



**BUILDING
DECARBONIZATION
COALITION**



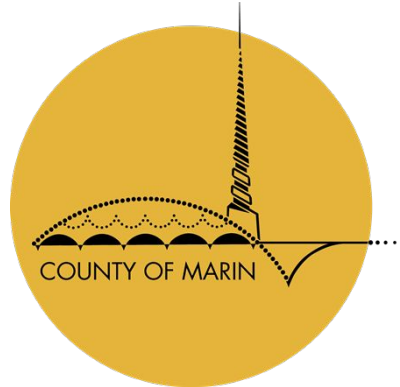
BAYREN
Local Governments Empowering Our Communities



Reaching Beyond New Construction

Panel discussion with California local jurisdiction staff on existing building policy adoption

Feb 7, 2023



Housekeeping

- All participants are muted
- At the end of the panel discussion, please use raise hand feature and the chat
- The event is being recorded
- Slides and recording link will be sent to registrants after the event



Agenda

1. Overview: CA building decarbonization policies
2. Jurisdiction staff share their policy adoption stories
3. Moderated Discussion



Learning Objectives

- Understand existing building policies adopted in 2022
 - Policy, timeline, outreach
- Identify upcoming policy adoption opportunities in 2023
- Network with peers



slido



What do you hope to get out of today's session?

① Start presenting to display the poll results on this slide.



Overview: CA building decarbonization policies



Ambitious goals, but no zero-emission buildings pathway yet



SB 32 (2016)

40% GHG
reduction by 2030



SB 100 (2018)

Electric sector:

2030: 60% renewable
2045: 100% carbon-free
/ 2045



AB 1279 (2022)

2045: net zero
greenhouse gas
emissions

2022 California Policy Actions*



\$1.4 billion multi-year budget for Building Decarbonization



State Implementation Plan (SIP, federal clean air attainment)
First-in-the-nation zero-emission appliance sales standard for space and water heaters.

Scoping Plan (AB 32)-
zero-emission goal for space and water heaters sold in CA by 2030



OFFICE OF THE GOVERNOR

July 22, 2022

Liane Randolph
Chair, California Air Resources Board
1001 I Street
Sacramento, CA 95814

Dear Chair Randolph:

California is in the midst of a climate crisis. Drought, wildfire, and extreme heat have become everyday realities. We are compelled to do more. That's why we are investing \$54 billion in California's Climate Commitment. With this historic

3 million climate-ready homes and 6 million heat pumps by 2030

Local Zero Emission Building Ordinances

Building gas bans and electrification reach codes adopted in California

Natural gas utility service areas as defined by California Energy Commission

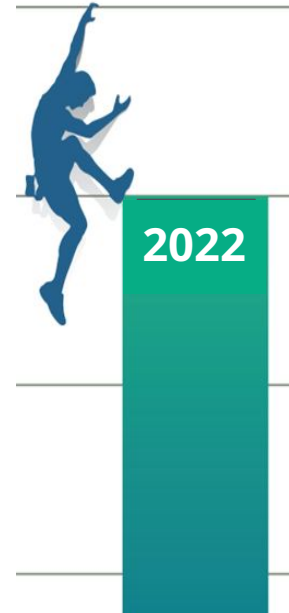


- 72 California jurisdictions
- 97 local jurisdictions across the country
- Over 25% of CA's population
- ~11 million Californians

Sources: [Map, Zero Emission Building Ordinances](#), BDC

What is a Reach Code?

