



City of Palo Alto

Utilities Advisory Commission Staff Report

(ID # 10709)

Report Type: Agenda Items

Meeting Date: 10/2/2019

Summary Title: Proposed 2019 Energy Reach Code

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From: City Manager

Lead Department: Utilities

MEMORANDUM

TO: UTILITIES ADVISORY COMMISSION

FROM: UTILITIES DEPARTMENT

DATE: OCTOBER 2, 2019

SUBJECT: Proposed 2019 Energy Reach Code

Every three years, the State of California adopts new building standards that are codified in Title 24 of the California Code of Regulations, referred to as the California Building Standards Code. These standards establish energy and water efficiency requirements, green building requirements, as well as electrical, mechanical, plumbing and fire safety standards for new and existing buildings. The 2019 California Building Energy Standards will become effective on January 1, 2020; the new standards will include the requirement of solar photovoltaic systems for new homes, as well as a 7% efficiency improvement for residential new construction projects compared to the prior building standard.

Local governments can adopt local energy reach codes that are more stringent than the state standards, provided that the local reach code requirements are cost effective and do not exceed federal appliance efficiency standards. Palo Alto has adopted local energy reach codes since 2008.

For the upcoming code cycle that will take effect in 2020, City staff kicked off the stakeholder engagement process with a Green Building Summit held in February 2018. This was followed by a series of meetings with the Green Building Advisory Group (GBAG) that includes building

professionals such as architects and contractors, as well as community members. A strong directive from the GBAG for the upcoming reach code is to encourage all-electric new construction projects as a key strategy to meeting the City's aggressive greenhouse gas reduction goal. A multi-department team with staff from City Manager Office, Development Services, Planning and Utilities, developed a reach code proposal in July and held three public meetings in early August to solicit feedback from the GBAC as well as the community.

Attachments:

- Attachment A: Item 2 - ID# 10709 - Presentation 2019 Reach Code



Proposed 2019 Palo Alto Energy Reach Code

October 2, 2019



UAC MEETING
October 02, 2019
☒ Received Before Meeting

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Agenda

- ☐ Significance of Building Electrification
- ☐ What is an Energy Reach Code?
- ☐ History of Palo Alto Reach Code
- ☐ 2019 Reach Code Development Process
- ☐ Options for Reach Code
- ☐ Proposed Utility Incentive Programs and Marketing Initiatives

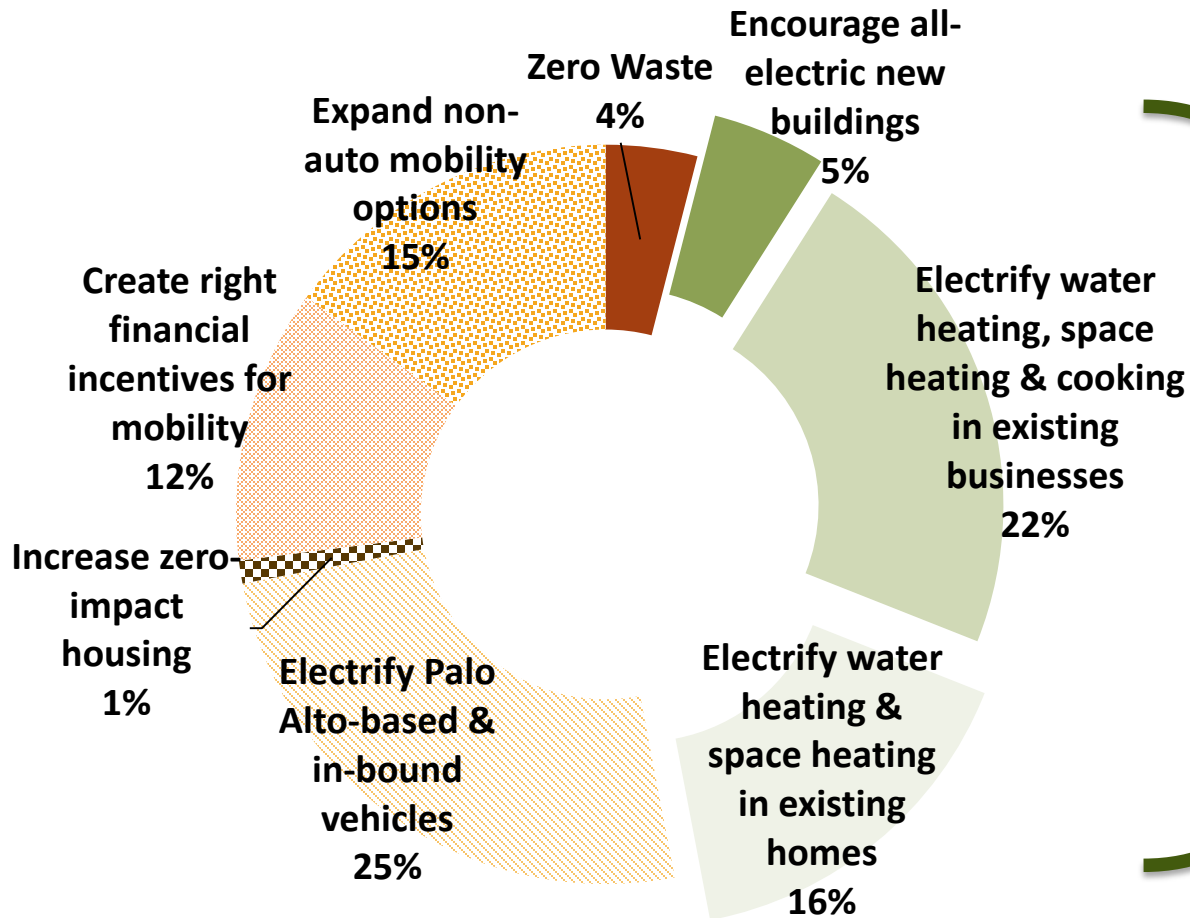
Seek UAC Input on:

