



City Council

Electrification Reach Codes for 2019 Energy Code & Green Building Standards Code

March 3, 2020

Public Works & Utilities Department
Development Services Department



2019 Building Standards Code

Effective January 1, 2020

Higher Efficiency Construction:

- Lighting efficiencies increased – no incandescent lighting (few exceptions)
- 2 x 6 exterior wall framing (R-20 insulation)
- Efficiency for doors (not just windows)
- Insulation Installation inspections
- PV installation prescriptively required
- However, Natural Gas is not eliminated from Code

2019 CALIFORNIA BUILDING CODE

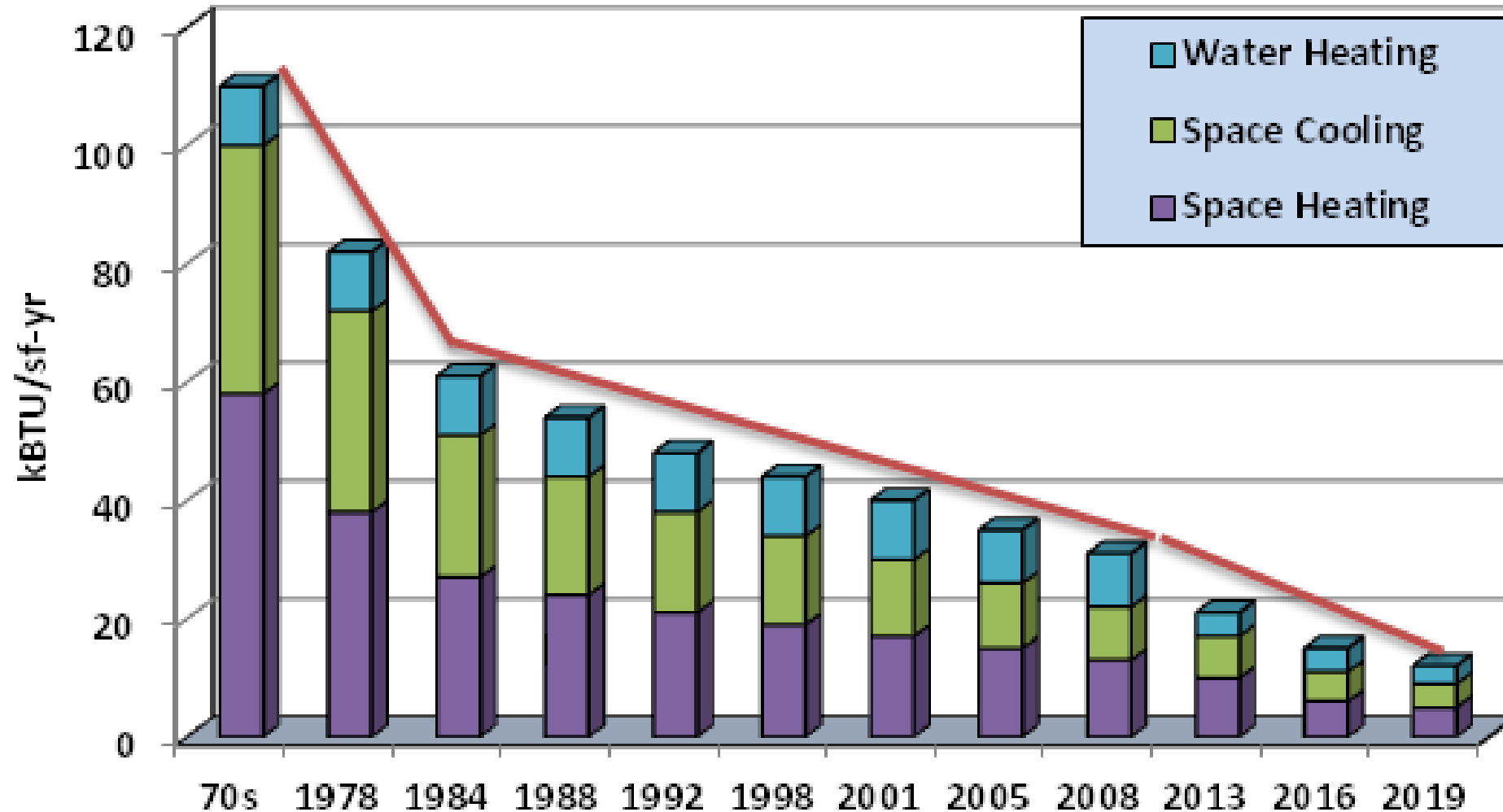
CALIFORNIA CODE OF REGULATIONS | TITLE 24, PART 2, VOLUME 1 OF 2

Based on the 2018 International Building Code®

California Building Standards Commission



Three-year Building Code Cycle



Source: California Energy Commission

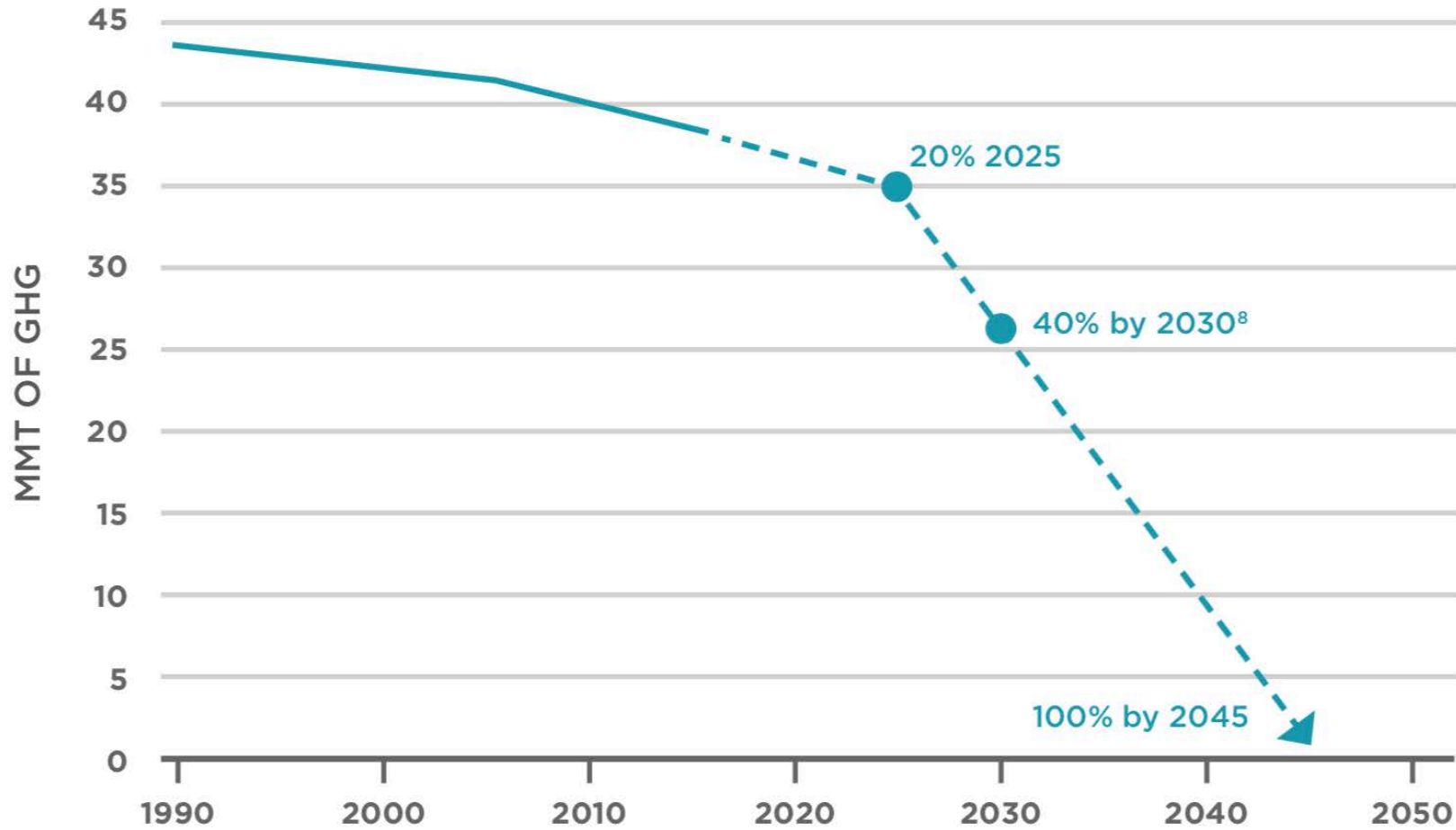
California Building Standards Code

(Title 24 of CA Code of Regulations)

