

**DOCKETED**

<b>Docket Number:</b>	22-DECARB-02
<b>Project Title:</b>	Building Decarbonization and Electric Vehicle Charging Equipment Web Guide
<b>TN #:</b>	245787
<b>Document Title:</b>	August 30 Workshop; BayRen Panel 2 Presentation
<b>Description:</b>	N/A
<b>Filer:</b>	Heriberto Rosales
<b>Organization:</b>	California Energy Commission
<b>Submitter Role:</b>	Commission Staff
<b>Submission Date:</b>	9/1/2022 10:27:22 PM
<b>Docketed Date:</b>	9/2/2022



Local Governments Empowering Our Communities

# Panel 2: Tools and Resources

Examples for Local Governments

*Karen Kristiansson, BayREN*

August 30, 2022

# Bay Area Regional Energy Network (BayREN)



BayREN is:

- A collaboration of the Association of Bay Area Governments (ABAG) and the nine counties that make up the San Francisco Bay Area
- One of four regional energy networks (RENs) in California
- Funded by the CPUC
- Focus on buildings – saving energy and reducing emissions

# Current BayREN Programs

Home+ Single Family  
Program

Green Labeling  
Program

Water Upgrades \$ave  
Program

Multifamily Program

Business Program

Codes & Standards  
Program

For more information: [www.bayren.org](http://www.bayren.org)