Policy Options for Energy Reach Code

Proposed Utility Incentives Programs and Marketing Initiatives

Palo Alto Sustainability and Climate Action Plan

Achieve 80% reduction in Greenhouse Gas below 1990 levels by 2030



Among the S/CAP emission reduction strategies, building electrification accounts for **43%** of the GHG emissions by 2030.

Building Electrification as a key S/CAP strategy

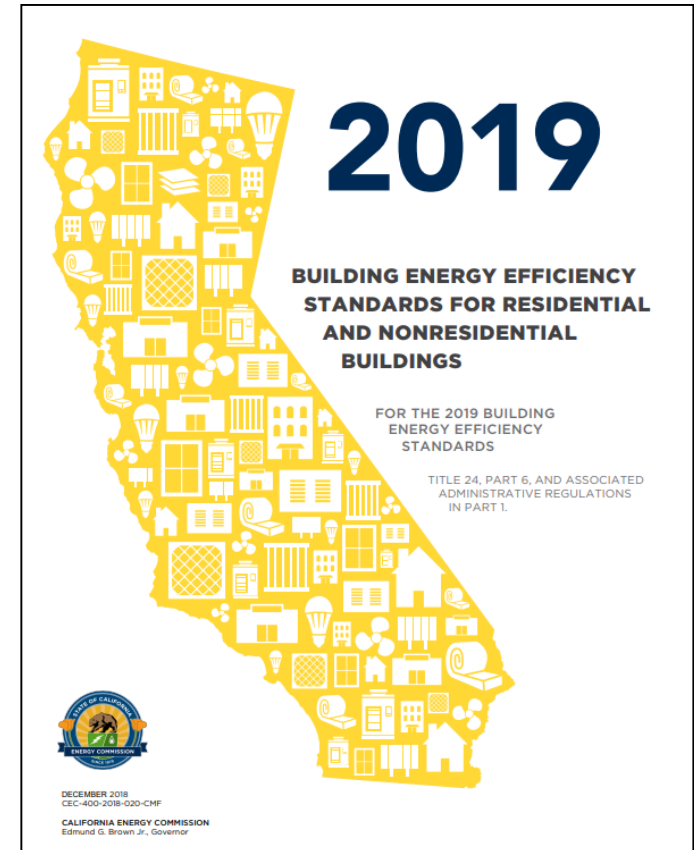
Sustainability Implementation Plan Focus Areas



- Achieve cost effective energy efficiency savings through voluntary programs
- Encourage voluntary electrification of natural gas appliances
- Increase efficiency of new and existing building stock beyond state's standards and support building electrification through Palo Alto's energy reach code

What is the Energy Reach Code?

