

EVI Model Code

- What EV code terminology do I need to know?
- For each building type, what are the CALGreen new construction requirements?
- For each building type, what is the new construction model code?
- What is the alterations & additions model code?

V2.1

EVI Code Terminology

Speed

Level 1

3-4 miles per
charging hour



Level 2

10-20 miles per
charging hour



Level 3

150+ miles per charging hour



Readiness

EV Capable



EV Ready

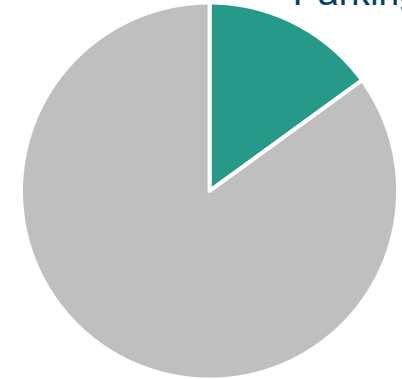


EV Charging Station Installed



Number

Percent of
Parking Spaces



kVA Calculation

kVA = Voltage * Amperage / 1000

Total kVA =

L2 EV Capable +
LP L2 EV Ready +
L2 EV Ready +
L2 EVCS

Source: [Cleanenergy.org](https://www.cleaneconomy.org/) EV Readiness

What Changed for EVI in the 2022 Intervening CALGreen Code?



Code Context

- The [2022 Intervening CALGreen Code](#) was adopted in January. It will be effective on 7/1/2024.
- There will also be a 2025 CALGreen Triennial Cycle Update in 2025 (effective Jan. 1, 2026), which has proposed language (subject to change).



Increased Percentage Requirements

- Multifamily
- Hotel & Motel

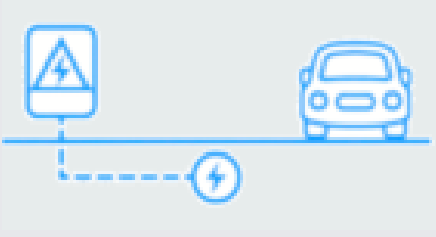


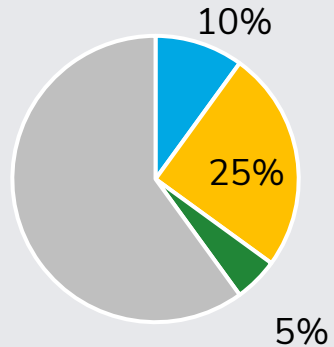
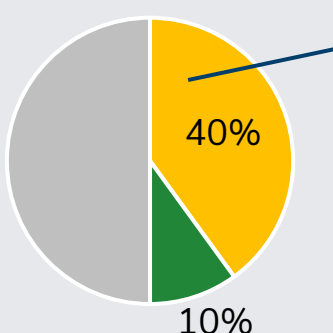
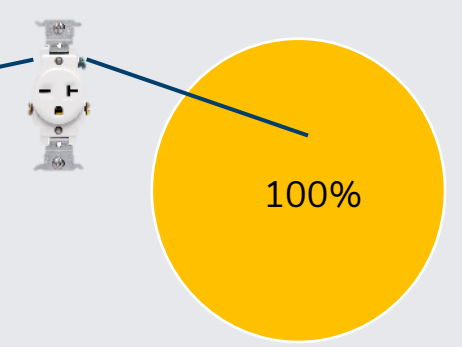
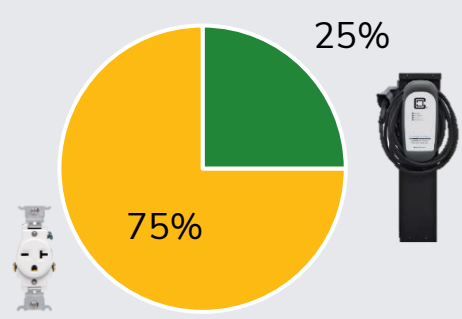
Technical Requirement Changes

- “Direct Billing” in Multifamily projects requires EV charging circuits to be tied directly to each dwelling unit’s meter
- “Power Allocation Method” in non-residential projects adds flexibility for different levels of charging stations installed
- New requirements for medium/heavy duty charging capacity in Manufacturing and Office buildings
- New requirements for specific Nonresidential Alterations and Additions (LP L2 Receptacle)
- Receptacle type updates
- Other minor clarifications

