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3CE Reach Codes Program

Advancing safer, healthier and more affordable buildings and vehicles

CentralCoastReachCodes.org

Reach Codes 101

- What are reach codes?
- Why should we implement reach codes?
- What's the process?

What are Reach Codes?

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

Types of Reach Codes:

Building Decarbonization

New & Existing Buildings

Electric Vehicle Infrastructure (EVI)

Introduction to State Codes

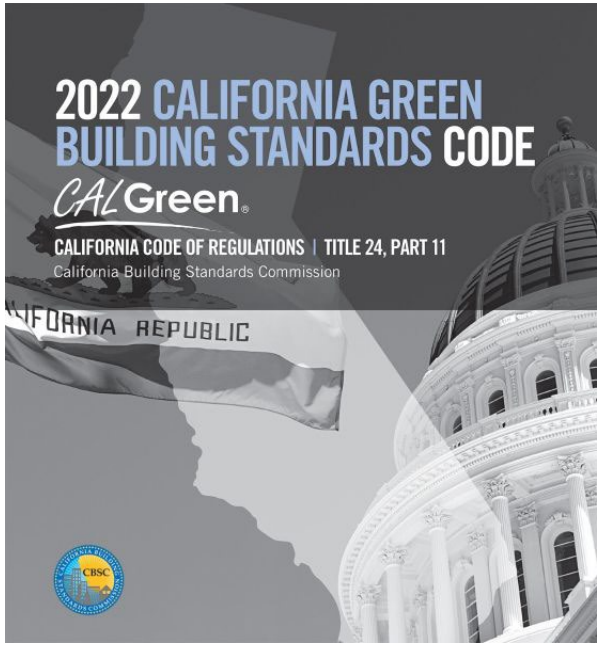
2022 Energy Code

Other names:
- Title 24, Part 6
- Building Energy Efficiency Standards

Scope:
- Energy efficiency
- Load flexibility (PV, battery)
- Single Family, Multifamily, and Nonresidential

Pathways to amend:
- Mandatory
- Prescriptive
- Performance

2022 CALGreen Code



Other names:
- Title 24, Part 11
- Green Building Standards

Scope:
- EVI, water use, waste, pollution, etc.
- Residential and Nonresidential

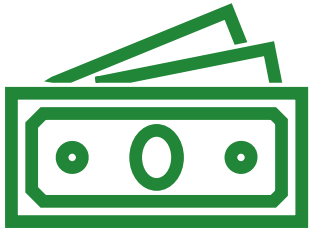
Pathways to amend:
- Mandatory
- Voluntary

Prescriptive: Think "checklist". Requires specific energy efficiency or renewable energy pathways.

Performance: Think "modeling". Requires buildings to meet an energy budget/performance score through a custom design, allowing applicants flexibility.

Reach Code Requirements

1. **Must use no more energy than the Energy Code**
2. Energy efficiency/conservation measures **must be cost-effective**
3. Local governments must make findings that the reach code is needed for local climatic, geological, or topographical reasons and must file with the California Building Standards Commission (CBSC)
4. Can't require equipment that exceeds federal standards (federal preemption)



Key Points of Cost-Effectiveness

- Something is cost-effective when the value of benefits exceeds the costs
- Must be approved by the California Energy Commission (CEC) (when cost-effectiveness required)
- Can be cost-effective on-bill or using the CEC's societal metric (TDV or LSC)
- Can be used to assess policy impacts as well as to document legal compliance
- Can mean different things to different stakeholders (developers, building owners, tenants, society)
- Studies available at Local Energy Codes and through the Cost-Effectiveness Explorer

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.

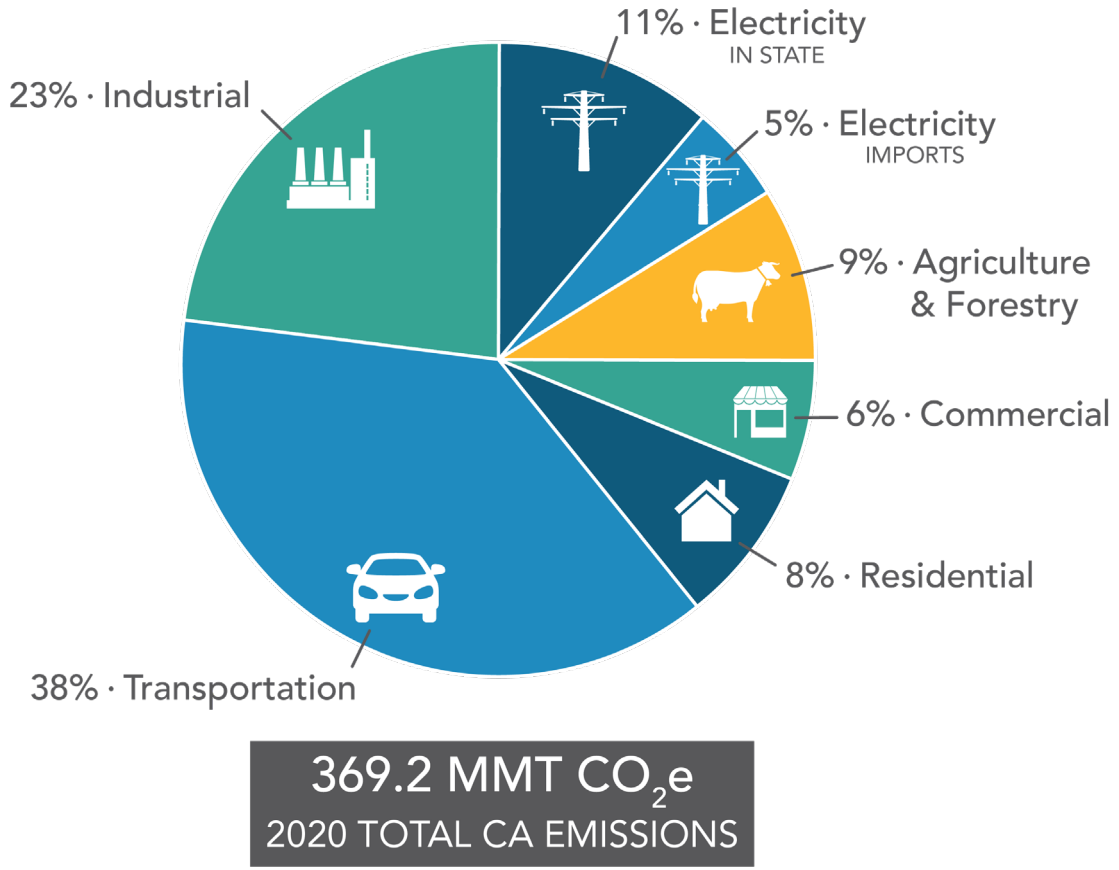
Support Public Health by improving indoor air quality and decreasing air pollution emissions.