- Part 1: California Building Standards Administrative Code
- Part 2: California Building Code
- Part 2.5: California Residential Building Code
- Part 3: California Electrical Code
- Part 4: California Mechanical Code
- Part 5: California Plumbing Code
- Part 6:** [California Energy Code](#)
- Part 7: currently vacant (formerly Elevator Safety Code)*
- Part 8: California Historical Building Code
- Part 9: California Fire Code
- Part 10: California Existing Building Code
- Part 11:** [California Green Building Standards Code \(CALGreen\)](#)
- Part 12: California Reference Standards Code

Reach Codes
Recommended
for Parts 6 & 11

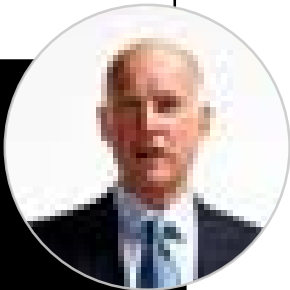
Pathway to Meet Statewide Goals



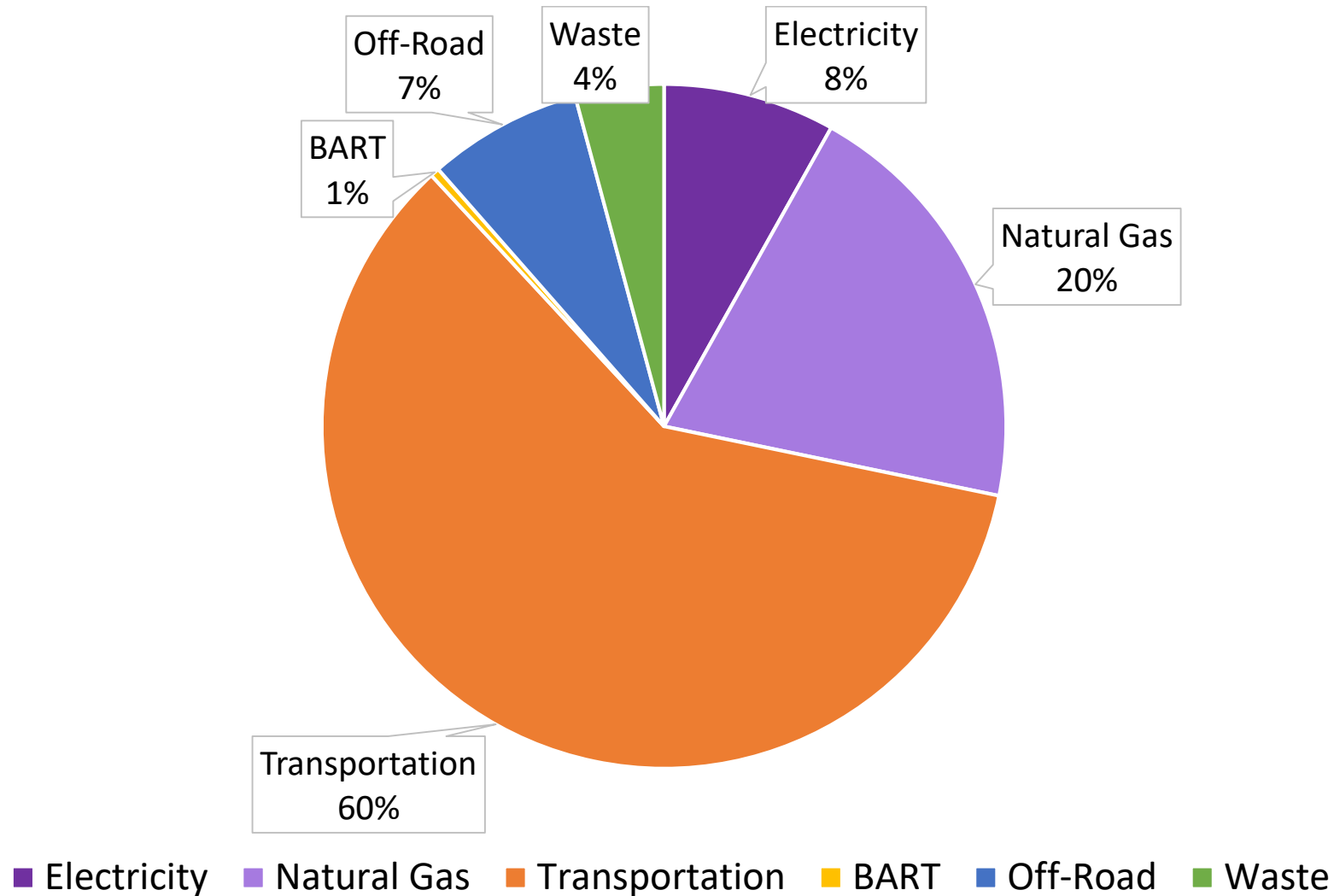
Source: Building Decarbonization Coalition

