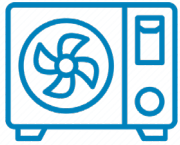


Existing Buildings

- What are the options?
- What are the benefits?
- What are the challenges?



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.



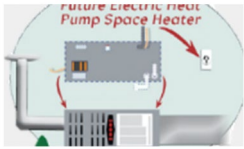




Building Performance Standards are policies that require property owners to regularly report energy- or emissions- use intensity (EUI). In addition, the policies require incremental reductions in EUI over a set time horizon.



Time of 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.

Existing Building Electric-Readiness

	Retrofit Category	Details
	Heating, Ventilation and Air Conditioning	For alterations and additions that include an HVAC system, the jurisdiction could require an outlet for a future electric heat pump.
	Water heating	For alterations and additions that include a water heating system, the jurisdiction could require an outlet for a future water heater heat pump.
	Pool and Spas	For alterations and additions that include pool or spa equipment, the jurisdiction could require an outlet for a future electric pool heater.
	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

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

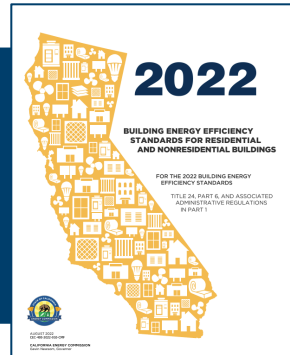
Electric Vehicle Infrastructure (EVI)

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



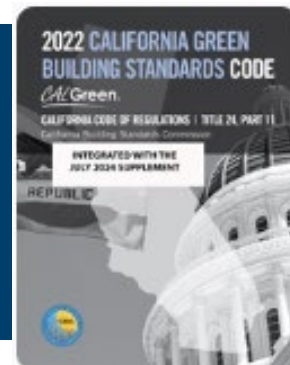
Building Electrification (New Construction & Existing Buildings)

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.



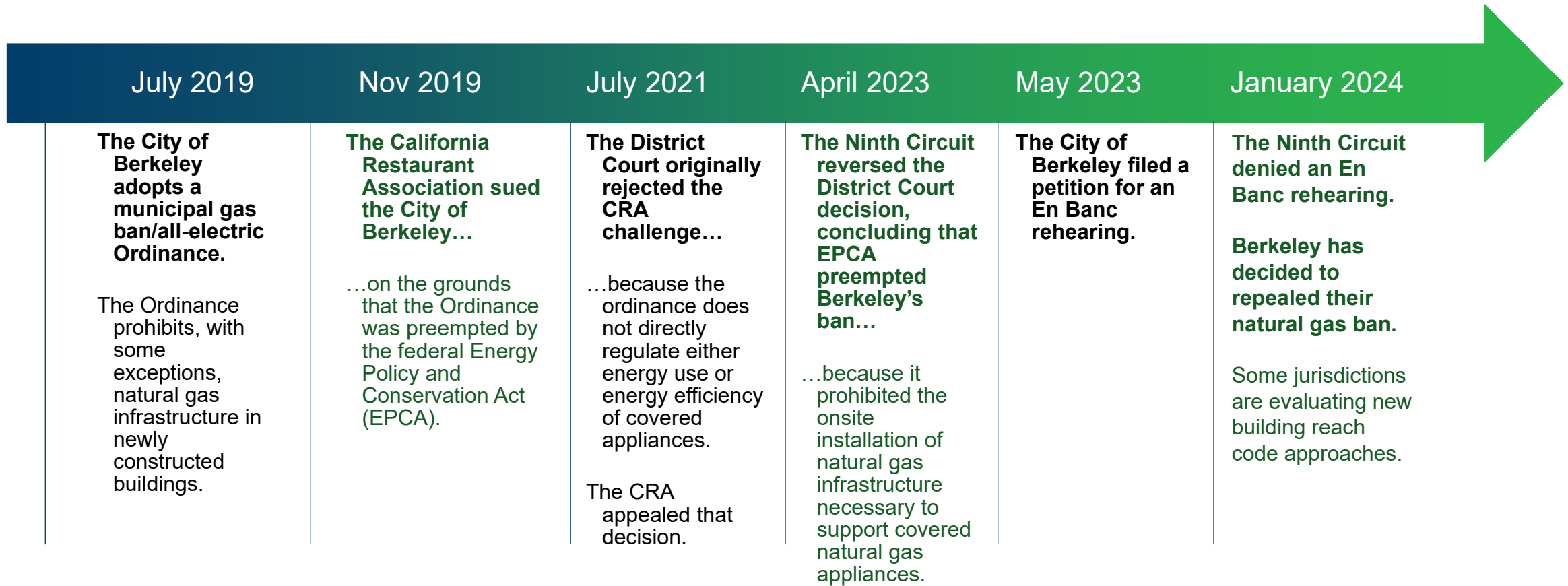
Support Public Health by improving indoor air quality and decreasing air pollution emissions.