Fulfill Local Goals by providing custom reach code options to meet goals that can be adopted at any time.

California Carbon Emissions by Economic Sector

- **Emissions from Transportation and Commercial and Residential buildings account for 52% of the CA inventory in 2020**
  - Mainly from the fossil fuel combustion
  - Nearly all gas appliances can be electrified, except some high-temperature industrial applications.

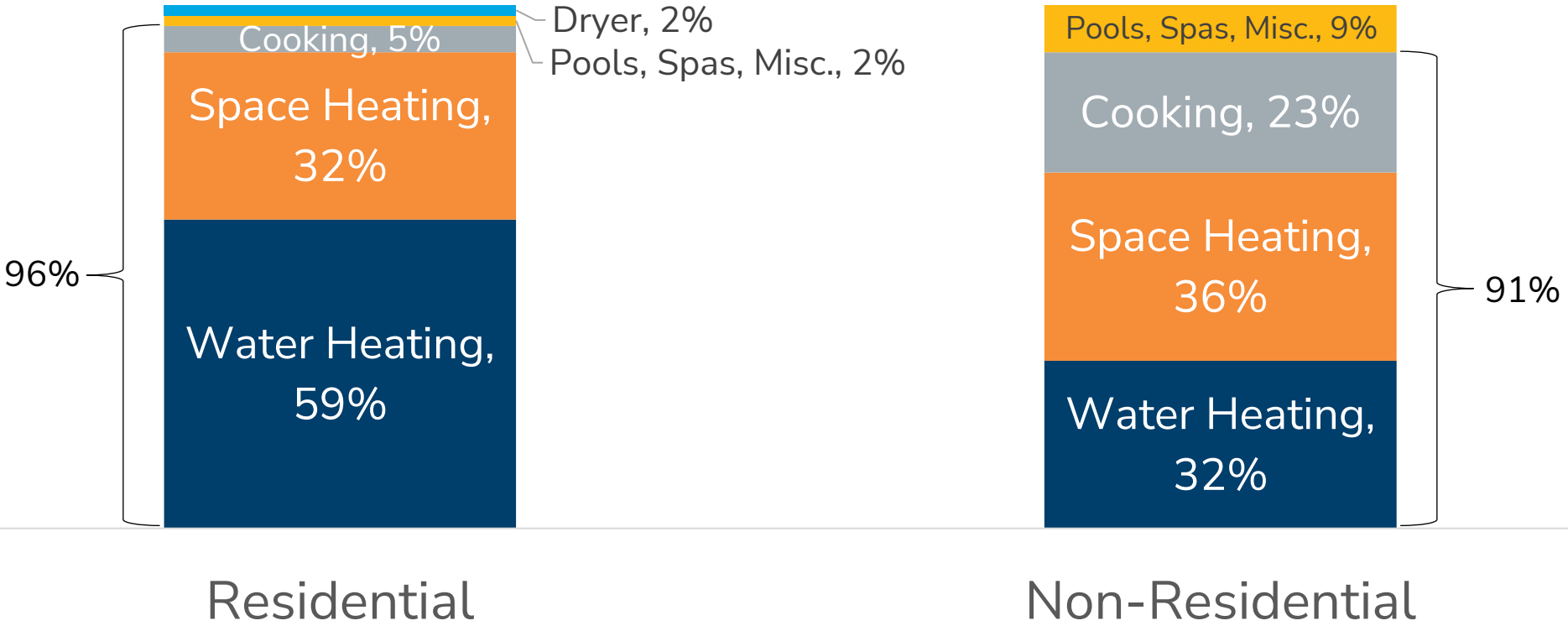
2022 California GHG Emission Inventory



Source: California Air Resources Board, 2022

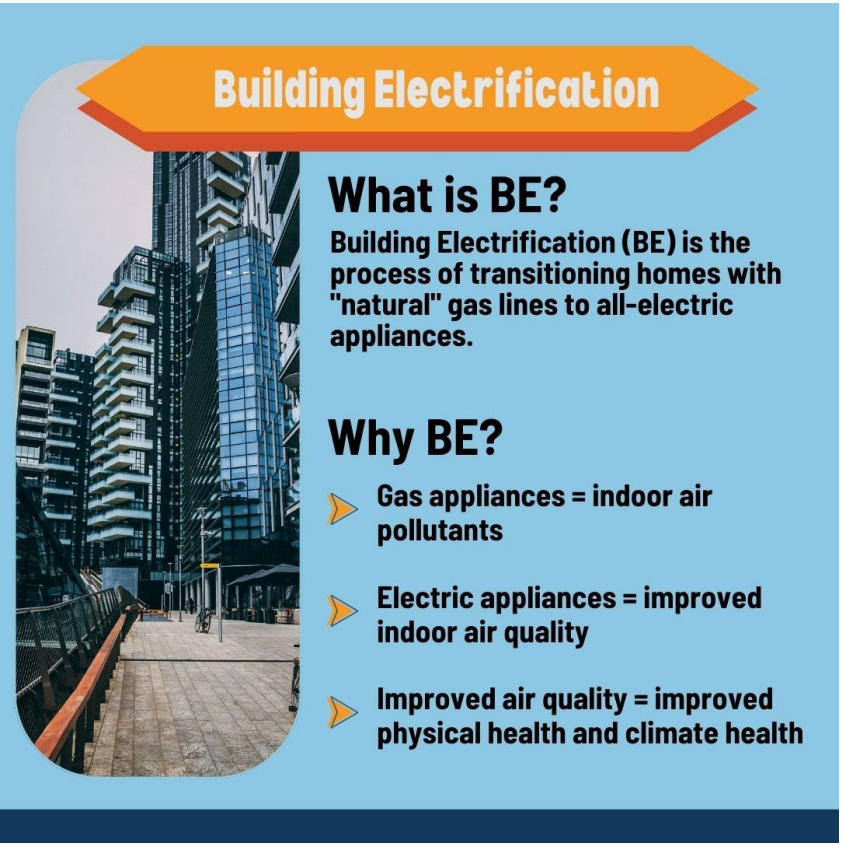
California Buildings Gas Usage