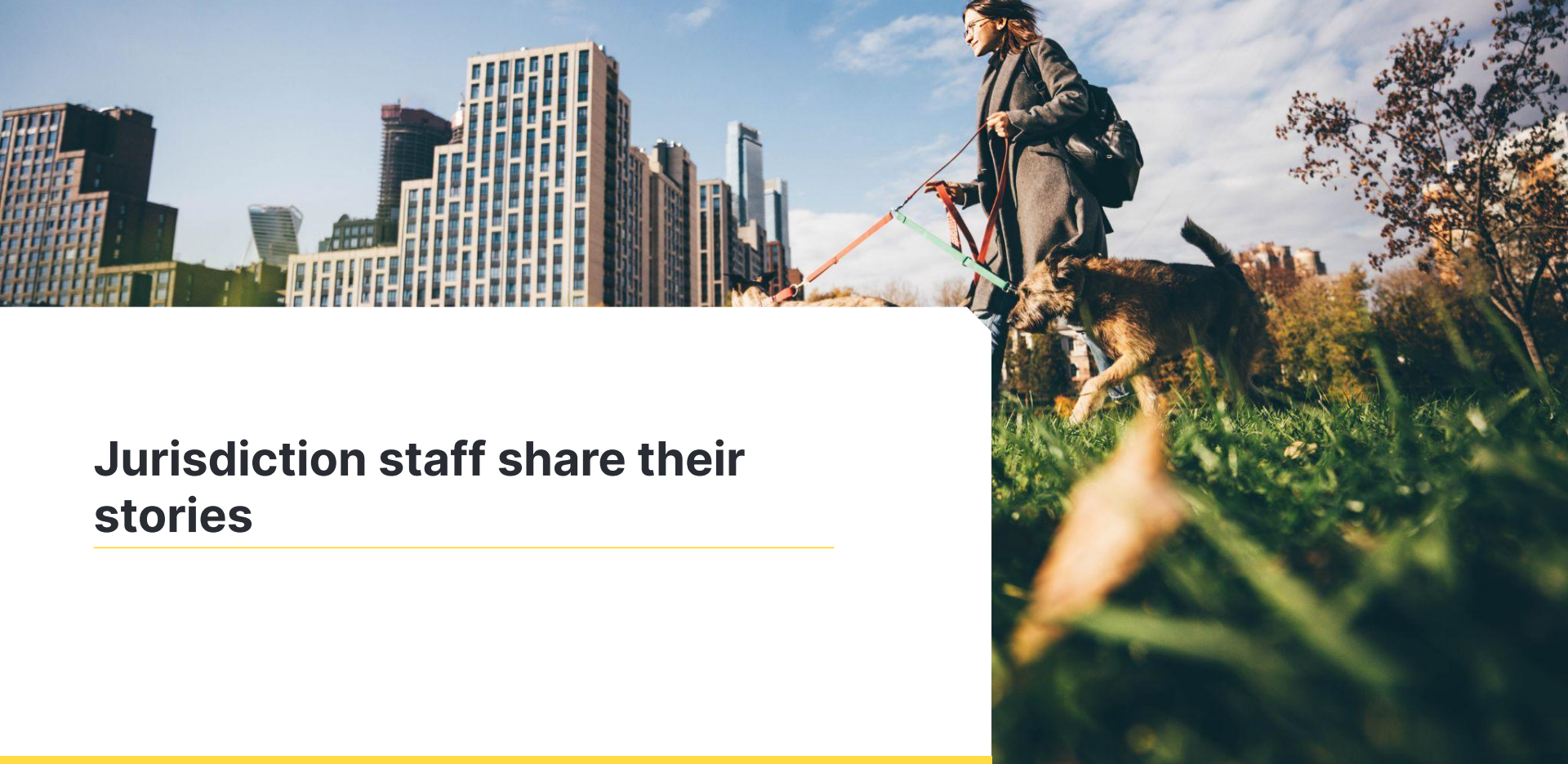
A reach code is an ordinance adopted by a local government that requires something in addition to the requirements of the state's building code.