- Carbon neutrality by 2045

Gov. Exec
Order
(2018)



Hayward's GHG Emissions (2017)



All Electric Building Measures

Space Heating



Water Heating



Cooking



Clothes Drying



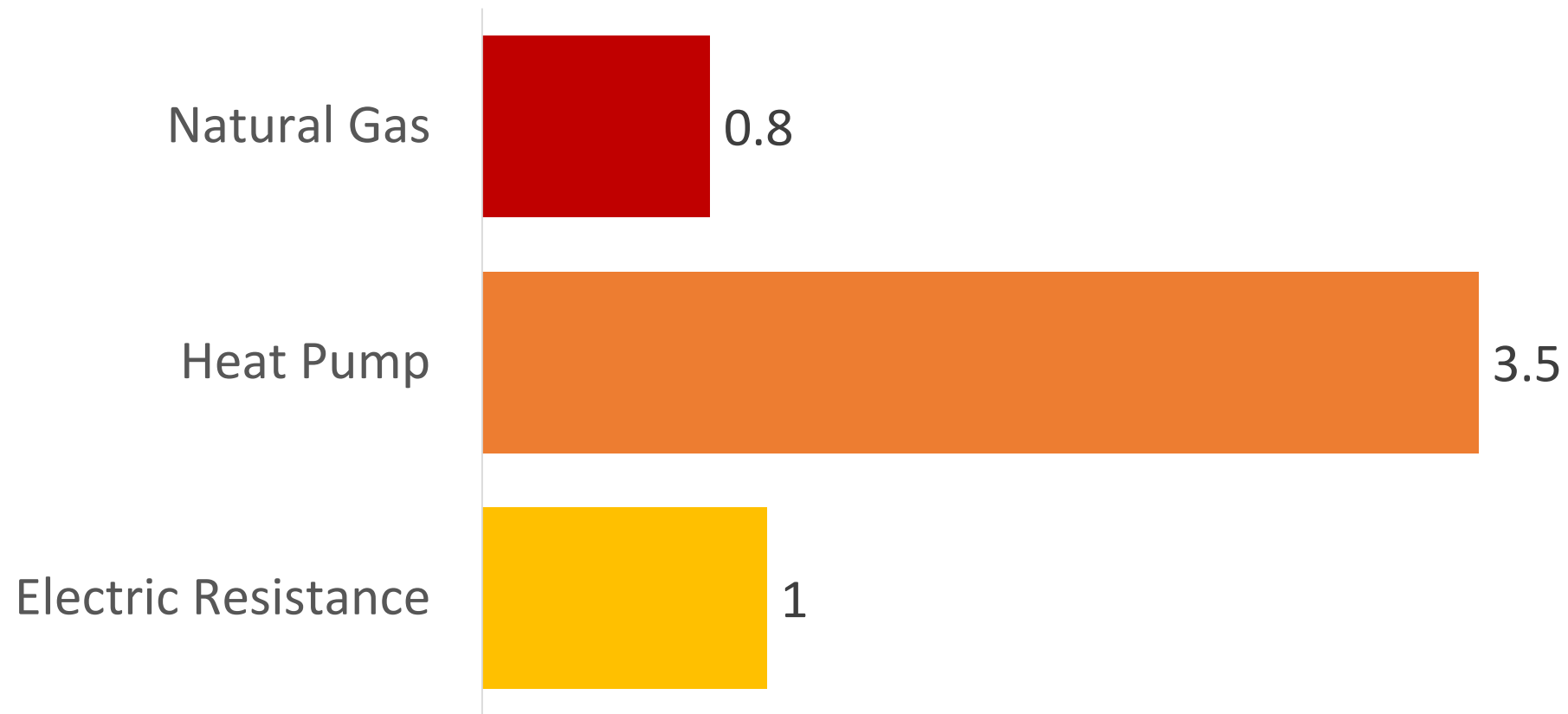
Residential

Commercial



Energy Efficiency

Energy Efficiency Comparison of Technology Typical Energy Factors



Legal Requirements for Adopting Reach Codes

A reach code addressing Energy Efficiency:

- must be at least as stringent as the statewide code.
- must be cost effective.
- must be approved by the California Energy Commission.
- needs to be re-approved with each Energy Code update.



Reach Code - Energy Code

