also lower utility bills, provide better comfort and a healthier and safer living space, reduce air pollution and improve public health and climate resiliency.

How about residents who still want to use gas?

A zero emission building reach code does not necessarily mandate electrification, it can be designed to maintain fuel choice. Customers who want gas heating can invest in efficiency measures that go beyond code to partially offset the environmental impacts of gas heating. However, efficient electric heating provides a lower emission and lower compliance cost option for mass adoption. Reach codes also could still allow gas cooking and fireplaces in otherwise electric buildings, as those represent a smaller share of building emissions.

The way forward

In addition to the more than 20 cities that have already acted, several cities and counties are actively working to adopt zero emission building reach codes. The Building Decarbonization Coalition's Zero Emission Buildings Task Force and the Statewide Codes and Standards team are providing local government support on model reach codes development, adoption and implementation statewide.

The Zero Emission Buildings Task Force is hosting regular coordination calls and stands ready to support interested local governments.

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