Some types of reach codes

Subject Addressed	“Base” Code Exceeded
Water Efficiency	CALGreen (Title 24 Part 11)
Green Materials & Recycling	CALGreen (Title 24 Part 11)
Electric Vehicle Charging	CALGreen (Title 24 Part 11)
Energy (buildings)	Energy Code (Title 24 Part 6)

Green Building Ordinance: Local ordinance with one or more requirements for improving the environmental performance of buildings



Jurisdiction staff share their stories



Meet the Panelists



Brian Reyes
Sustainability Planner
*Marin County Community
Development Agency*



Andrea Chow
Sustainability Analyst
City of San Mateo



Christine Tam
Senior Resource Planner
*City of Palo Alto Utilities
Department*



City of San Mateo: Reach Codes Background



Building Electrification



EV Readiness

Policy Considerations



City of San Mateo: Timeline and Process



City of San Mateo: Existing Building Reach Code Summary

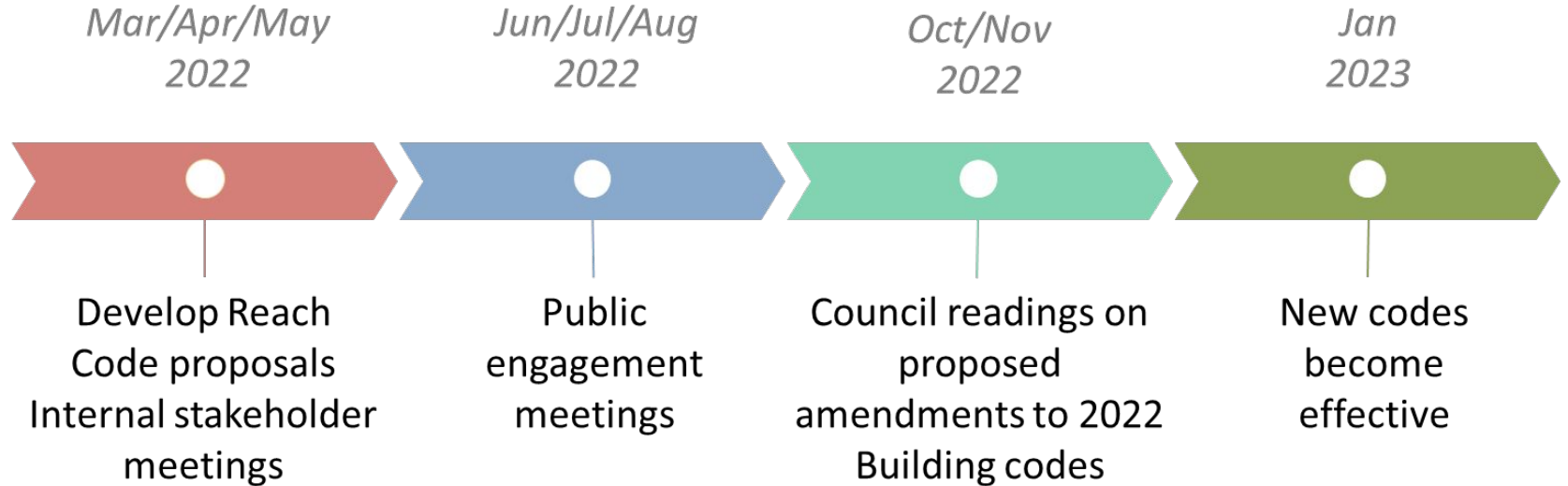
- ❑ **Panel replacement and panel upgrade projects** to include panel capacity/breaker space for future electrification
- ❑ **Residential kitchen and laundry renovations** include installation of an outlet to allow for the use of electric appliances in the future
- ❑ **Prohibits the extension of fuel gas infrastructure** for uses such as new fireplaces, fire pits, grills, and pools
- ❑ Install of **heat pump air conditioning** when new air conditioning is installed or replaced
- ❑ Requires **heat pump water heater** installation during addition and alteration projects that include water heater replacement

City of Palo Alto: 2022 Reach Codes for Existing Buildings



Palo Alto aerial view, 1958

Code Development Process and Timeline



City website on green building requirements www.cityofpaloalto.org/2022reachcodes

Palo Alto's 2022 Reach Code for Existing Buildings

- ❑ **New outdoor equipment** such as grill, stove, BBQ, fireplace, pool/spa heater **must be electric**
- ❑ **Requires heat pump water water heater** when replacing or adding a water heater as part of a **residential addition or alteration project**
- ❑ **“Substantial Remodel”** of an existing home *triggers whole-home all-electric requirements*

Definition of Substantial Remodel: any project that replaces 50% or more of the linear length of exterior walls, or raises 50% or more of the linear length of external wall plate height, or replaces 50% or more of the existing roof framing area, over a 3-year period.