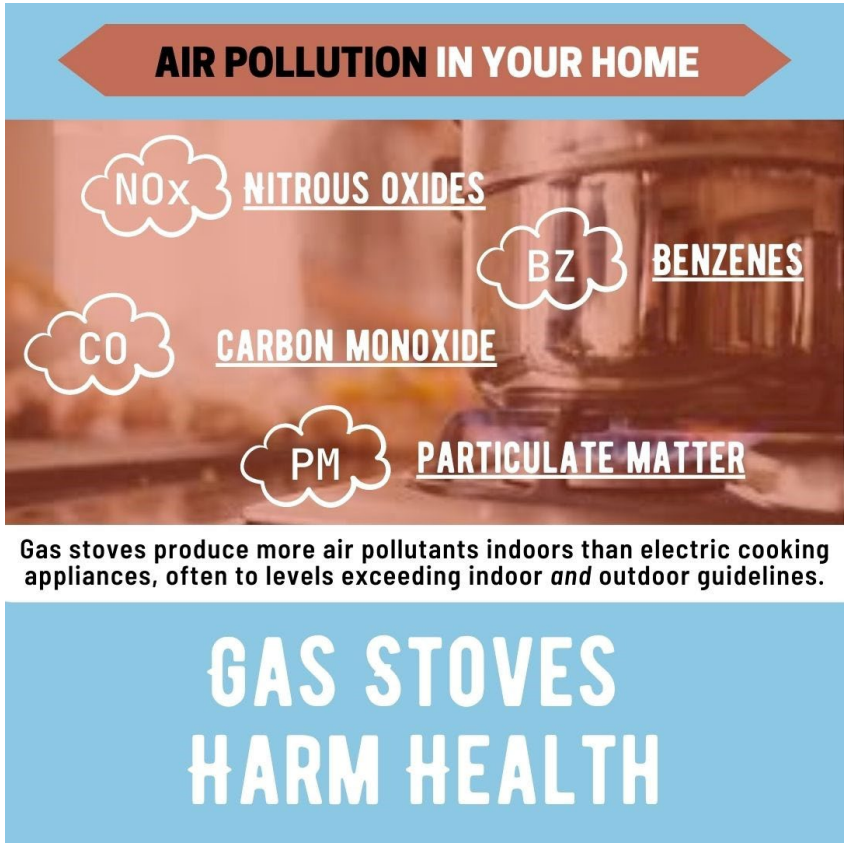
The combined gas usage for **cooking, water heating,** and **space heating** accounts for 96% in residential and 91% in non-residential sectors.



Sources: 2019 Residential Appliance Saturation Survey and California Building Decarbonization Assessment

The Health Harms of Gas Stoves

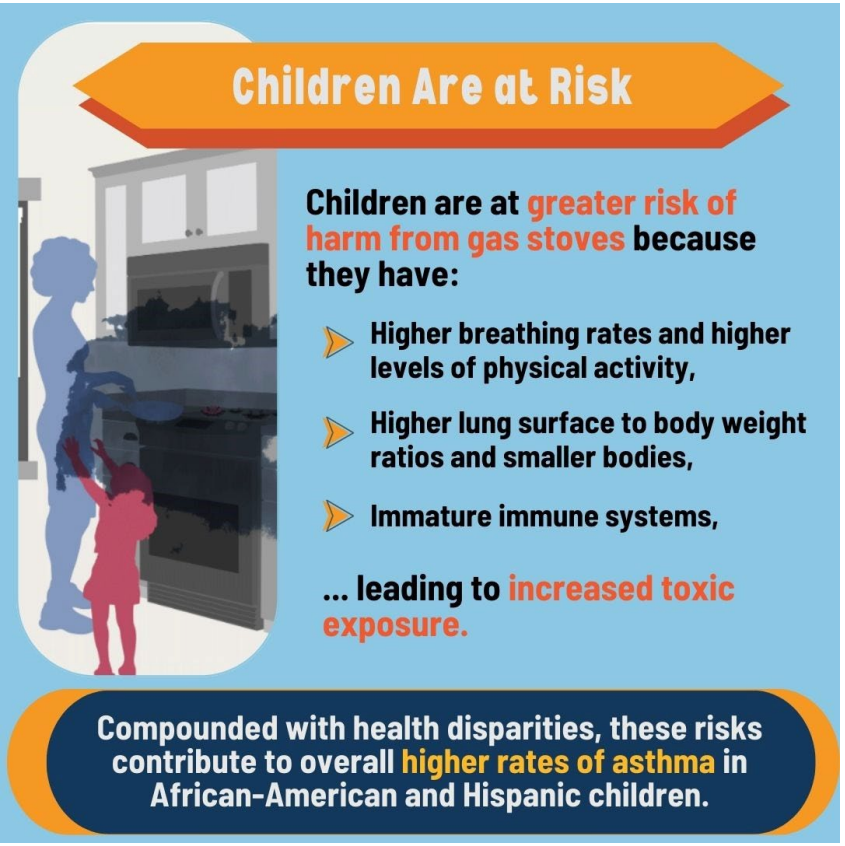




Learn more: www.sfbaypsr.org/BE

PHYSICIANS FOR SOCIAL RESPONSIBILITY
SAN FRANCISCO BAY CHAPTER

The Health Harms of Gas Stoves



Learn more: www.sfbaypsr.org/BE

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Why Establish Reach Codes?