Low-Rise Residential

- All new residential buildings (single-family & multi-family up to 3 stories) must be all-electric
 - All appliances must be electric
 - No plumbing for natural gas

Reach Code - Energy Code

Non-residential & High-Rise Residential

All-electric buildings preferred (must meet minimum state code).

Mixed-fuel buildings must:

- Install solar panels on the entire Solar Zone; and
- Energy Budget must be 10% better (or 15% for office and retail); or
- Comply with a prescriptive list of energy efficiency requirements

Reach Code Exceptions

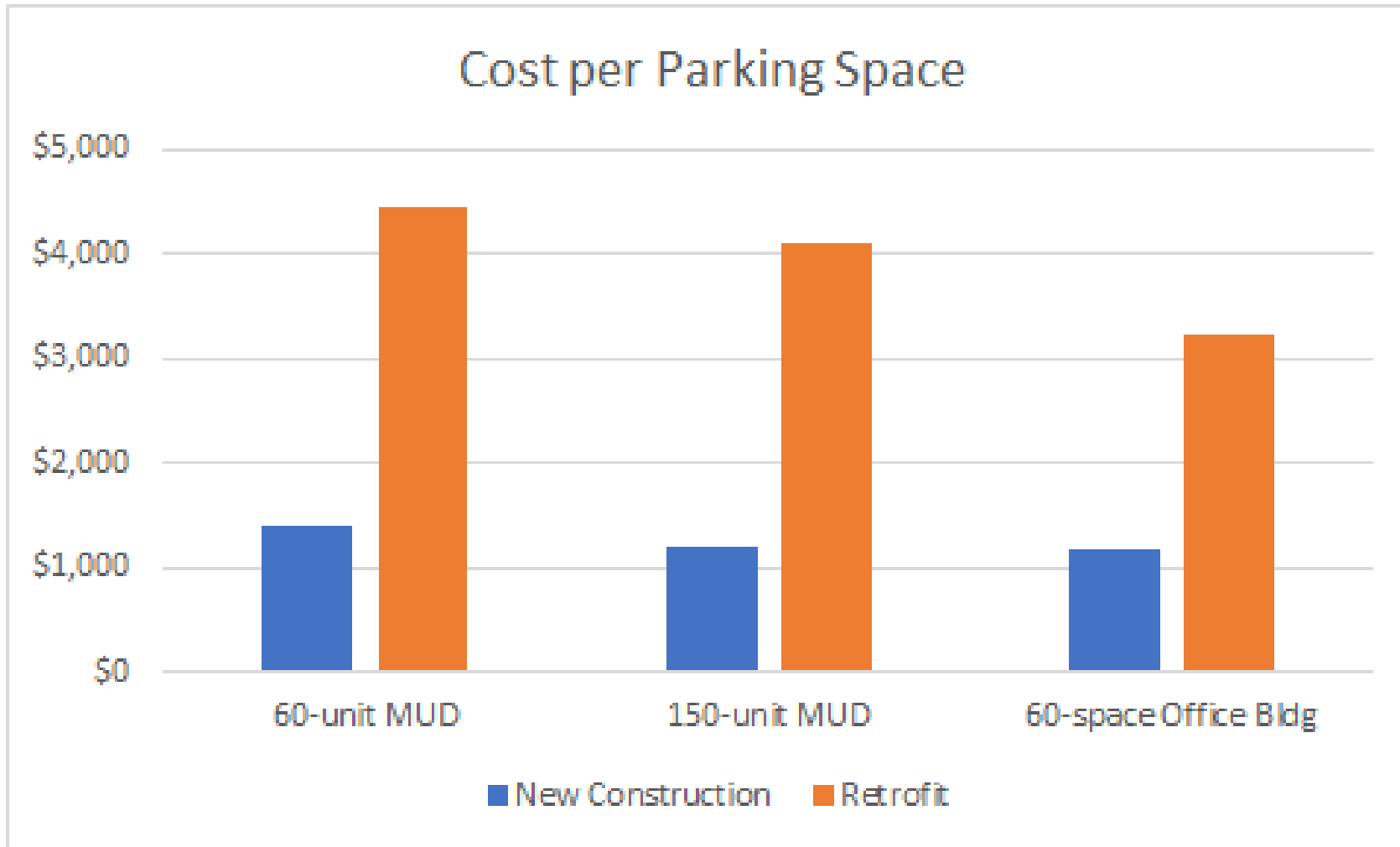
- Propane barbeques and power generators will still be allowed.