- ❑ Meet **Low Carbon Concrete requirements** for all Tier 1 & Tier 2 projects

County of Marin 2022 Green Building Policy Achievements

Policy Description	Amendment To
All-electric Code for New Construction	Municipal/Bldg. Code
EV Infrastructure Reach Code for New Construction and Renovations	CALGreen
Energy Reach Code for Single-Family Renovations >750 sq.ft.	Energy Code
Low Carbon Concrete Code Updated	Municipal/Bldg. Code → CalGreen

County of Marin 2022 Green Building Policy

Countywide Model (Prototype) Code Development Equitable and Transparent Stakeholder Engagement

1. **Timeline:** 1 ¼ years
2. **Engagement:** Flowed from Team, County Leadership, Cross-Jurisdictional Building Officials/Planning Staff extending out to Community-Based Organizations and Building and Development Community
3. **Stakeholders Mapped and Prioritized:** Electeds and Commissions, City/Town Building Staff, Architects, GB Specialists/Engineers, Developers, Contractors, Equity Priority, Senior/Aging-in-place, and Environmental Advocates
4. **Five and Five:** 5 Monthly meetings w/CBOs and planners + 5 community workshops
5. **Survey:** Distributed through stakeholder listservs
6. **Model Code Drafted:** Several Rounds of Feedback and Buy-in
7. **Feedback Loop:** Communicated results back to all stakeholders and continues today

Moderated Discussion



Meet the Panelists



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Sustainability Planner
*Marin County Community
Development Agency*



Andrea Chow

Sustainability Analyst
City of San Mateo



Christine Tam

Senior Resource Planner
*City of Palo Alto Utilities
Department*



Gray Gautereaux

Energy Program Manager
*Tri-County Regional Energy
Network*



Thank you for joining us!

Slides and recording will be shared with registrants. Please reach out to us with any questions!