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Air Quality Regulations Aren't Certain	• California Air Resource Board (CARB) is considering proposals for zero NOx emissions limits for water heating and space heating, starting as early as 2027, but they aren't adopted yet
Local Reach Codes Influence the State	• Statewide electrification codes incorporate elements from local reach codes • Smoother implementation of state-wide requirements
Allows More Action, Sooner	• Earlier actions have exponential greenhouse gas emissions savings • Existing building policy is needed immediately to meet 2030, 2035, and 2040 climate goals
Continuous Signal to the Market	• Avoid a progress gap for new construction from 2024-2027 • Send clear, continuous message to market • Avoid stranded asset cost of continued gas investment
Local Control	• Ability to design customized exception and language • Jurisdictions with more progressive climate targets can pass more progressive reach codes

Reach Code Context in 2024

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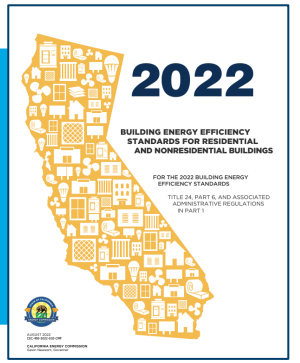
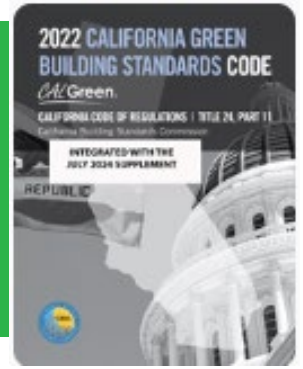
Buildings

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)

The CALGreen code goes through triennial updates (2022, 2025, etc.) and intervening updates at the mid point between triennial updates. The CALGreen code has intervening updates to the 2022 code that went into effect on July 1, 2024.



California's Upcoming Electrification Changes

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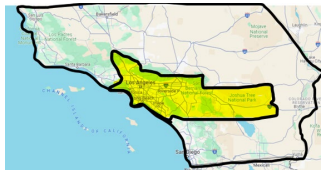
2026 | 2029 | 2030 | 2035 | 2045

Proposed Air Quality Management District Zero-NOx Requirements Begin

Tank-type gas water heaters and gas furnaces no longer sold in certain areas



South Coast Air Quality Management District (SCAQMD)

Bay Area Air Quality Management District (BAAQMD)

CARB Zero-Emission Appliance Standards

Gas water heaters and space heaters no longer sold, statewide

All new car sales are Zero Emission Vehicles (ZEV)

Gas vehicles no longer sold, statewide

California Achieves Carbon Neutrality

Statewide gas piping projected decommissioning date

Regional

California

-Text in blue is proposed.
-Text in black is adopted.

Reach Code Litigation

California Restaurant Association v. City of Berkeley

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July 2019	Nov 2019	July 2021	April 2023	May 2023	January 2024
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.	**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).	**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.	**The Ninth Circuit reversed the District Court decision, concluding that EPCA preempted Berkeley's ban…** …because it prohibited the onsite installation of natural gas infrastructure necessary to support covered natural gas appliances.	**The City of Berkeley filed a petition for an En Banc rehearing.**	**The Ninth Circuit denied an En Banc rehearing.** **Berkeley has decided to repealed their natural gas ban.** Some jurisdictions are evaluating new building reach code approaches.

Ruling Takeaway: Natural gas appliances can't be directly prohibited from use based on the Energy Policy and Conservation Act (EPCA).

Source: Climate Case Charts, Columbia Law blog and Earthjustice blog; "Gloom Not Doom: The Latest in the Berkeley Decarbonization Case."

Collaboration & Services

- What services are available to you?
- Who else is working on a reach code?

Key Support

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Templates and Tools


- Model ordinances and adoption resources developed through years of municipal support and stakeholder engagement
- Resource library, tools, templates, and presentations
- Streamlined delivery models based on lessons learned

Customization


- Diverse needs ≠ one size fits all
- Provide local research and specific tools to support municipal staff
- Interpret statewide CA code cost-effectiveness studies related to climate zones and goals
- Integrate feedback regarding unique building stock and community feedback

Adoption Support


- Technical assistance
- Present at City Council meetings
- Facilitate public workshops
- Regional Collaboration

Who is Working on a Reach Code?

Post-Berkeley

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3CE Member Agencies

Jurisdiction	New Construction Buildings			Existing Buildings			EV Infrastructure
	Single Family	Multifamily	Nonresidential	Single Family	Multifamily	Nonresidential	
Santa Cruz	X	X	X	X	X		
San Luis Obispo	X	X	X	X	X		
Goleta	X	X	X				X
County of Monterey							X

Other Cities

Jurisdiction	New Construction Buildings			Existing Buildings			EV Infrastructure
	Single Family	Multifamily	Nonresidential	Single Family	Multifamily	Nonresidential	
Brisbane	X	X	X				X
East Palo Alto	X	X	X				
Mountain View	X	X	X	X	X	X	
Palo Alto	X	X	X				
County of San Mateo	X	X	X				
Santa Monica	X	X	X	X	X	X	X
West Hollywood				X	X		

Source: Adopted Ordinances (localenergycodes.com)

Existing Buildings

- What are the choices for existing buildings?
- What are the pros and cons?
- What is the FlexPath approach?
- What is an electric readiness approach?