- **The California Building Energy Standards** are updated every three years. Next code will be effective 1/1/2020.
- **Local codes may voluntarily “reach”** beyond baseline requirements
- **Reach Code Criteria**
 - More stringent than state requirements (use less energy)
 - Cost effective (economically justified)
 - Must not preempt federal appliance efficiency standards



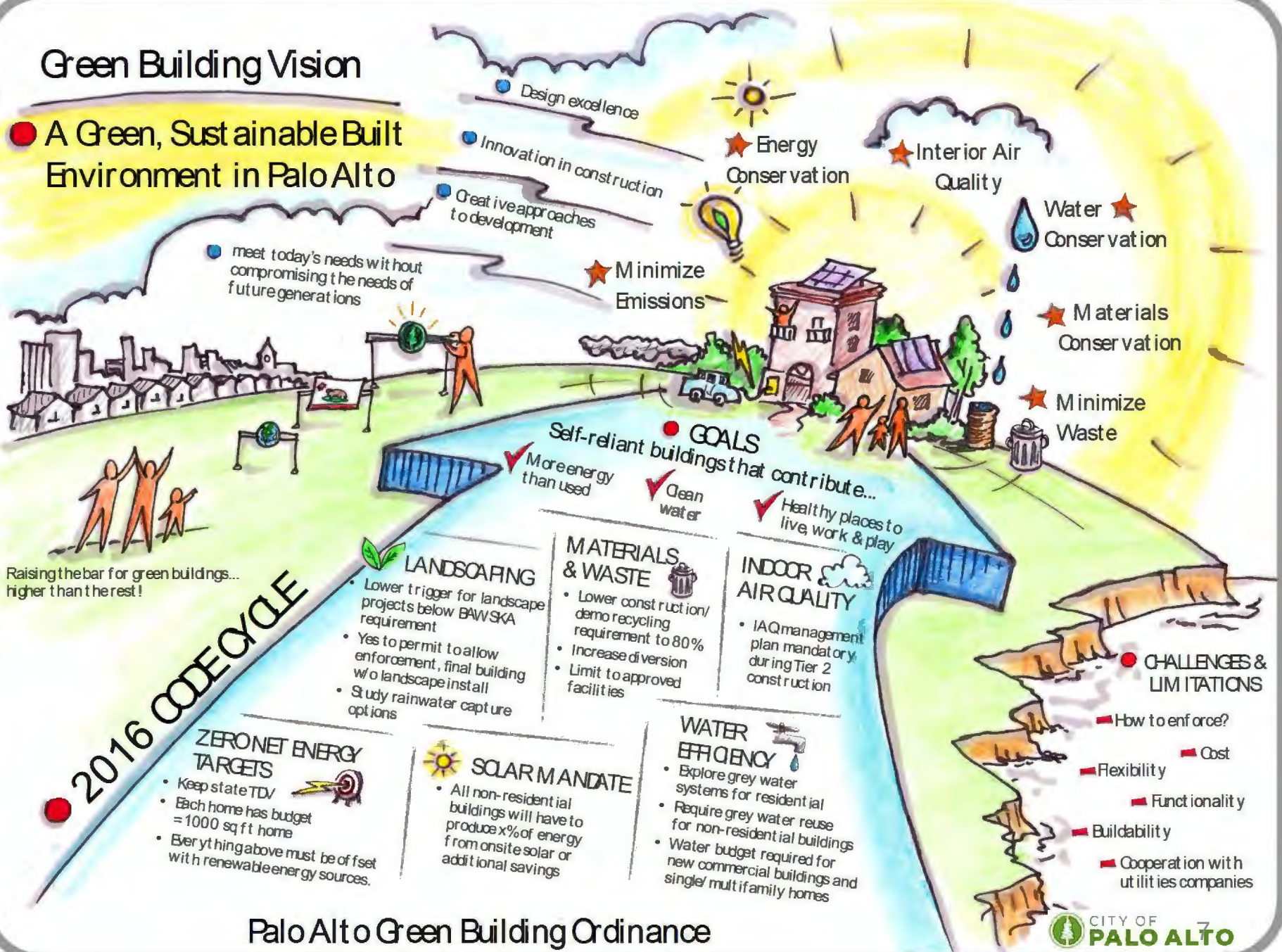
History of Palo Alto Energy Ordinances

- Palo Alto adopted its first **Energy Reach Code** in 2008
- Increased stringency over state requirements for the last 3 code cycles (2010, 2013, 2016)
- Green Building Advisory Group provides directions on the development green building and energy reach code