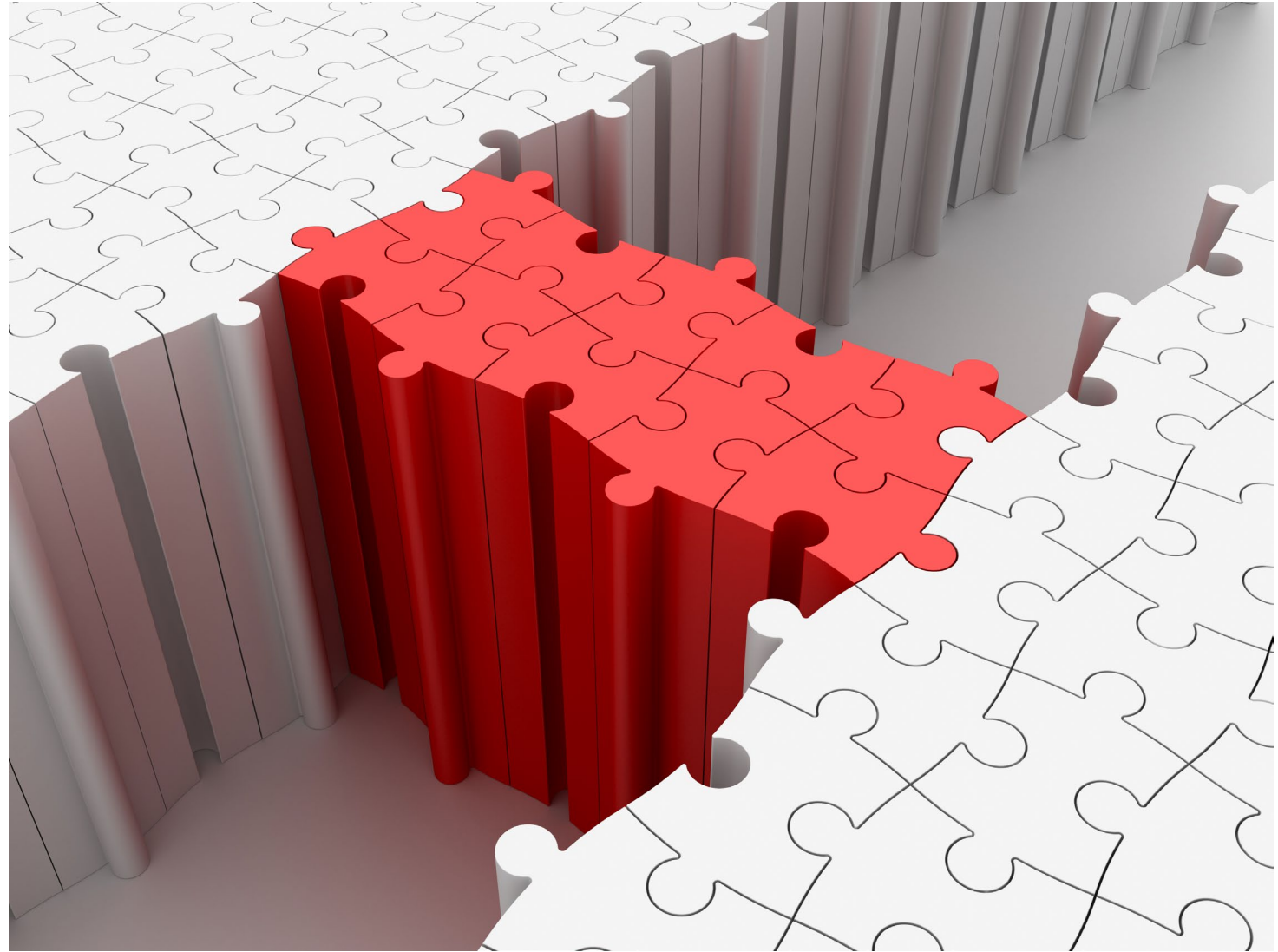
# BayREN's Codes & Standards Program



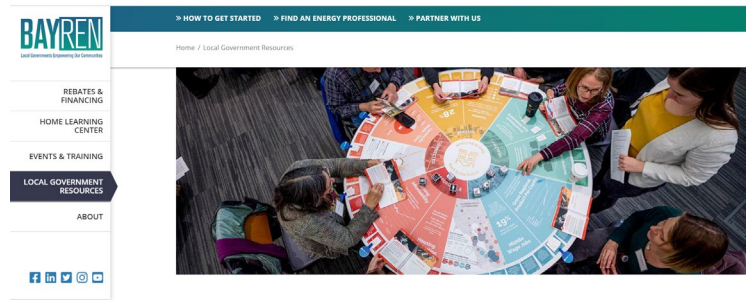
Three areas of focus:

1. Improving energy code compliance,
2. Increasing adoption of local energy policies, and
3. Connecting local government needs and state policies

Local  
Governments  
Need  
Information  
and Resources



# Examples of existing sources of information



## » Local Government Resources

BayREN helps the Bay Area's local governments reduce energy and water use for a more cost-effective, sustainable and resilient future.

We support local governments by:

- > Offering training and resources related to energy code compliance and enforcement
- > Providing no-cost engineering technical assistance to help municipal buildings to reach Zero Net Energy or Zero Net Carbon goals

### Local Government Resources

YOUR COUNTY LEAD

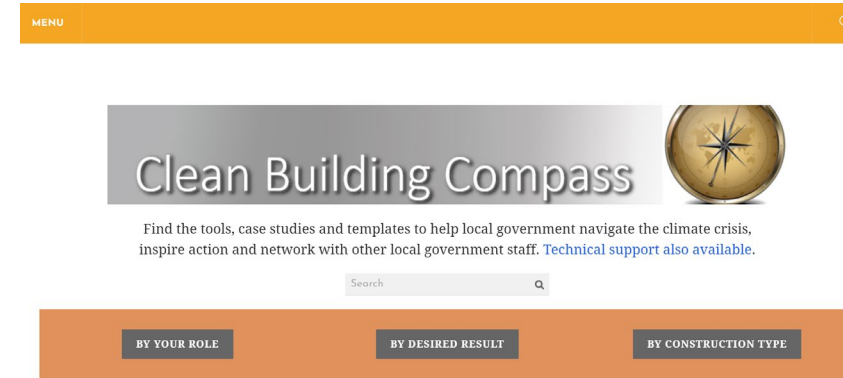
CODE COMPLIANCE

<https://www.bayren.org/local-government-resources>



Your one-stop shop for no-cost tools, training and resources to help you comply with California's [Title 24, Part 6 building energy code](#) and [Title 20 appliance standards](#). We're powered by the California Statewide Codes & Standards Program and vetted by the California Energy Commission.