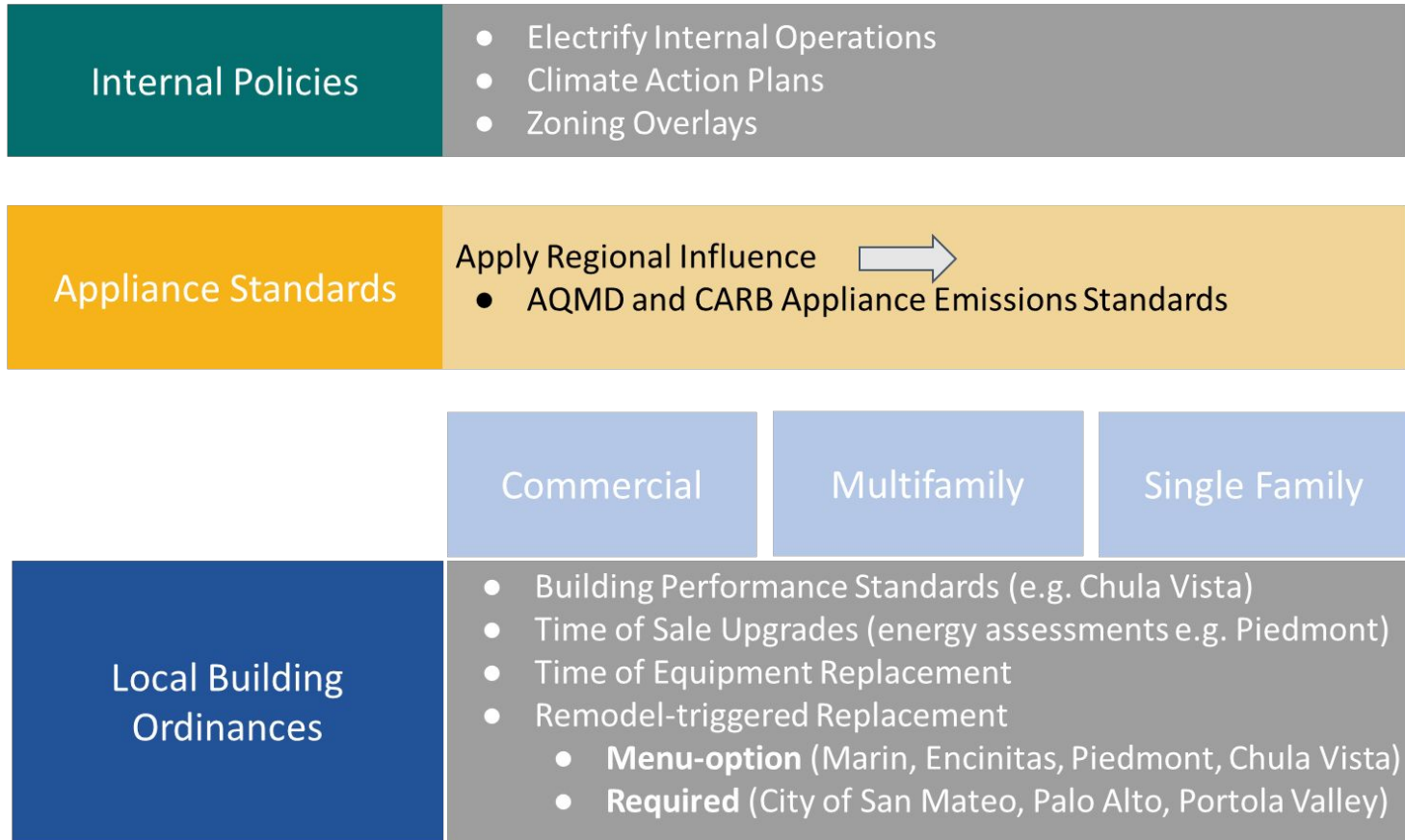
- Andrea Chow, City of San Mateo: achow@cityofsanmateo.org
- Brian Reyes, Marin County: breyes@marincounty.org
- Christine Tam, Palo Alto: christine.tam@cityofpaloalto.org
- Lawrence Garber, BDC: lawrence@buildingdecarb.org
- Karen Kristiansson, BayREN: codes@bayren.org
- Misti Bruceri, for Local Energy Codes: info@localenergycodes.com
- Gray Gautereaux, for 3C-Ren: ggautereaux@co.slo.ca.us
- Angie Hacker, for CCEC: ahacker@civicwell.org



Appendix



Existing Building Options for Local Governments



Existing Building Measures Adopted 2022

	Residential Remodel Requirements ¹				Requirements for all projects	
	Select from a menu of energy efficiency and electrification measures	Requires heat pump instead of one way A/C	Requires heat pump water heater during addition and alteration	Requires electric readiness capacity for future electrification	Prohibits extension of fuel gas infrastructure into backyard for uses such as fire pits, grills, and pools	Adopts a “Substantial Remodel” definition to trigger all-electric requirements
Portola Valley		x		x		
City of San Mateo		x	x	x	x	
Palo Alto			x		x	x
Marin County ²	x			x		
Encinitas ³	x					
Piedmont ⁴	x					

1. Enforced at time of permit application and issuance and are triggered when someone is coming to the jurisdiction for a remodel project.
2. Projects of 750 square feet or greater), will be required to meet a target energy score using a point system that allows for a flexible range of building energy efficiency and/or electrification measures
3. All additions and alterations of single family residential buildings with a building permit valuation of \$50,000
4. A project value of greater than \$30,000 is required to include one measure. A project value of greater than \$115,000 is required to include two energy efficiency measures.