Green Building Vision

A Green, Sustainable Built Environment in Palo Alto



Palo Alto Green Building Ordinance

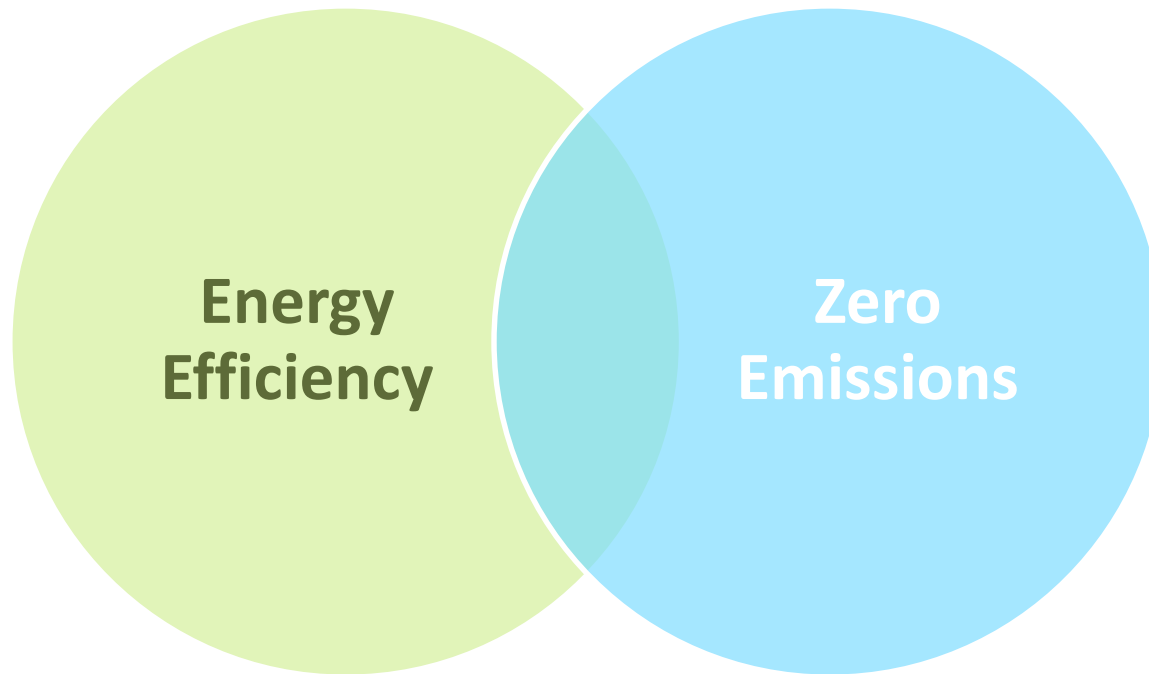
2016 Energy Reach Code

	New Single-Family Residential	New Multi-family Residential	New Commercial
Mixed-Fuel Project Without PV Solar Panels	10% More efficient than Base Code	10% More efficient than Base Code	10% More efficient than Base Code
Mixed-Fuel Project With PV Solar Panels	20% More efficient than Base Code ¹	12% More efficient than Base Code ¹	Comply with minimum Base Code + Install a 5 kW or larger PV system ²
All-Electric	Exempted from Reach Code	Exempted from Reach Code	Exempted from Reach Code