<https://energycodeace.com/>



Not sure what you want? Watch the [orientation video](#) or browse popular categories, including building [electrification](#), below.

<https://www.buildingdecarb.org/compass.html>

Statewide Reach Codes Program



<https://localenergycodes.com/>

**BAYREN**

# Two examples:

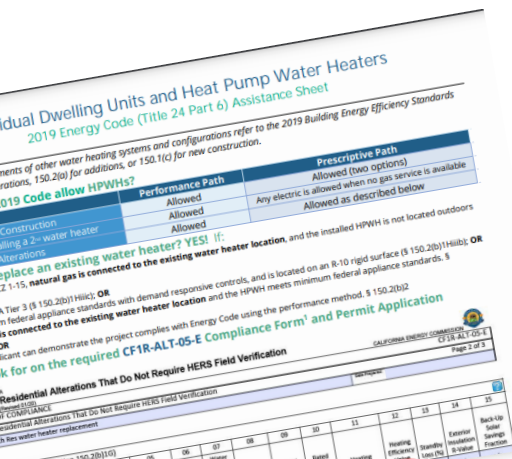
1. Heat Pump Water Heaters
2. Reach Codes

# Example 1: Heat Pump Water Heaters

## Building Department Role

- Permitting & inspecting HPWHs
- Staff need to know:
  - What are HPWHs?
  - What are the relevant code requirements?
  - What do we need to look for on the plans and in the field to ensure HPWHs are installed safely and to code?

# HPWH Building Department Resources



Heat Pump Water Heaters for Accessory Dwelling Units (HPWHs for ADUs)

Heat pump water heaters can be a good choice for ADUs, rather than a traditional gas water heater. Heat pump water heaters are highly energy efficient and offer a range of benefits compared to traditional electric and gas water heaters.

- Are extremely efficient and save energy
- Reduce air pollution and carbon emissions that contribute to climate change
- Avoid the health and safety issues of burning natural gas

- Avoid the need for a hot water storage tank

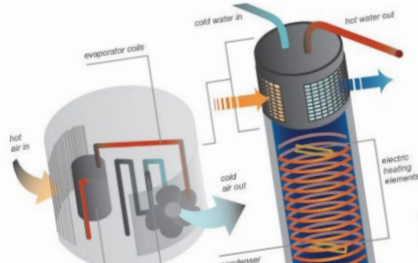
**What is a heat pump water heater?**

It's a lot like a conventional gas storage water heater, but instead of a burner, it has a heat pump and another coil.

- Reduce air pollution and global warming
- Avoid the health and safety issues of burning fossil fuels

**What is a heat pump water heater?**

It looks a lot like a conventional gas storage-type water heater—it's a big cylindrical tank with one pipe that brings cold water in and another pipe that sends hot water out. The heat pump unit is typically built into the top of the unit. A heat pump uses electricity, refrigerant and a compressor to move heat from surrounding air and to the water in the tank. The technology is the same used in a refrigerator, only in reverse.



REBATES &amp; FINANCING

HOME LEARNING  
CENTER

## EVENTS & TRAINING

## LOCAL GOVERNMENT RESOURCES

## ABOUT



[» HOW TO GET STARTED](#)    [» FIND AN ENERGY PROFESSIONAL](#)    [» PARTNER WITH US](#)

[Home](#) / [Events & Training](#) / [BayREN C&S Training: Heat Pump Water Heaters for Building Department Staff](#)

## TRAINING

SEP  
28

## BayREN C&S Training: Heat Pump Water Heaters for Building Department Staff

**Wednesday, September 28, 2022**  
9 a.m. - 10:30 a.m.

## Online

Heat pump water heaters (HPWHs) are an increasingly popular technology that are a highly efficient means of providing hot water to houses. This training will describe HPWHs, code requirements for HPWHs, resources for permitting and compliance, and best practices for enforcement.