Existing Building Approaches

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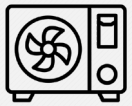
	Description	Advantages	Challenges	Who's done it?
Time of Replacement 	Require that property owners at the time of equipment replacement (upgrades or burnouts) abide by zero-NOx requirements and/or electric readiness requirements.	• Simple policy • Replacements occur more frequently than major renovations	• 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.	• Customizable triggers • Unlikely to impact small or low-cost renovation projects • Unlikely to bypass the permit process	• 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.	• Monitor building stock • Customizable triggers • Regular enforcement cycles	• 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. *We do not recommend policies which inhibit or delay the sale of a property.*	• Leverages major financial transaction • Allows responsibility to be shared between buyer and seller	• Limited precedence for jurisdictional authority • Jurisdiction regulation of property transfer process • Low transfer rates can increase time to make impact	Piedmont, Berkeley, Davis

How Does a FlexPath Approach Work?

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What is it?

Major residential addition and alteration projects must include energy efficiency and/or electrification measures.

Existing buildings are a huge opportunity for emissions reduction as they are the majority of the housing stock.

The goal is to reduce emissions while improving the quality, comfort and health of buildings and residents.

How does it work?

Typically takes effect through amendments to the Energy Code, Title 24, Part 6.

Flexible compliance options are available through a menu of measures.

Some measures may be included as mandatory, such as LED lighting and prewiring.

What support is available?

Technical Assistance

Model Code Language

Staff Report Templates

Council Meeting Support

FlexPath –Example

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Requirements for major residential addition and/or alteration projects to include energy efficiency or electrification measures.

What is a "major" addition or alteration as proposed?

- An addition of 300 or more square feet of floor area.
- Any addition and alteration combination with an impacted area of 300 or greater square feet.

What would a project applicant have to do?

- Pick from a menu of energy efficiency measures and in some cases provide outlets for future zero emission appliances.

Would this apply to small projects, appliance replacements, window projects, roof projects, cosmetic changes, work that doesn't require a permit, kitchen appliances, or gas stoves?

- No, no, no, no, no and no.

The ordinance is projected to impact 200 permits a year with a median project valuation of $150k

FlexPath – Measures Menu Example

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Requirements:

1. Install any number of the measures from the table that add up to a total score of 9 or greater. Many combinations possible

2. Complete all mandatory requirements.

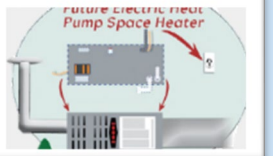
There are at least 5 cost effective combinations.

Measures	Points
Water Heating Package	1
Induction Cooktop	1
Heat Pump Clothes Dryer	1
Air Sealing	2
Duct Sealing	3
R-49 Attic Insulation	4
Windows	4
R-13 Wall Insulation	5
New Ducts + Duct Sealing	6
R-19 Floor Insulation	9
R-30 Floor Insulation	10
Heat Pump Water Heater (HPWH)	12
Solar PV + Electric Ready Pre-Wire	13
Heat Pump Space Heater	18
LED lamps and Exterior Photocells	Mandatory
Panel-related Pre-wiring	Mandatory
Mechanical, Kitchen & Laundry Room Electric Ready Pre-Wire	Mandatory

Example: Climate Zone 3 data

Source: Single Family Residential Retrofits Cost-Effectiveness Reports

Electric-Readiness Reach Code

	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 is needed (that is not part of the appliance upgrade scope): • Capacity upgrade for an electrical panel • Feeder upgrade • Transformer upgrade • Electrical service upgrade	

Photos: Energy Code Ace

EVI Reach Code

- What EVI code terminology do I need to know?
- What are the CALGreen requirements?
- What is the new construction model code?
- What is the alterations & additions model code?

What is Electric Vehicle Infrastructure (EVI)?

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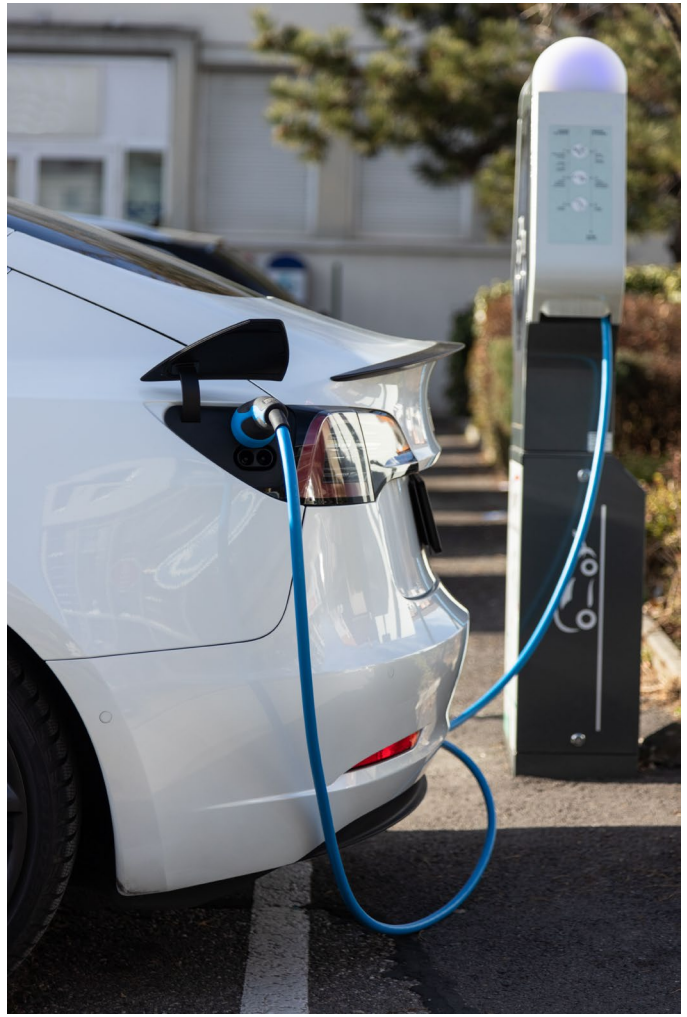
- The integral equipment and materials necessary to support Electric Vehicle (EV) charging.