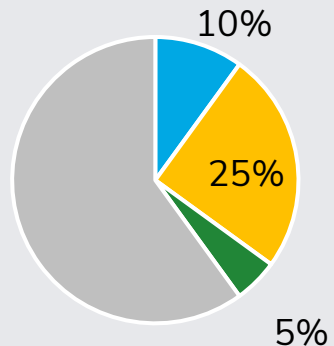
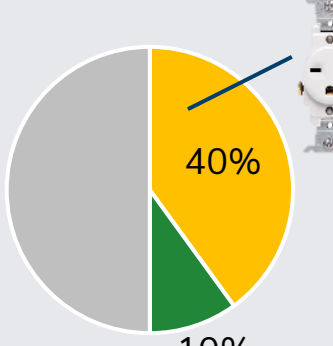
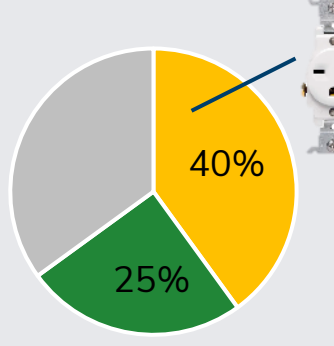
Single Family Homes and Two-Family Townhomes



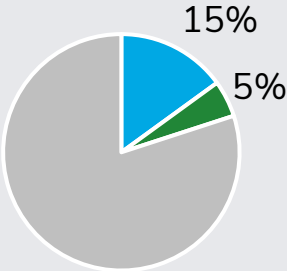
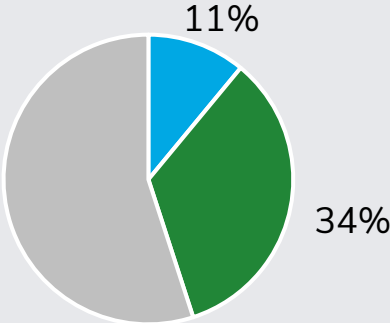
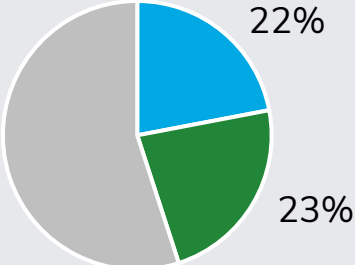
2022 CALGreen	2022 CALGreen Intervening (July 1st 2024)	Model Code
Mandatory	Mandatory	
(1) Level 2 EV Capable for one parking space per dwelling unit		2 EV spaces total: ELECTRIC VEHICLE OUTLET 1 Level 2 EV Ready circuit 1 Level 1 EV Ready circuit
		   
Takeaway: The model code modifies the L2 EV Capable requirement to be a L2 EV Ready circuit and adds 1 L1 EV Ready circuit (if there is a second parking space).		

2022 CALGreen	2022 CALGreen Intervening (July 1 st 2024)	Model Code	
Mandatory	Mandatory	Proposed 2025 CALGreen Mandatory	
 10% Level 2 EV Capable 25% Level 2 EV Ready (low-power) 5% Level 2 EVCS % of Parking Spaces	 40% Level 2 EV Ready (low-power) + Direct Wiring 10% Level 2 EVCS	 100% Level 2 (low-power) EV Ready + Direct Metering % of Spaces for Residents	 25% Level 2 EVCS 75% Level 2 (low-power) % of Spaces for Common Use Parking

Takeaway: The model code increases the amount of LP L2 EV Ready (for resident spaces). The model code aligns with proposed 2025 CALGreen code.

2022 CALGreen	2022 CALGreen Intervening (July 1 st 2024)	Model Code (<i>Proposed 2025 CALGreen</i>)
Mandatory	Mandatory	Proposed 2025 CALGreen Mandatory
 10% 25% 5% 10% Level 2 EV Capable 25% Level 2 EV Ready (low-power) 5% Level 2 EVCS % of Parking Spaces	 40% 10% 40% Level 2 EV Ready (low-power) 10% Level 2 EVCS % of Parking Spaces	 40% 25% 40% Level 2 EV Ready (low-power) 25% Level 2 EVCS % of Parking Spaces

Takeaway: The model code increases the amount of EVCS, in alignment with the proposed 2025 CALGreen Mandatory code.

2022 CALGreen	2022 CALGreen Intervening (July 1st 2024)	Model Code	
Mandatory	Mandatory	Proposed 2025 CALGreen Tier 2	
 15% Level 2 EV Capable 5% Level 2 EVCS		 Offices & Retail (45%): 11% Level 2 EV Capable 34% Level 2 EVCS	 All Other (45%): 22% Level 2 EV Capable 23% Level 2 EVCS
		% of Parking Spaces	

Takeaway: The model code splits nonres into two categories with distinct requirements based on the proposed 2025 CALGreen code, Tier 2. Both of these categories reflect increases compared to the 2022 CALGreen Intervening code.