ICC CEUs: 0.1

**Target Audience:** Permit technicians, plan checkers, and field inspectors.

[Register](#) 

- Field inspectors
- Permit technicians
- Plan checkers

TOPICS  
Energy Code, Heat Pump Water Heater

<sup>1</sup> Similar for CFIR-ALT-01 (altering other parts of the house) and CFIR-ADD-01 (prescriptive as developed in partnership with the BayREN Codes & Standards Program  
bayrencodes.org | codes@bayren.org  
Page 1 of 2 | Last Updated 08/12/2020

# HPWH Building Department Resources

## TECH Permitting Pilot Resources

- ✓ Building Code Assistance Sheet
- ✓ Permit Supplement Template
- ✓ Electrical Load Estimator

Resources:

<https://www.bayren.org/building-dept-tools-guides/heat-pump-water-heaters>

The collage features three documents:

- HPWH Permit Supplement:** A diagram showing a heat pump water heater with labels for 'Flexible Conduit', 'Condensate drain (clean water) Line 1/4" to Drain any pipe material', 'Appropriate drain or outside 1 pint/day', 'Strapping at least 4" away from controls', 'Strapping at 1/3 and 2/3 of tank height', and 'T&P Relief 1/4" copper or ABS tube to between 24" & 6" above floor'. It also notes 'Tank can be set on floor Or if < Tier 3, set on R-10'.
- HPWH Permit Supplement Form:** A form with a 'Key' indicating 'User inputs' (yellow) and 'User input if applicable' (green). It includes a table for 'Applicable Equipment' with columns for 'Required' and 'Instruction below'. The table lists various appliances (Microwave, Trash Comp, Dishwasher, Disposal, Electric Water Heater, Electric Clothes Dryer, Electric Tank Water Heater, Electric Heat Pump Water Heater, Electric Evaporative Cooler, Pool or Spa, Other) with 'No' or 'Yes' entries. Below the table are fields for 'Project Address:', 'Scope: Heat Pump Water Heater', 'Controlling Codes: 2019 Calif.', 'Make & Model #', 'Tank Size: G', 'Volts x Amps = W', 'Efficiency Energy Factor:', 'NEEA Tier:', and a 'STATEMENT OF COMPLIANCE' section.
- 2019 Building Code Compliance Checklist:** A checklist titled 'HPWH Permit Supplement' with a 'Key' indicating 'User inputs' (yellow) and 'User input if applicable' (green). It includes sections for 'HPWH Permitting Checklist', 'General Water Heater Requirements (Check all that apply)', 'HPWH Issues Specific to Tank Size and Installation Location (Check all that apply)', 'Electric Circuit (Check at least one)', 'Electric Service Panel (Check at least one)', 'Jurisdictions May Require (Check all that apply)', and a 'Statement of Compliance' section.

## Example 2: Reach Codes

### Building Department Role

- Enforcing reach codes as part of permitting process
- Staff need to know:
  - What are my jurisdiction's reach code requirements?
  - How do those relate to the base code requirements?
  - What do we need to look for on the plans and in the field to ensure our reach code is implemented?

# Reach Code Resources for Building Departments

- Customized trainings
- Open training curriculum
- Checklists & summary



## Reach Code Training – City of Milpitas

BayREN Codes & Standards

Amy Dryden  
www.BayREncodes.org

LOCAL BUILDING ENERGY STANDARDS SUMMARY OF [JURISDICTION NAME] NEW CONSTRUCTION REQUIREMENTS

This document is intended as a companion to the Electric-Preferred Reach Code application checklists. It should be modified to suit local requirements (especially blue italicized text).