Reach Code Exceptions




- Applicant may request exemption in unusual circumstances if infeasible.
 - Only for unusual situations
 - May be approved by Building Official

Electric Vehicle Charging - Cost of New vs. Retrofit

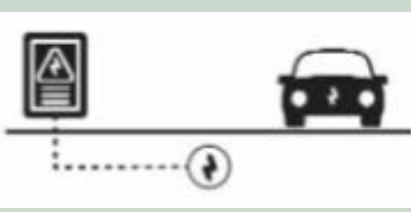
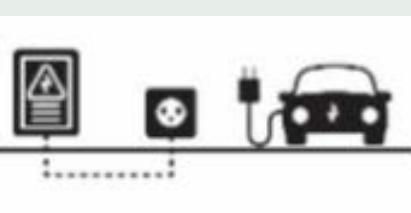



Electric Vehicle Infrastructure Cost Analysis Report for PCE and SVCE
Pacific Gas and Electric Company EV Charge Network Quarterly Report, Q1 2019

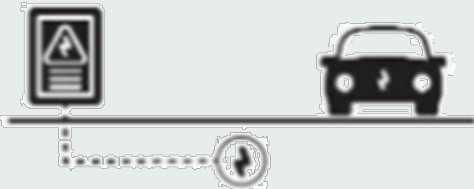

Electric Vehicle Charger Types

Level 1		15-20 Amp, 120v AC (standard household outlet) Driving Distance provided: 3-4 miles/hour
Level 2		40+ Amp, 208/240v AC Driving Distance provided: 25-30 miles/hour
DC Fast Charge		80-400 Amp, 200-600v DC Driving Distance provided: 125-1000 miles/hour

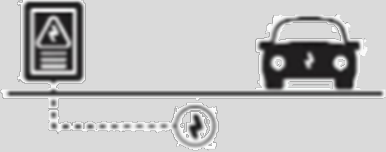


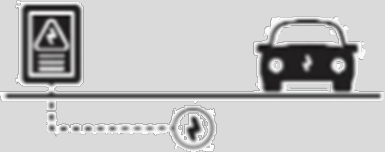
EV Charging Infrastructure

EV Capable		Raceway (conduit), electrical capacity (breaker space)
EV Ready		EV Capable + overcurrent protection devices, wiring and outlet (i.e. full circuit)
EVCI (electric vehicle charger installed)		All equipment to deliver electricity to EV

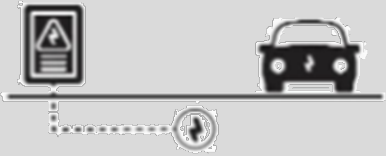

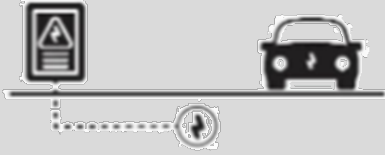

EV Charging – Single-Family

	2019 CALGreen	Reach Code
	Mandatory	
Single Family Two-Family Townhome	<p>One Level 2 EV Capable for one parking space per dwelling unit</p>  <p>The diagram shows a charging station icon on a post, connected by a dashed line to a car icon with a charging symbol on its front.</p>	<p>Two Level 2 EV Ready spaces per dwelling unit</p> <p>ELECTRIC VEHICLE OUTLET</p>  <p>The image shows a close-up of a grey electric vehicle outlet with two slots and a ground pin. To its right is a side view of a blue sedan.</p>