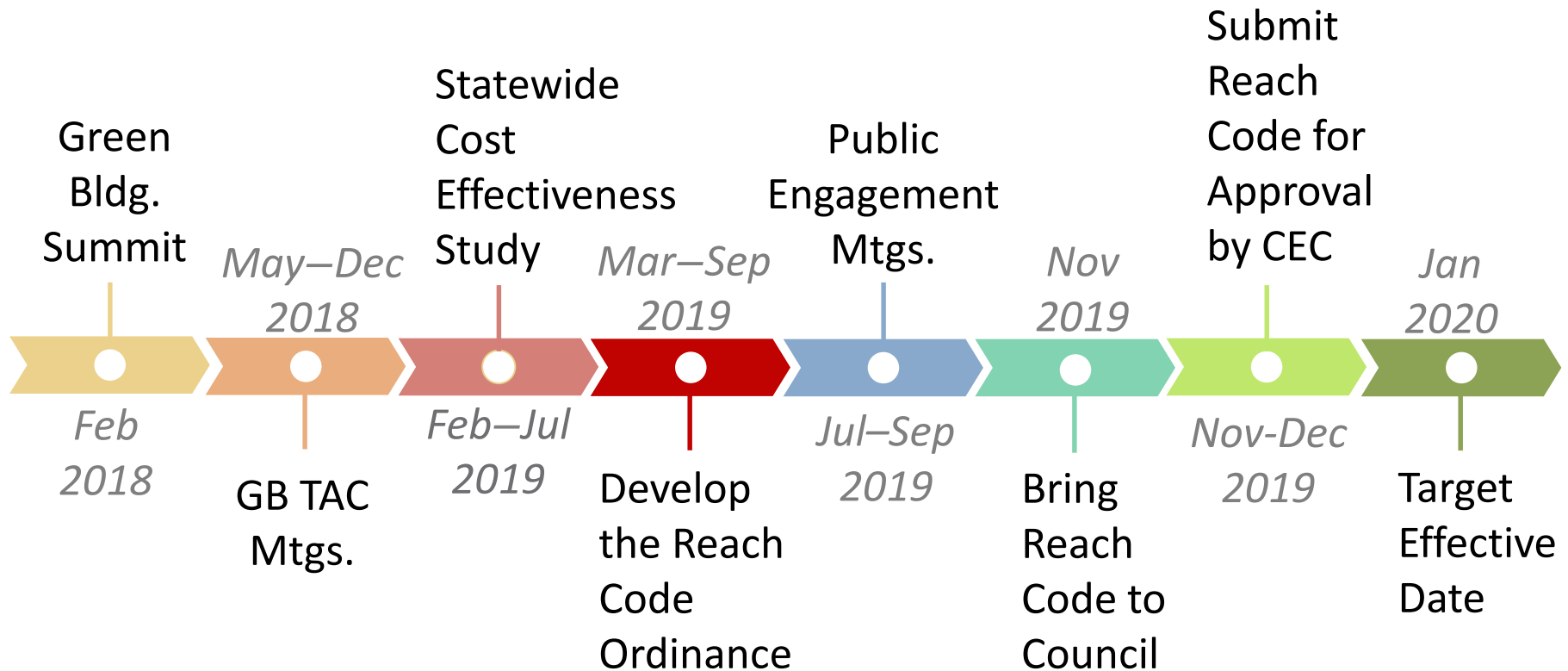
¹ "PV credit" may be applied to meeting the minimum T24 Energy Code. Therefore, a higher percentage reduction is required for single-family and multi-family with PV panels.

² Less than 5 kW PV system is not considered

Policy Goals of 2019 Energy Reach Code



2019 Reach Code Development Process



Policy Options for Reach Code



Prohibits natural gas infrastructure in new buildings (alternative legal basis)

- Building systems not currently modeled for all-electric design by CEC are exempted
- Internal ADUs are exempted
- Exemption allowed for cases where the use of natural gas to serve public interest is demonstrated



Requires new residential buildings (3 stories or less) to be electrically heated or all-electric. Natural gas allowed for stoves, fireplaces, or other appliances.

Requires new nonresidential buildings to be all-electric

- Exception #1: Life science building may use natural gas for space heating if electric heating is not cost effective and feasible
- Exception #2: Public agency owned and operated emergency operations centers may use natural gas if electric heating is not cost effective and feasible
- Exception #2: Nonresidential kitchens may appeal to use natural gas stoves



No reach code requirements for all-electric new buildings. Mixed-fuel new buildings that use gas need to meet higher efficiency requirements, larger PV system, battery storage and be all-electric ready.