- This includes:
  - Electrical capacity (utility service, transformers, and feeders)
  - Panel space for EV dedicated breaker
  - Conduit/Raceway/Pathways for circuits
  - Wiring (circuits) for EV charger
  - EV dedicated receptacles or charging equipment
  - EV charging plug and cord
  - Energy management software



EVI Code Terminology

Speed

Level 1
3-4 miles per charging hour

Level 2
10-20 miles per charging hour

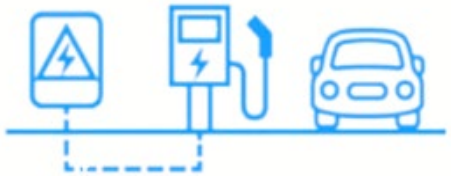
Level 3
150+ miles per charging hour

Readiness

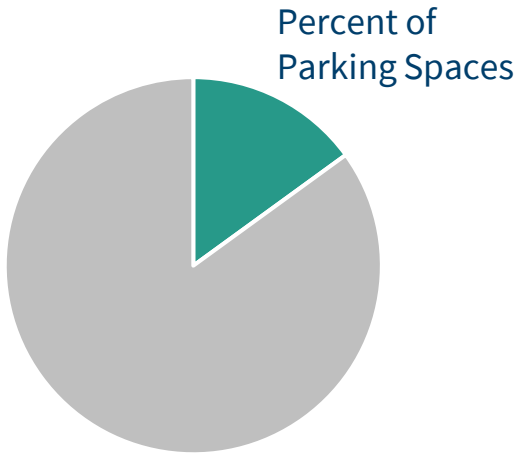
EV **Capable**

EV **Ready**

EV **Charging Station Installed**



Number

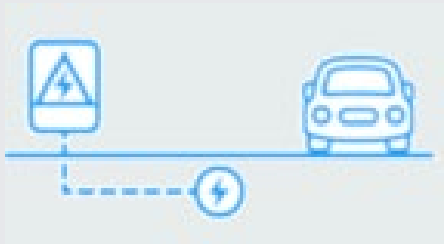


Total kVA =
L2 EV Capable +
LP L2 EV Ready +
L2 EV Ready +
L2 EVCS

Source: Cleanenergy.org EV Readiness

New Construction

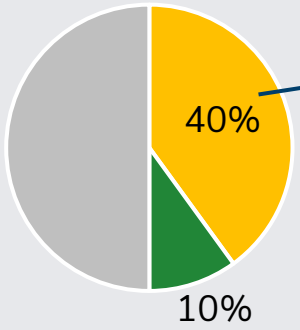
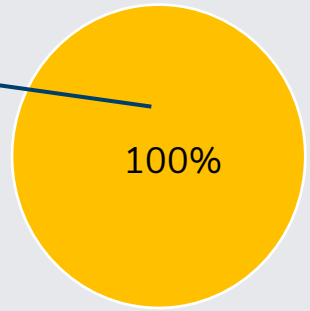
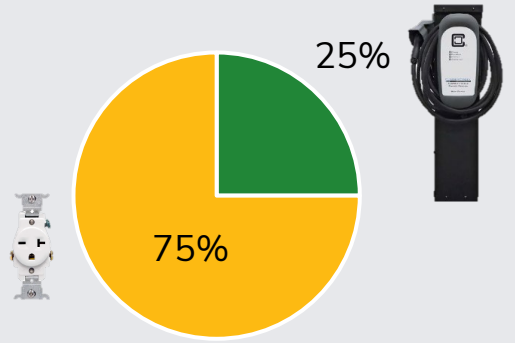
Single Family Homes and Two-Family Townhomes

2022 CALGreen Intervening (July 1st 2024)	Proposed Reach Code
Mandatory	
(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 proposed 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).

New Construction

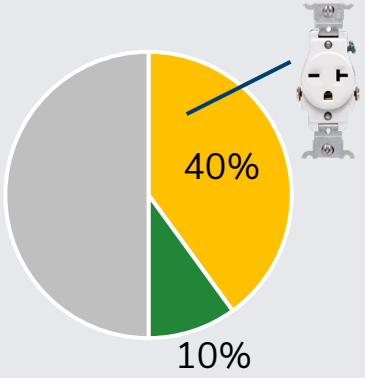
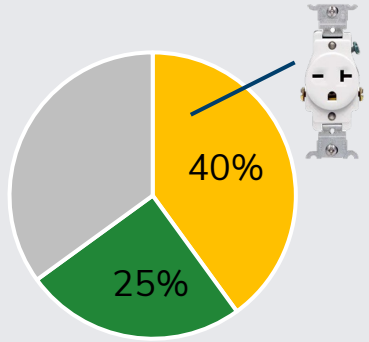
Multifamily