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.

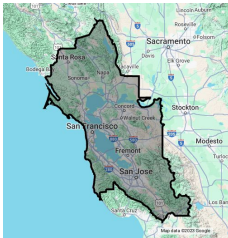
The Bay Area and California's Upcoming Electrification Changes



2027

BAAQMD Low NOx water heater requirements

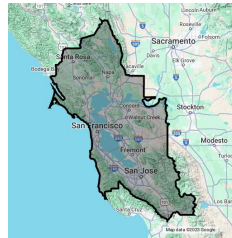
Tank-type gas water heaters no longer sold in Bay Area



2029

BAAQMD Low NOx space heater requirements

Gas furnaces no longer sold in Bay Area



2030

CARB Zero-Emission Appliance 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

Reach Code Options

- What choices are there for new construction?
- What choices are there for existing construction?
- What are the pros and cons?





New Construction Policy Comparison



Approach	Description	Advantages	Challenges	Who's done it?
Air Quality 	Regulates building or appliance emissions through CALGreen, Part 11.	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • Legally untested • Potentially new enforcement approach 	Los Altos Hills New York City
Energy Performance 	Requires a higher <i>Source Energy</i> compliance margin than what the state requires through the performance path of the Energy Code, Part 6.	<ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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 Palo Alto East Palo Alto Encinitas

Existing Building Decarbonization Policy Comparison



	Description	Advantages	Challenges	Who's done it?
Time of Replacement 	Require that property owners at the time of equipment replacement (upgrades or burnouts) abide by zero-NOx requirements and/or electric readiness requirements.	<ul style="list-style-type: none"> • Simple policy • Replacements occur more frequently than major renovations 	<ul style="list-style-type: none"> • Emergency replacements • May result in some bypassing the permit process 	San Mateo, Portola Valley, Marin County, Palo Alto
Time of Renovation 	Require applicants that are already pulling a permit for a renovation project to abide by certain energy efficiency measures and/or electric readiness requirements.	<ul style="list-style-type: none"> • Customizable triggers • Unlikely to impact small or low-cost renovation projects • Unlikely to bypass the permit process 	<ul style="list-style-type: none"> • More complex policy • Clarity of permit data • Low permit/renovation rates can increase time to make impact 	San Mateo, Portola Valley, Piedmont, Marin County, San Luis Obispo
BPS 	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.	<ul style="list-style-type: none"> • Monitor building stock • Customizable triggers • Regular enforcement cycles 	<ul style="list-style-type: none"> • Large administrative burden (cost/time) 	Cities: Denver, Reno, Chula Vista, St. Louis, etc. States: Oregon, Washington, Maryland, Colorado
Time of Property Transfer 	Leverage real estate transactions to disclose relevant information on, incentivize, or require, certain home improvements. <i>We do not recommend policies which inhibit or delay the sale of a property.</i>	<ul style="list-style-type: none"> • Leverages major financial transaction • Allows responsibility to be shared between buyer and seller 	<ul style="list-style-type: none"> • Limited precedence for jurisdictional authority • Jurisdiction regulation of property transfer process • Low transfer rates can increase time to make impact 	Piedmont, Berkeley, Davis