Resources Shared During the Webinar

- [Reach Codes for Home Alterations](#)
- [San Mateo Checklists, Guidelines, Forms including](#)
 - 2022 CalGreen Checklist- New & Altered Nonresidential
 - 2022 CalGreen Checklist- New & Altered Residential
 - 2022 CalGreen Checklist- Reach Codes Residential
- The [Cities of Oakland and San Francisco held a workshop last year with PG&E](#) that addressed how a large demand of service upgrades would slow down the transition due to grid infrastructure constraints so efficient electrification should be the name of the game:
 - [14th Annual California Climate & Energy Forum](#)
 - See slide 29 for links to more jurisdiction-specific documents

Building Decarbonization Resources

- [BDC's Clean Building Compass](#)
- [Switch is On : Switch to Electric 2023 Incentives Guide](#)
- IRS: [Frequently asked questions about energy efficient home improvements and residential clean energy property credits](#)
- [Statewide Reach Codes Program](#)
- [Cost Effectiveness Explorer w/ subsidy feature](#)
- [2022 Building Electrification & EV Infrastructure Reach Code Initiative](#)
- BAYREN: [Addressing Existing Buildings](#) and Policy Calculator
- 3CREN: [Tri-County Regional Energy Network](#)
- RMI: [EQUITABLE HOME ELECTRIFICATION TOOLKIT](#)
- Build it Green: [Equitable Electrification Handout](#)
- [Energy Justice Considerations in Building Decarbonization Policy](#), Jasmine Graham, BDC



Reaching Beyond New Construction: *A panel discussion with local jurisdiction staff on existing building policy adoption*

2/7/2023

Youtube Recording Link: <https://youtu.be/TtiCpYQ2-Ng>

Link to slide deck: [Reaching Beyond New Construction_2.7.23.pdf](#)

Moderator: Gray Gautereaux from 3CREN

Panelists: Christine Tam, Senior Resource Planner Utilities Department at the City of Palo Alto
Brian Reyes, Sustainability Planner on the Marin County Community Development Agency's Sustainability Team
Andrea Chow, Sustainability Analyst at the City of San Mateo.

Organizers: Building Decarbonization Coalition, California Climate and Energy Collaborative (CCEC), Bay Area Regional Energy Network (BayREN), Tri-County Regional Energy Network (3C-REN), Statewide Codes and Standards Team

Moderated Discussion Notes

- **Why do you think now is the time your city can do this work?**
 - Christine: When Palo Alto city council adopted the reach code in the last cycle, directed staff to close loopholes on substantial remodels. Run own local utilities and incentivize with rebates, but needed building policies to push electrification with minimal cost impacts on building and homeowners. Cost-impact is a big factor. Also look at local electrical grid impact. It's a cross-section on what can be done now to make an impact.
 - Andrea: For San Mateo, building off experience with new construction reach codes to work on existing buildings. City Council directed looking into reach codes.
 - Brian: County of Marin had experience building on reach codes. Many community stakeholders were open to electrification, and others saw a market trend towards this. Clear support from state level to do cost effectiveness studies and tools to address existing families. Talking with other cities was also encouraging and helpful.
- **How have you responded to concerns about grid resilience? What strategies have you adopted to strengthen grid resilience in new codes? Any thoughts in regards to wildfires and flooding?**
 - Brian: County of Marin grid is outdated. In the context of developing reach code, partnered with CCA because they had their ear on the ground; invited PGE to help inform discussion on



their challenges with the grid and why upgrading transformers can take up to 14 months (due to requests during wildfire season) - helped County of Marin understand why challenges or delays occur, and helped minimize risk of delaying project.