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

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

New Construction

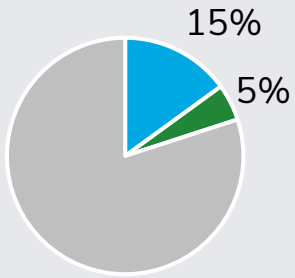
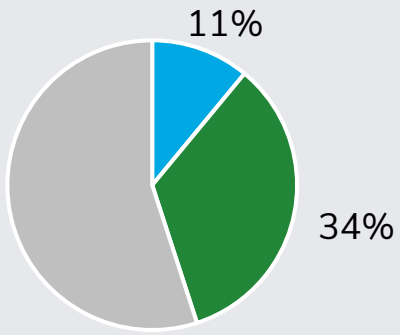
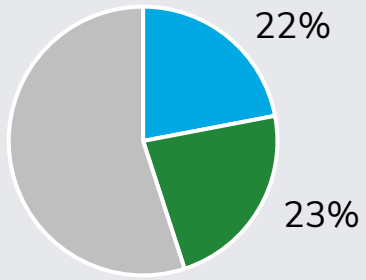
Hotels/Motels

2022 CALGreen Intervening (July 1st 2024)	Proposed Reach Code (*Proposed* 2025 CALGreen)
Mandatory	
	
40% Level 2 EV Ready (low-power) **10%** Level 2 EVCS	**40%** Level 2 EV Ready (low-power) **25%** Level 2 EVCS
% of Parking Spaces	% of Parking Spaces

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

New Construction

Non-residential

2022 CALGreen Intervening (July 1st 2024)	Proposed Reach Code (Based on *Proposed* 2025 CALGreen Tier 2)	
Mandatory		
		
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 reach code splits nonres into two categories with distinct requirements based on the proposed 2025 CALGreen code, but converting the EV Capable requirement to a Level 2 EV Ready requirement. Both of these requirements are increased from previous code cycles.

EVI Requirements for Alterations & Additions

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1 to 2 FAMILY

2022 CALGreen	None
Reach Code	**Parking additions and panel upgrades triggers** Meet new construction EVI requirements for parking additions or electrical panel upgrades.

EVI Requirements for Alterations & Additions

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MULTIFAMILY

2022 CALGreen

When new parking facilities are added, or electrical systems or lighting of existing parking facilities are added/altered 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”

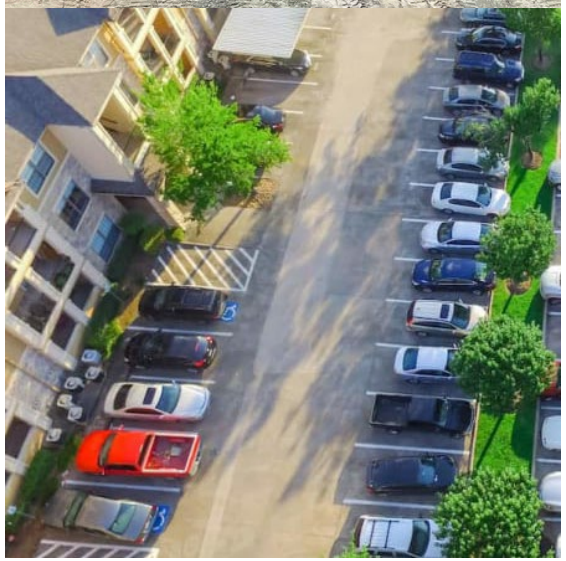
Reach Code

Meet the new construction EVI 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.

New construction EVI requirements:

- Increases percentages compared to CALGreen minimum
- Requires EV Ready instead of EV Capable



EVI Requirements for Alterations & Additions

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NON-RESIDENTIAL

2022 CALGreen

Meet the new construction EVI 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.

Reach Code

Increase new construction EVI requirements compared to CALGreen minimum.

Adds a trigger for breaking ground (like trenching).

Amends exception 1(c) to include a maximum utility service cost of $4,500/space.

EVI 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 <u>average of $4,500 per parking space</u>. EV infrastructure shall be provided up to the level that would not exceed this cost for utility service.

Underline indicates added with reach code

EVI 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.

New Construction Reach Code Options

- What are the choices for new construction?
- What are the pros and cons?
- What is the Energy Performance approach?

New Construction Approaches

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Approach	Description	Advantages	Challenges	Who's done it?
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	East Palo Alto Encinitas Palo Alto Santa Cruz San Jose San Luis Obispo
Other Strategies				
Air Quality 	Regulates building or appliance emissions through CALGreen, Part 11. Typically applies to areas that are in non-attainment for criteria air pollutants.	• 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 • Concerns adopting this approach could negatively impact the on-going work with the AQMDs and CARB	Los Altos Hills New York City

How Does an Energy Performance Approach Work?

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What is it?

A stricter regulation of Source Energy which is a proxy for carbon emissions.

Source Energy is regulated in the current Energy Code through the performance path.

The goal is to reduce new building emissions and prepare buildings for future electrification.

How does it work?

Typically takes effect through amendments to the Energy Code, Title 24, Part 6.

Building applicants who use the performance path need to meet a stricter Source Energy target.

Enforcement is the same, except instead of meeting a value of “0 or greater”, the reach code target or greater is met.

What support is available?

Technical Assistance

Model Code Language

Staff Report Templates

Council Meeting Support

What is Source Energy?

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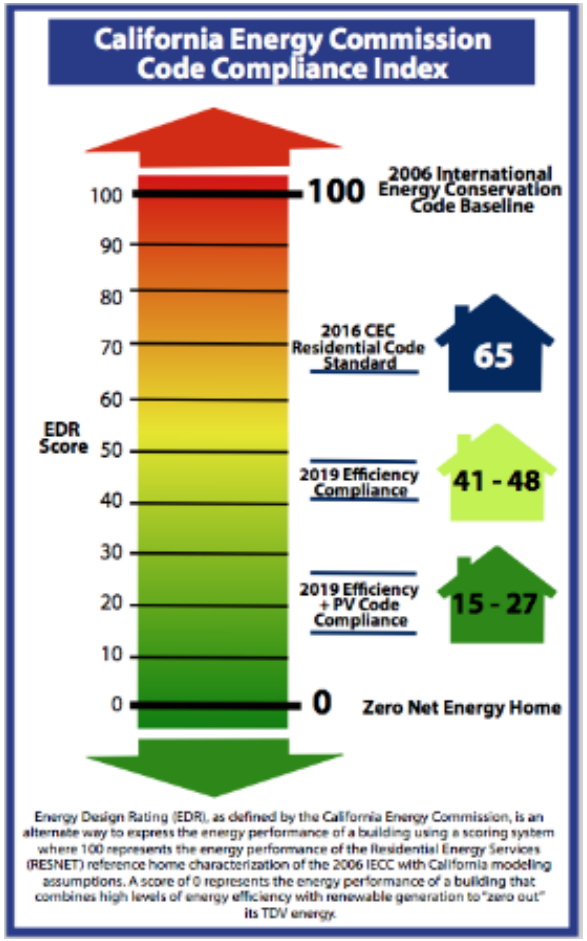
- A rating system within the performance path that is used to regulate energy performance.
- Based on hourly source energy which establishes a carbon-based performance metric.
- For single family homes, Source Energy is 1 of 3 Energy Design Rating (EDR) metrics.

ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)
Standard Design	35.6	45.8	31.3			
Proposed Design	26.5	39.6	28.4	9.1	6.2	2.9
RESULT[3]: PASS						

[1]Efficiency EDR includes improvements like a better building envelope and more efficient equipment
[2]Total EDR includes efficiency and demand response measures such as photovoltaic (PV) system and batteries
[3]Building complies when source energy, efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded

- Standard Design PV Capacity: 3.46 kWdc
- PV System resized to 3.46 kWdc (a factor of 3.459) to achieve 'Standard Design PV' PV scaling



Source: [EnergyCodeAce]

How does this approach meet the Energy Policy and Conservation Act?

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EPCA Exemption and the 7-Factor Test

- Permit a builder to […] select items whose combined energy efficiency meet an overall building energy target.
- Not specifically require any EPCA-covered appliance to exceed federal standards.
- Offer options for compliance, on a 1-for-1 equivalent energy use or equivalent cost basis.

Energy Performance Approach Technical Considerations

- Instead of regulating appliance fuel infrastructure, the Energy Performance Approach sets a target energy score using the EDR1/Source Energy margin (used in modeling software for CA building permits).
- This approach sets the target energy score assuming federally required minimum equipment efficiencies.
- This approach sets a common target energy margin for both mixed-fuel and all-electric buildings.

What is the Energy Performance Approach?

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Homeowner/Developer (New construction)

All-Electric	Mixed-Fuel (Gas and Electric)	Mixed-Fuel (Gas and Electric)
• Electric space heating • Electric water heating	• Electric space heating • Gas water heating	• Gas space heating • Gas water heating • Increased efficiency • Solar and battery storage
EDR = 9	EDR = 0	EDR = 13

Example of Climate Zone 3 displayed

Which Appliances are Relevant?

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What's included?

- Space heating/cooling
- Water heating

What's not included?

- Stoves
- Laundry
- Pools
- Fireplace/pit

How Does Compliance Work?

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A compliance margin of "x" or higher is required for Single Family, Multifamily (low & high rise) and Nonresidential buildings.

Single Family Example:

ENERGY DESIGN RATINGS						
	Energy Design Ratings			Compliance Margins		
	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)	Source Energy (EDR1)	Efficiency[1] EDR (EDR2efficiency)	Total[2] EDR (EDR2total)
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- EDR2efficiency & EDR2total must achieve a score of "0" or higher to pass (per 2022 Title 24, Part 6).

Is Electric Readiness Included?

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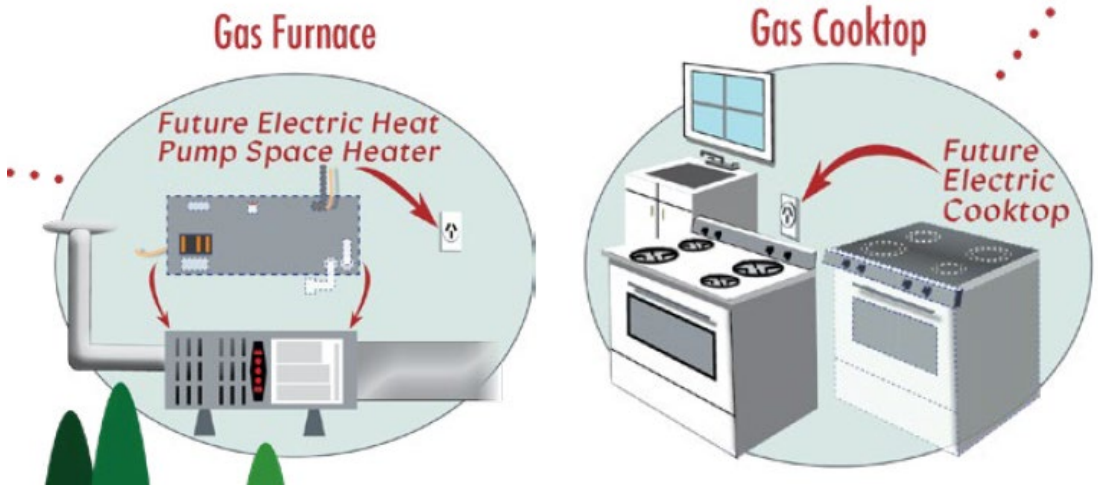
In addition to the state code, the following electric readiness requirements are added through this reach code:

Multifamily Residential:

- Centralized water-heating systems
- Individual dwelling unit water-heating systems

Nonresidential:

- Systems using gas or propane
- HVAC hot water temperature design temperature
- Commercial kitchens



Typical requirements:

- **Dedicated wiring** installed within 3 ft of the gas-fired appliance.
- **Reserved electrical breaker space** provided for the future installation of these systems and appliances.
- A heat pump water heater also requires:
  - **Space** large enough to install it
  - **Plumbing** for a condensate drain and hot and cold water.

Source: Energy Code Ace

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