Existing Buildings

• What are the options?
• What are the benefits?
• What are the challenges?
Existing Building Electrification Policy Types

Building Performance Standards are policies that require property owners to regularly report energy- or emissions- use intensity (EUI). In addition, the policies require incremental reductions in EUI over a set time horizon.

Time of Replacement policies require that property owners at the time of equipment replacement (upgrades or burnouts) abide by zero-NOx requirements and/or electric readiness requirements.

Time of Renovation policies require applicants that are already pulling a permit for a renovation project to abide by certain energy efficiency measures and/or electric readiness requirements.

Time of Property Transfer policies leverage real estate transactions to disclose relevant information on, incentivize, or require, certain home improvements. *We do not recommend policies which inhibit or delay the sale of a property.*
### Retrofit Category Details

<table>
<thead>
<tr>
<th>Retrofit Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heating, Ventilation and Air Conditioning</strong></td>
<td>For alterations and additions that include an HVAC system, the jurisdiction could require an outlet for a future electric heat pump.</td>
</tr>
<tr>
<td><strong>Water heating</strong></td>
<td>For alterations and additions that include a water heating system, the jurisdiction could require an outlet for a future water heater heat pump.</td>
</tr>
<tr>
<td><strong>Pool and Spas</strong></td>
<td>For alterations and additions that include pool or spa equipment, the jurisdiction could require an outlet for a future electric pool heater.</td>
</tr>
</tbody>
</table>
| **Installing 240V outlet when renovating the following areas:** | Laundry room (an outlet for a future electric clothes dryer)  
Kitchen (an outlet for future electric oven/stove) |
| **Panel** | When planning an electrical panel replacement and electrical panel upgrade, the jurisdiction could require the electrical panel to include panel capacity and breaker space for future electrification of building systems. |

An exception can be offered if, as a result of these requirements, an increase in any of the following (that is not part of the appliance upgrade scope) is needed:
- Capacity upgrade for an electrical panel
- Feeder upgrade
- Transformer upgrade
- Electrical service upgrade

Photos: [Energy Code Ace](#)
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
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
Reach Code Context in 2024

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**

<table>
<thead>
<tr>
<th>July 2019</th>
<th>Nov 2019</th>
<th>July 2021</th>
<th>April 2023</th>
<th>May 2023</th>
<th>January 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>The City of Berkeley adopts a municipal gas ban/all-electric Ordinance.</td>
<td>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).</td>
<td>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.</td>
<td>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.</td>
<td>The City of Berkeley filed a petition for an En Banc rehearing.</td>
<td>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.</td>
</tr>
</tbody>
</table>

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

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

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

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

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

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

- **2026**
- **2027**
- **2029**
- **2045**
## 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
Reach Code Options

• What choices are there for new construction?
• What choices are there for existing construction?
• What are the pros and cons?
<table>
<thead>
<tr>
<th>Approach</th>
<th>Description</th>
<th>Advantages</th>
<th>Challenges</th>
<th>Who's done it?</th>
</tr>
</thead>
</table>
| Air Quality            | Regulates building or appliance emissions through CALGreen, Part 11.         | • Uses Clean Air Act authority rather than Energy Policy and Conservation Act  
  • Regulates all emitting equipment (cooking, fireplaces, dryers, etc.)  
  • Likely to result in all-electric construction, which includes construction cost savings  
  • Direct benefit to air quality / health  
  • High impact on emissions reduction                                                                 | • Legally untested  
  • Potentially new enforcement approach                                                                                                                | Los Altos Hills  
  New York City                                              |
| Energy Performance     | Requires a higher Source Energy compliance margin than what the state requires through the performance path of the Energy Code, Part 6. | • Mitigates legal risk by allowing methane gas pathways  
  • Can provide an all-electric cost-effective pathway  
  • Enforcement process is already in place, the compliance margin is increased  
  • Limited to regulating space heating/cooling and water heating  
  • Likely lower carbon savings compared to all-electric only pathways                                                                 |                                                                                   | Santa Cruz  
  San Jose  
  San Luis Obispo                                              |
<table>
<thead>
<tr>
<th>Description</th>
<th>Advantages</th>
<th>Challenges</th>
<th>Who’s done it?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Time of Replacement</strong></td>
<td>• Simple policy</td>
<td>• Emergency replacements</td>
<td>San Mateo, Portola Valley, Marin County, Palo Alto</td>
</tr>
<tr>
<td></td>
<td>• Replacements occur more frequently than major renovations</td>
<td>• May result in some bypassing the permit process</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Require that property owners at the time of equipment replacement (upgrades or burnouts) abide by zero-NOx requirements and/or electric readiness requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time of Renovation</strong></td>
<td>• Customizable triggers</td>
<td>• More complex policy</td>
<td>San Mateo, Portola Valley, Piedmont, Marin County</td>
</tr>
<tr>
<td></td>
<td>• Unlikely to impact small or low-cost renovation projects</td>
<td>• Clarity of permit data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Unlikely to bypass the permit process</td>
<td>• Low permit/renovation rates can increase time to make impact</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Require applicants that are already pulling a permit for a renovation project to abide by certain energy efficiency measures and/or electric readiness requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>BPS</strong></td>
<td>• Monitor building stock</td>
<td>• Large administrative burden (cost/time)</td>
<td>Cities: Denver, Reno, Chula Vista, St. Louis, etc.</td>
</tr>
<tr>
<td></td>
<td>• Customizable triggers</td>
<td></td>
<td>States: Oregon, Washington, Maryland, Colorado</td>
</tr>
<tr>
<td></td>
<td>• Regular enforcement cycles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Require property owners to regularly report energy- or emissions- use intensity (EUI). In addition, the policies require incremental reductions in EUI over a set time horizon.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time of Property Transfer</strong></td>
<td>• Leverages major financial transaction</td>
<td>• Limited precedence for jurisdictional authority</td>
<td>Piedmont, Berkeley, Davis</td>
</tr>
<tr>
<td></td>
<td>• Allows responsibility to be shared between buyer and seller</td>
<td>• Jurisdiction regulation of property transfer process</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leverage real estate transactions to disclose relevant information on, incentivize, or require, certain home improvements.</td>
<td>• Low transfer rates can increase time to make impact</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>We do not recommend policies which inhibit or delay the sale of a property.</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>