EVI Requirements for Alterations & Additions



INTERVENING CODE

1 to 2 FAMILY

None

MULTIFAMILY

When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added/alterd and the work requires a permit:

1. 10% of the total number of parking spaces added or altered shall be L2 EV Capable.
2. Identify reserved panel space for overcurrent device as "EV Capable"

NON-RESIDENTIAL

Meet the new construction requirements under the following situations:

1. Increasing power supply as part of a parking facility addition or alteration.
2. Adding new PV added over existing parking.
3. Triggered pursuant to Code Section 301.3 & Increasing power supply to an electric service panel.



EVI Requirements for Alterations & Additions



REACH CODE

1 to 2 FAMILY

Meet new construction requirements for parking additions or electrical panel upgrades.

MULTIFAMILY

- Increases percentages/EV requirements for new construction.
- Utilizes the 3 triggers from non-residential alterations & additions for multifamily.

NON-RESIDENTIAL

- Increases percentages/EV requirements for new construction.
- Adds a breaking ground alteration & addition trigger.
- Amends exception 1(c) to include maximum utility service cost of \$4,500/space.



Exceptions

- 1. Infeasibility:** No local utility power supply.
- 2. Timeline:** Where there is no local utility power supply or local utility is unable to supply adequate power.
- 3. Utility Infrastructure Cost:** Where evidence suitable to the local enforcing agency shows that requirements may increase construction cost associated with utility-owned infrastructure by an average of \$4,500 per parking space. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service.



Exceptions (Added for Additions & Alterations)

1. **Remote parking facilities** that do not have access to the building service panel.
2. **Parking area lighting upgrades** where no trenching is part of the scope of work.
3. **Emergency repairs**, including but not limited to water line break in parking facilities, natural disaster repairs, etc.
4. **Where demonstrated as impracticable** excluding local utility service or utility infrastructure issues.

Added with Reach Code:

5. Alterations that solely add Level 1 EV charging receptacles or Level 1 EV chargers, and no other addition or alteration is performed within the parking facility.



Reach Codes 101

- What are they?
- Why should we implement them?
- What's the process?
- Who else has done it in our region?

What are Reach Codes?



Local ordinances adopted by the local government that exceed and enhance the state's green building standards.

Important Facts:

- Can be adopted at any time
- Improves economic and energy performance of buildings
- Reduces Greenhouse Gas (GHG) emissions, pollutants, and improves indoor air quality
- Helps to reduce energy use and improve grid resiliency
- Allows local governments to be leaders in climate solutions
- Helps to fulfill local Climate Action Plan, Energy Plan, or other policy goals

Building Electrification (New Construction & Existing Buildings)

- **Goal:** To reduce the use of methane gas, ensure buildings are operating efficiently, and to prepare the market for statewide electrification goals

There are two main pathways when amending the energy code:

- **Prescriptive Codes:** Require one or more specific energy efficiency or renewable energy measures
- **Performance Codes:** Require buildings to meet an energy budget/performance score through a custom design, allowing applicants flexibility

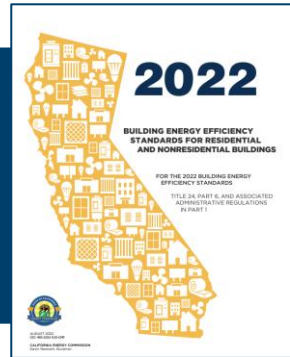
Electric Vehicle Infrastructure (EVI)

- **Goal:** To improve market readiness and increase equitable access to clean transportation EV charging stations



Building Electrification (New Construction & Existing Buildings)

Recent Context: Due to the [latest decision for the CRA v Berkeley Ruling](#), some jurisdictions are re-assessing their approach to building electrification reach codes to mitigate the risk of litigation.



Electric Vehicle Infrastructure (EVI)

Recent Context: The CALGreen EV code goes through triennial updates (2022, 2025, etc.) and intervening updates at the mid point between triennial updates. Currently, the CALGreen EV code has intervening updates to the 2022 code that will be in effect on July 1, 2024. Jurisdictions may want to update their reach code according to the new baselines.



What are the Main Benefits?



Reduce Greenhouse Gas Emission in line with state/agency goals and Climate Action Plans.



Provide Financial Benefits related to lower-cost electric construction.