- Christine: Engineering dept is working to upgrade and modernize the grid. Don't want to slow them down with so many transformer upgrades. The reason there is the code for HPWH replacements in alteration/addition projects, the added load is minimal and less than EV and HPs. Lessened requirement for EV charging level from 2 to 1 so it's not overloading utilities with power requirements.
- Andrea: San Mateo experience is similar to County of Marin, working with CCAs and PGE. It can be painful to hear about the delays on the electrification path, but having fossil gas doesn't help with resilience either.
- **Any strategies to improve permitting in adherence to codes?**
 - Andrea: The jury is still out on how effective it is to electrify when permitting slows people down. Reflecting on the past 5 years' record, there is permit evasion. A challenge is that gas water heaters can be replaced without permit. The HPWH requirement for addition or replacement is geared that way so that people can plan. Created handouts to distribute to the community about permits.
 - Christine: In Palo Alto, a big rush of permit applications happens at the end of year. December will give a more accurate picture. Raising awareness about these codes and permit requirements, outreach to residents is important. Starting to get into existing buildings in this code cycle through ADUs, etc. and the grid will be a little more ready in the next cycle to address more existing buildings. Exceptions to permitting is time-consuming for building staff and creates a loophole many people try to get through.
 - Brian: When designing policy and permitting, create a checklist for quickness and efficiency. Getting buy-in from stakeholders up front can help with avoidance. Replacement upon burnout of appliance is a pinnacle of permit avoidance. How to get more compliance, e.g., energy audits upon replacement - need to think through before more aggressive energy codes are implemented.
- **What is your thinking behind exemptions to codes?**
 - Andrea: Relied on CCA and consultant to develop actual code language. [Economic hardship exemption](#) for existing building measures - if cost including incentives is still greater to electrify. What drove these measures was finding intervention points to electrify, e.g., renovations where people are planning.
 - Farhad - The Economic Hardship exemption was modeled based on Denver, in case anyone was wondering.
 - Brian: Addressed renters and got feedback. Reach codes apply to 750+ sq ft as trigger point, ADUs, and alterations. Exemptions are also available for those under the CARE program but these are for low-income, and many middle income renters don't qualify for CARE and are also burdened by the cost of upgrading.



- Christine: Current zoning requirements don't allow HP equipment in setback areas, which is a problem. Planning department is working on zoning issue to lower some of these barriers to electrification.
- **How do we make sure that no one is getting left behind? What other resources are available to ensure equity and afford the transition?**
 - Christine: City of Palo Alto has its own utility program and electrification assistance with rebates, including HPWH direct-install program for replacements. Contractor is sent to the house to do replacement and saves homeowner on time to get bids.
 - Andrea: San Mateo CCAs has robust rebates to complement reach code efforts. Available to everyone, e.g., PCE HPWH rebates, BayRen.
 - Brian: Reach codes aren't solving equity issues, but can mitigate some of these issues. Community member feedback is important. Rebates and incentives are great, but communicating these to communities is important. Must think about how to make electrification of value and easy for low-income communities. Need funding to build programs for affordability – in the way that affordable housing programs are funded and developed, equitable electrification also needs to be developed and built out.
- **Significant stakeholder outreach and long timelines were utilized in creating reach codes. What are some lessons learned from doing stakeholder outreach and feedback?**
 - Brian: Engaged everyone in the value chain of a building and more. Started internally, built on other people's work, stakeholder mapping relied on cross-jurisdiction partnership to help prioritize and pinpoint who to target. Identify who is willing to engage and participate. County of Marin has an aging population with fixed incomes, so we involved this community to influence policy. Taking care of relationships also helped ensure there was minimal pushback upon adoption of policies.
 - Christine: Palo Alto has been adopting reach codes since 2008, and there is an advisory group that provides insight – stakeholders include inspectors, building experts, manufacturers. The advisory group gives practical input, e.g., mandating greywater system, exemptions based on project cost. The group acts as a braintrust.
 - Andrea: The challenge with existing buildings is that you are attempting to reach everyone. It's a challenge to get feedback and engage the community more broadly since you hear from people who have bandwidth to respond.
- **What is your advice or takeaways for city staff wanting to do reach codes?**
 - Brian: I started working on codes in May 2021 and many of you may be new to it. It's important to know that there are resources - internally, across jurisdictions, at Building Decarbonization Coalition. You can't do any of this alone.
 - Christine: Statewide codes and standards team. Resources and partnering with different departments, and using their communications channels to spread awareness and get community engagement. Online meetings and multiple slots enable more people to participate.



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- Andrea: Reaching out to resources around you. Statewide codes and standards team. Calling on other jurisdictions. We have documents and slides you can copy. Reach out and ask. You need a strong internal team to ensure you have an effective ordinance. You can also start small, just start somewhere and don't be discouraged.