



EXISTING BUILDING ELECTRIFICATION REACH CODE RECOMMENDATIONS

Rational for Existing Building Reach Codes

Much of the built environment in EBCE territory, and Alameda County, is comprised of existing buildings. There are over 570,000 households in Alameda County with just a few thousand housing units being built each year. New construction is a small portion of development across the territory. Therefore, it is critical that energy efficiency and electrification efforts focus on existing buildings, as well as new construction, as we move to shift away from gas and towards cleaner and safer electricity.

Most existing buildings are very old. In EBCE territory, 96% of apartment buildings were built before the year 2000 so many appliances in, and electrical services to, these buildings are aging and will need to be replaced.

Overview of Cost Effectiveness Results

This memo provides an overview of the electrification reach code opportunities for building retrofits found to be cost effective compared to the 2019 Title 24 Part 6 Energy Efficiency Standards for the following building types in climate zones 3 and 12:

- Single Family (SF)
- Low-rise Multifamily (LRMF, 3 stories or less)
- Mid-rise Multifamily (MRMF, 4-7 stories)
- Office
- Retail

END USE	TRIGGER	REQUIREMENT
Space heating	Replacing existing or installing new A/C	Minimally efficient heat pump***
Water Heating	Replacing existing water heater	Minimally efficient heat pump and PV

*** Office requires PV



RECOMMENDATIONS

EBCE recommend an existing building electrification reach code that requires installation of a heat pump space conditioning system, when cost effective. We also recommend that Cities set a minimum service panel size when a service panel is being replaced. At this time a heat pump water heating reach code would require a solar PV installation to be cost effective, which is understood to be too costly and complex. As heat pump water heaters become more common and cost effective EBCE will re-evaluate this as an option.

Space Heating (HVAC) Recommendation

For buildings planning to replace an existing air conditioner or when installing a new air conditioner a heat pump shall be required to be installed. Heat pump installation is not required if a furnace is being replaced when there is an existing air conditioner. Offices would require a minimum 9.0 kW system, or the City may choose to exempt offices.

Panel Upgrade Recommendation

For a residential building panel upgrades, a minimum service shall be 200 amps with additional dedicated breakers to accommodate existing and future common electric loads. A 240 breaker shall be allocated for each of the following loads: heat pump clothes dryer, electric vehicle (EV), heat pump space heater, heat pump water heater, electric induction range and solar PV system.

Water Heating - For Information, Not Recommended

Heat pump water heaters alone were not shown to be cost effective alone and would require PV to be installed in order to achieve cost effectiveness. If desired, cities may require heat pump water heaters and PV systems as follows.

For buildings planning to replace an existing water heater a heat pump must be installed and require installation of minimum PV systems, as per below. For offices, a point of use (POU) may be installed.

- SF - 1.0 kW
- LRMF - 5.0 kW (0.6 kW/DU)
- MRMF - 97 kW (1.1 kW/DU)
- Office - 0.8 kW
- Retail - 5.0 kW