EV Charging – Multi-Family

	2019 CALGreen	Reach Code	
	Mandatory	≤20 dwelling units	>20 dwelling units
Multi-Family	 <p>10% of units must have one Level 2 EV Capable space per dwelling unit</p>	 <p>100% of units must have one Level 2 EV Ready space per dwelling unit</p>	 <p>75% of units must have one Level 2 EV Ready space per dwelling unit</p>  <p>25% of units must have one Level 2 EV Capable space per dwelling unit</p>

EV Charging – Non-Residential

	2019 CALGreen	Reach Code	
	Mandatory	Office	Non-Office
Multi-Family	 <p>~6% Level 2 EV Capable (for buildings with at least 10 parking spaces)</p>	 <p>20% Level 2 EV Charger Installed (for buildings with at least 10 parking spaces)</p>  <p>An additional 30% of spaces must be EV Capable</p>	 <p>15% Level 2 EV Charger Installed (for buildings with at least 10 parking spaces)</p>

Reach Code Exceptions – EV Charging

If a building permit applicant provides documentation detailing that the increased cost of utility service or on-site transformer capacity would exceed an average of \$4,500 per parking space, the applicant shall provide EV infrastructure up to a level that would not exceed this cost.

Public Contact

- EBCE Workshops – April 2019
- Chamber of Commerce – May 2019
- Contractor Training – August 2019
- Letters to Builders & Developers – September 2019
- Article in The Leaflet – September 2019
- Newspaper Notice – February 2020

Electrification Workshops

- EV 101 Workshop (English)
 - Saturday, February 29
- Electrify Everything Workshop
 - Monday, March 2
- EV 101 Workshop (Spanish)
 - Saturday, March 7

ELECTRIFY EVERYTHING
Monday, March 2nd
6:00 p.m. - 7:00 p.m.
Hayward Main Library

Electrify Everything is a free workshop designed to inform residents about actions they can take to reduce their carbon footprint by replacing their fossil-fuel-burning appliances and equipment with electric alternatives.

Register Now
<https://electrify-everything.eventbrite.com>

EV 101

English
Saturday, February 29
10:00 a.m. - 11:30 a.m.
Hayward Main Library

EV101 is a free workshop designed to inform residents about Electric Vehicles including EV range and charging, buying and leasing an EV, rebates, and other resources to help pick the right car and find charging stations

Register Now
<https://ev-101.eventbrite.com>

Español
Sábado 7 de Marzo
De 10:00 a.m. a 11:30 a.m.
Hayward Main Library

EV 101 es un taller gratuito diseñado para informar a la gente sobre el tema de comprar o alquilar un carro eléctrico, cargando un carro eléctrico, y descuentos y recursos para ayudarle a escoger el carro adecuado

Registrar Ahora
<https://ev-101-espanol.eventbrite.com>

Induction Cooktop Loaner Program

- Hayward Residents will be able to borrow a counter-top induction cooktop

Induction Cooking

Learn more about a better, safer, and sustainable method of cooking!



What is induction cooking?

Induction cooking uses electric current to heat pots through magnetic induction. This is different than thermal conduction, where a heating element such as an electric coil or a gas flame transfer heat. Through magnetic induction, heat is transferred directly to the pots and pans you use to cook with.



Benefits of induction cooking

Communities throughout Alameda County and the Bay Area are recognizing induction cooking as a precise and clean way of cooking.

Timeline

March 17	If Approved, City Council 2 nd Reading
Late March	File with CA Building Standards Commission
May 2020	Reach Code would be Effective

Staff & Sustainability Committee Recommendation

That Council Adopt a Resolution and Introduce Ordinance to adopt electrification reach codes for the 2019 California Energy Code and California Green Building Standards Code.

Questions

