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?
**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**

\[ kVA = \text{Voltage} \times \text{Amperage} / 1000 \]

Total kVA =
- L2 EV Capable +
- LP L2 EV Ready +
- L2 EV Ready +
- L2 EVCS

*Source: Cleanenergy.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

<table>
<thead>
<tr>
<th>2022 CALGreen</th>
<th>2022 CALGreen Intervention (July 1st 2024)</th>
<th>Model Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandatory</td>
<td>Mandatory</td>
<td></td>
</tr>
</tbody>
</table>

(1) Level 2 EV Capable for one parking space per dwelling unit

2 EV spaces total:
- 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).
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<td>Proposed 2025 CALGreen Mandatory</td>
</tr>
</tbody>
</table>

- **% of Parking Spaces**
  - 10% Level 2 EV Capable
  - 25% Level 2 EV Ready (low-power)
  - 5% Level 2 EVCS
  - 40% Level 2 EV Ready (low-power) + Direct Wiring
  - 10% Level 2 EVCS
  - 100% Level 2 (low-power) EV Ready + Direct Metering
  - 25% Level 2 EVCS
  - 75% Level 2 (low-power)

- **% of Spaces for Residents**
  - 10% Level 2 EV Capable
  - 25% Level 2 EV CS

- **% of Spaces for Common Use Parking**
  - 5% Level 2 EV CS

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

### 2022 CALGreen

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<th>10% Level 2 EV Capable</th>
<th>25% Level 2 EV Ready (low-power)</th>
<th>5% Level 2 EVCS</th>
</tr>
</thead>
</table>

### 2022 CALGreen Intervening (July 1st 2024)

<table>
<thead>
<tr>
<th>% of Parking Spaces</th>
<th>40% Level 2 EV Ready (low-power)</th>
<th>10% Level 2 EVCS</th>
</tr>
</thead>
</table>

### Model Code (Proposed 2025 CALGreen)

<table>
<thead>
<tr>
<th>% of Parking Spaces</th>
<th>40% Level 2 EV Ready (low-power)</th>
<th>25% Level 2 EVCS</th>
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</table>

### Takeaway:
The model code increases the amount of EVCS, in alignment with the proposed 2025 CALGreen Mandatory code.
**Non-residential**

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<td>Mandatory</td>
<td>Proposed 2025 CALGreen Tier 2</td>
</tr>
</tbody>
</table>

- **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**

**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.
Add New Requirement for Multifamily and Hotel & Motel
- Mimics Nonresidential Alterations/Additions that are in Section 5.106.5.4.
- Requires each added or altered space to have at least a low power Level 2 EV receptacle.
- Specifies treatment for buildings with and without existing EV capable spaces.

Existing buildings or parking facilities being modified by one of the following shall comply with Section 4.106.4.3.
- Increase/alteration to parking facility power supply or panel
- Addition of PV solar system over parking
- Increase in building's conditioned area, volume, or size
- Breaking ground on existing parking surfaces (does not include resurfacing)
Reach Codes 101

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

**July 2019**
- The City of Berkeley adopts a municipal gas ban/all-electric Ordinance.
- The Ordinance prohibits, with some exceptions, natural gas infrastructure in newly constructed buildings.

**Nov 2019**
- Four months after the Ordinance was passed, the California Restaurant Association sued the City of Berkeley on the grounds that the Ordinance was preempted by the federal Energy Policy and Conservation Act (EPCA).

**July 2021**
- The District Court originally rejected the CRA challenge because the ordinance does not directly regulate either energy use or energy efficiency of covered appliances.
- The CRA appealed that decision.

**April 2023**
- The Ninth Circuit reversed the District Court decision.
- The appeals court concluded that EPCA preempted Berkeley's ban because it prohibited the onsite installation of natural gas infrastructure necessary to support covered natural gas appliances.

**May 2023**
- The City of Berkeley filed a petition for an En Banc rehearing.

**January 2024**
- The Ninth Circuit denied an En Banc rehearing.
- The last remaining option for the City of Berkeley is to raise the issue to the Supreme Court.
- Some jurisdictions are evaluating new building reach code approaches.

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

Source: [Climate Case Charts](http://www.climatecasecharts.org), [Columbia Law blog](https://law.columbia.edu/) and [Earthjustice blog](https://www.earthjustice.org/), "Gloom Not Doom: The Latest in the Berkeley Decarbonization Case."
The Bay Area and California’s Upcoming Electrification Changes

- **2026**: CA State Energy Code Update
  - Replacements of air conditioning systems in existing buildings will be heat pumps

- **2027**: BAAQMD Low NOx water heater requirements
  - Tank-type gas water heaters no longer sold in Bay Area

- **2029**: BAAQMD Low NOx space heater requirements
  - Gas furnaces no longer sold in Bay Area

- **2030**: CARB Low NOx Standards
  - Gas water heaters and space heaters no longer sold, statewide

- **2045**: California Achieves Carbon Neutrality
  - Statewide gas piping projected decommissioning date
# 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