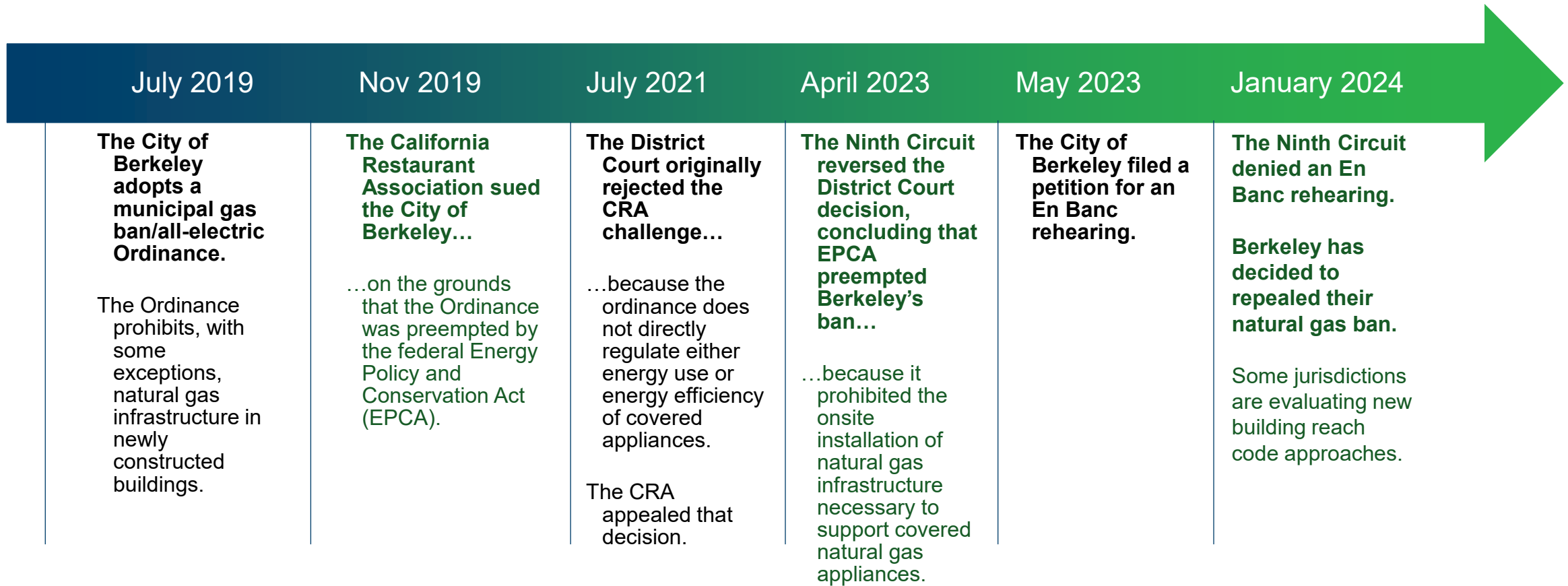
Support Public Health by improving indoor air quality and decreasing air pollution emissions.



Mitigate Legal Risk by providing compliance pathways for all-electric and mixed-fuel buildings.

Reach Code Litigation

California Restaurant Association v. City of Berkeley



Next Steps: For jurisdictions looking for an alternative reach code that could mitigate legal risk, there are several approaches available.

The Bay Area and California's Upcoming Electrification Changes



2027

2029

2030

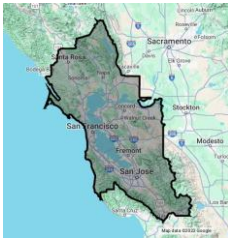
2045

Proposed

Adopted

BAAQMD Zero-NOx water heater requirements

Tank-type gas water heaters no longer sold in Bay Area



BAAQMD Zero-NOx space heater requirements

Gas furnaces no longer sold in Bay Area



CARB Zero-Emission Appliance Standards

Most gas space and water heaters cannot be sold statewide



Carbon Neutrality Executive Order

Statewide net-zero emissions



Why We Need Reach Codes



Continuous Signal to the Market

- Avoid a progress gap for new construction from 2024-2026
- Send clear, continuous message to market
- Avoid stranded asset cost of continued gas investment

Local Control

- Enables innovative approaches for cost-effective decarbonization policy
- Ability to design customized exemptions
- Jurisdictions with more progressive climate targets can pass more progressive reach codes

State and BAAQMD Codes are Limited

- Lacks specific existing building measures
- Cannot regulate remodels or other types of triggers for cost-effective building electrification
- Ignores many methane appliances

Local Reach Codes Influence the State

- Statewide electrification codes incorporate elements from local reach codes
- Statewide EV charging codes have been inspired by San Mateo's EV Reach Codes
- Smoother implementation of BAAQMD ruling if similar requirements are adopted before 2027

Allows More Action, Sooner

- Greenhouse gas emissions are cumulative, so earlier actions have exponential savings
- Existing building policy is needed immediately to meet 2030, 2035, and 2040 climate goals