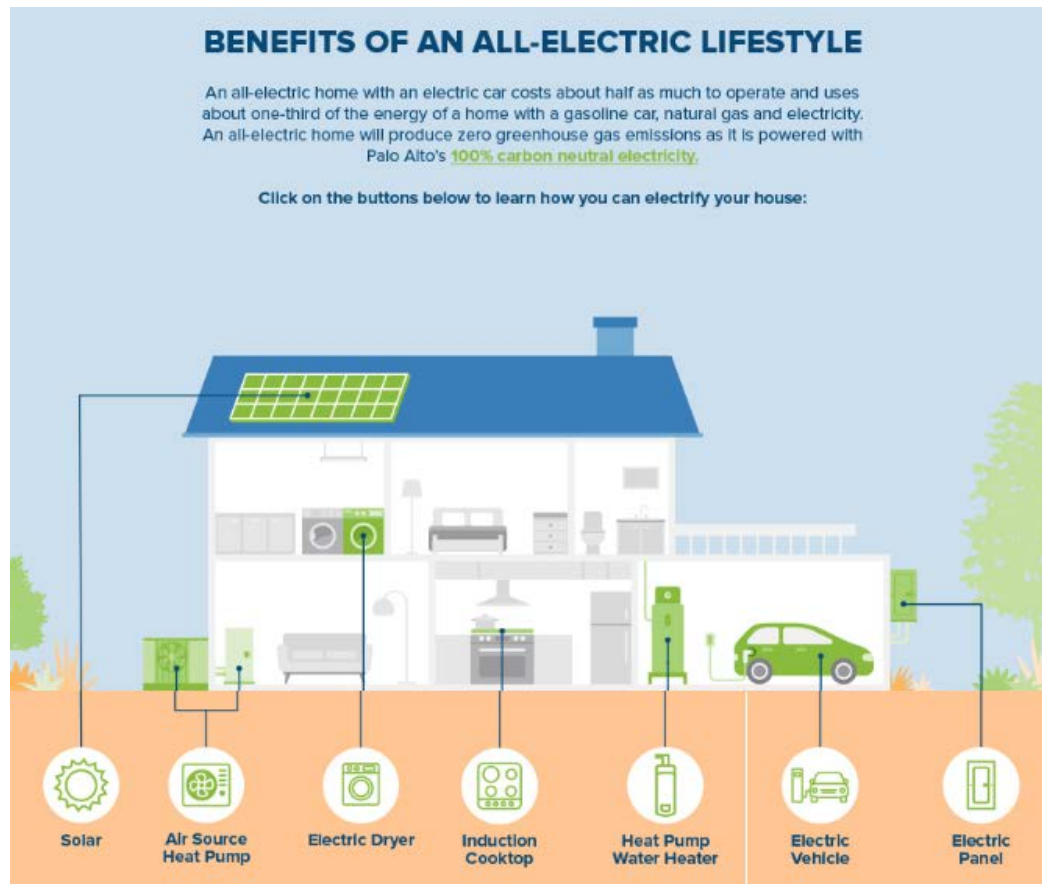
Utility Incentive Programs Being Considered

1. Clean Home Rebate Program to incentivize all-electric residential **new construction** projects to exceed base code efficiency standard
2. Expand rebate offering for electrification in **existing homes**
 - ☒ Heat Pump Water Heater
 - ☐ Air Source Heat Pump
 - ☐ Induction Cooktop
 - ☐ Energy Star Electric Clothes Dryer
 - ☐ EV charger installation with electric panel upgrade



Utility Initiatives to support Building Electrification

- CPAU to offer Home Electrification Readiness Assessment service in Q4, 2019
- Community outreach through workshops and social media campaign
- Online resources available through CPAU Electrification webpage
www.cityofpaloalto.org/electrification



Budget Impact of Potential New Utility Programs

Projections of rebate uptake	year 1	year 2	year 3	Rebate
All-Electric SF new construction	35	45	50	\$2,000
All-Electric MF new construction	8	8	8	\$1,000
SF: mixed-fuel to all-electric conversion	15	30	50	\$6,000
Total Rebate amount	\$168,000	\$278,000	\$408,000	\$854,000
Staffing (FTE)	0.75	0.75	0.75	
Estimated Marketing Budget	\$100,000	\$25,000	\$25,000	\$150,000

Questions & Feedback

Seek UAC Input on:

Policy Options for Energy Reach Code

Proposed Utility Incentives Programs & Marketing Initiatives

Stakeholder Feedback

Reach code places an unfair burden on new construction without addressing larger operational impacts of older homes

City should stop new gas connections to avoid stranded assets

Ideal is no new gas hook up and all electric

Could settle for Menlo Park approach that targets building components that have the largest environmental impact

Tiered rate structure disincentivizes electrification. An all-electric rate is a must

It's unclear whether electric heat pump system can work with radiant heating