

# Building Electrification Reach Code Options

BOS Sustainability Committee  
May 24, 2021

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# Report Overview



State Building  
Code/Reach Code  
Requirements



Types of Reach  
Codes/Other  
Jurisdictions



Cost-Effectiveness  
Studies/Requirements



Energy Code Cycle and  
Reach Code Timeline



Options for Committee  
Consideration

# Legal Requirements for Reach Codes

Energy efficiency reach codes are similar to other local ordinances, but there are special requirements for reach codes. Like other local laws, reach codes cannot conflict with federal requirements (federal preemption).

1. A reach code must be at least as stringent as the statewide code.
2. A reach code must be cost effective.
3. Requires a minimum of two public hearings prior to adoption.
4. Must be approved by the California Energy Commission.
5. A reach code needs to be re-approved with each Energy Code update.



# Types of Reach Codes

Reach Code Type	Examples
<b>Prescriptive codes</b> Require one or more specific energy efficiency measures	<ul style="list-style-type: none"><li>✓ Requiring solar on one or more types of new buildings</li><li>✓ Requiring reduced outdoor lighting</li><li>✓ Requiring cool roofs</li></ul>
<b>Performance codes</b> Require a building to perform more efficiently based on accepted computer modelling and allow trade-offs between energy efficiency measures.	<ul style="list-style-type: none"><li>✓ Exceeding minimum building energy performance by 15%</li><li>✓ Exceeding minimum building energy performance if solar panels are not installed (by different amounts for different types of development)</li></ul>
<b>Hybrid</b> A combination of prescriptive and performance reach codes	<ul style="list-style-type: none"><li>✓ Waiving solar and performance requirements if a home is all-electric or is Passive House certified</li></ul>

# Types of Reach Codes to Consider for New Construction Projects

- All electric by Building Type:
  - **Low Rise Residential (SF or MF, 3 Stories or Less)\***
  - *County-Owned Properties*
  - High Rise Residential (4 or more stories)
  - Non-Residential
    - **Hotel\*, Retail\*, Office\***, Restaurants, Life Sciences, or Industrial
- All electric Preferred
  - May choose All Electric, or Mixed-Fuel (Natural Gas)
    - **Mixed-Fuel** – Most jurisdictions require an increased building efficiency using the performance code approach (i.e. 15% more efficient than existing code requirements).
    - **All Electric** – Buildings only using electricity just need to meet minimum energy code standards or may require additional measures, such as battery storage and solar.

\*Cost-effectiveness Study Available Now for these building types for Contra Costa County.

# Jurisdictions that Adopted Reach Codes (Attachment 3)

Jurisdiction	Approach			Systems			Building Types							Add-Ons		
	Natural Gas Infrastructure Moratorium	All-Electric Reach	Electric-Preferred	Whole Building	Water Heating	Space Heating	Low Rise Residential	City-Owned Properties	High Rise Residential	Hotel	Retail	Office	Restaurant	Life Sciences	Additional Solar	Electric Vehicles
Alameda	X			X				X								
Albany			X				X			X	X			X	X	
Berkeley*	X		X	X			X	X	X	X	X	X	X	X	X	X
Brisbane		X			X	X	X	X	X	X	X	X	X			X
Burlingame		X		X	X	X	X	X	X	X	X		X			X
Campbell		X			X	X	X									X
Carlsbad	X	X			X		X							X	X	
Cupertino		X		X			X	X	X	X	X	X				X
Davis			X	X			X									
East Palo Alto		X		X			X	X	X	X	X		X			X
Hayward		X	X	X			X	X	X	X	X	X	X	X	X	X
Healdsburg		X			X	X	X	X	X	X	X	X	X			
Los Altos		X		X	X	X	X	X	X	X	X					X
Los Altos Hills		X			X	X	X	X	X	X	X	X				
Los Gatos		X		X			X									X
Marin County			X	X			X	X	X	X	X	X	X			X
Menlo Park		X			X	X	X	X	X	X	X	X		X	X	
Millbrae		X			X	X	X	X	X	X	X	X	X			X
Mill Valley			X	X			X		X							X
Milpitas			X	X			X	X	X	X	X	X	X			X

Source: Building Decarbonization Coalition

# Reach Code - City of Richmond Example

## Electrification Ordinance Mandates the Following:

1. New Residential Buildings require an electric fuel source for **space heating, water heating and clothes dryers**.
  - Natural gas allowed for cooktops and fireplaces.
  - Prewiring for future electric appliance is required where natural gas appliances are used\*
2. Nonresidential building require electricity as the fuel source for all appliances.
  - Exceptions for life science buildings space heating, public agency owned and operated emergency operations centers, and cookware for nonresidential kitchens.
    - If exception granted, natural gas appliance locations must be electrically prewired for future electric appliance installation\*
  - New Construction nonresidential buildings must install a minimum amount of on-site solar production based on square footage.

\*Expected in New 2022 Building Code

Proposed  
Building Code  
Changes for  
2022 being  
considered  
Effective January  
1, 2023

- Add new prescriptive solar photovoltaic and battery requirements for the following newly constructed nonresidential building types: **high-rise multifamily, hotel-motel, tenant-space, office, medical office or clinic, restaurant, grocery store, retail store, school, and theater/auditorium/convention center buildings**;
- Add new requirements that **mixed fuel buildings (Natural Gas) be electric ready**, meaning that electrical connections and other features needed to allow use of non-combustion equipment options are installed at the time of initial construction, such as **Electric Cooktop Ready, Electric Clothes Dryer Ready, and electric panel upgrades**
- **Improve nonresidential and multifamily efficiency standards** for building envelopes (e.g., exterior walls, windows, roofs, and floors, including among other things).



# Cost-Effectiveness Studies/Requirements

## Studies Completed for Contra Costa County:

- **2019 Cost-effectiveness Study: Low-Rise Residential New Construction (Attachment 1)**
  - Single-Family Homes
  - Multi-Family Buildings (Up to 3 Stories)
- **2019 Nonresidential New Construction Reach Code Cost Effectiveness Study (Attachment 2)**
  - Office
  - Retail
  - Hotel Buildings

County would need to conduct its own study if wants to include other building types (i.e. restaurants, or industrial buildings) in Reach Code:

- State IOU Codes and Standards Team to conduct Study for County at no direct cost to County; or
- County may conduct its own study – County would need to pay for it out-of-pocket.

Source: <https://explorer.localenergycodes.com/contra-costa-county>



# Reach Code Timeline Overview

Reach Code Step	Anticipated Month
Decide on What to Pursue	May 2021
Cost Effectiveness Study	Use existing Cost-effectiveness studies or 2-3 month estimate for County to conduct specific study
Develop Draft Ordinance	2-3 Months
Public Hearing 1	September 2021/December 2021
Public Hearing 2	November 2021/January 2022
Submittal to the Energy Commission	December 2021/February 2022
Submittal to the Building Standards Commission	November 2021/March 2022
Reach Code Effective	Feb/March 2022/June 2022

# Options for Committee Consideration

Whether the reach code should be developed for the 2022 Building Code (Effective January 2023) or for current code.

Determine the type of reach code: Prescriptive, Performance, or Hybrid

County develop its own cost-effectiveness study to include other building types not already studied?

- Have Statewide IOU Team develop study at no direct cost to County, or
- County initiate its own cost-effectiveness study at County's expense

# Questions?

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