Version 2.0, 4/21/2020

DELETE ALL BLUE TEXT BEFORE PUBLISHING

The [Jurisdiction Name] has adopted the following local building energy standards. These standards apply to all newly constructed buildings with Land Use Permit applications submitted on or after [date] and newly constructed buildings with Building Permit applications submitted on or after [date].

These building standards have been established to ensure that new construction in [Jurisdiction Name] is healthier for occupants, has limited impact on the environment, reduces demand for energy, and results in cost savings from building operation over the life of the building.

This summary is intended to highlight the requirements, but each building type has an accompanying checklist detailing the standards. Please include the appropriate checklist with your submittal package.

Occupancy Type	Requirements	Exceptions
Residential Projects (3 stories or less)	<b>All-Electric Projects</b> <ul style="list-style-type: none"><li>Meet or exceed 2019 Building Energy Efficiency Standards</li></ul>	
	<b>Mixed-Fuel Projects</b> <ul style="list-style-type: none"><li>Exceed the 2019 Building Energy Efficiency Standards Total Energy Design Rating<sup>2</sup> by a margin of [X] EDR points</li><li>[For CalGREEN Tier 1 - Achieve a Total Energy Design Rating of no more than X]</li><li>Install circuits and drains to enable future conversion of all gas appliances to electricity<sup>3</sup></li></ul>	[Qualified Mixed-Fuel ADUs may comply as All-Electric Buildings]  Circuit for space heater is not required if AC circuit is present.
	<b>Single Family EV Chargers</b> [modify as needed] <ul style="list-style-type: none"><li>1 EV Ready Level 2 space per unit</li><li>1 space with an EV Level 1 circuit installed</li></ul>	Requirements are modified if there is no or limited solar access.
	<b>Multifamily EV Chargers</b> [modify as needed] <ul style="list-style-type: none"><li>[X]% Level 1 EV Capable Spaces</li><li>[X]% Level 2 EV Capable Spaces</li><li>[X]% Level 1 EV Ready Spaces</li><li>[X]% Level 2 EV Ready Spaces</li><li>[X]% spaces with Level 2 EV Charging Stations installed</li></ul>	Not applicable if there is no on-site parking
Residential Projects (4 stories or more)	<b>All-Electric Projects</b> <ul style="list-style-type: none"><li>Meet or exceed 2019 Building Energy Efficiency Standards</li><li>Install a solar PV system on entire Solar Zone [modify as needed]</li></ul>	Requirements are modified if there is no or limited solar access.

LOCAL BUILDING ENERGY STANDARD CHECKLIST FOR RESIDENTIAL NEW CONSTRUCTION THREE STORIES OR LESS

APPLICANT NAME: \_\_\_\_\_

**D ELECTRIFICATION**

mandatory elements of the 2019 Building Energy Efficiency Standards as well as [cite municipal/county code reference(s)]

liances  
structure  
ciency standards required by the State (no additional local energy efficiency

ose either performance or prescriptive)

ter than or equal to [X], [CalGREEN] – "Total EDR no greater than X for single ifamily" as demonstrated on the 2019 Building Energy Efficiency Standards of Compliance form

ompliance prepared by Certified Energy Analyst (1-point EDR credit)

ified in [reference prescriptive section of local code]

box for each appliance that uses natural gas or propane and verify additional

it and receptacle within 3 feet

1 240V, 40A circuit and 50A receptacle within 3 feet

ated 240V, 20A receptacle within 3 feet

240V, 30A electrical receptacle located within 3 feet

ical circuit within 3 feet of designated location

ectrical panel and raceway capacity for equivalent electrical appliances

- Electrical panel and raceway capacity for equivalent

nd CalGreen checklist

# Key Points

## Common goals of resources:

- ✓ Provide information about code requirements
- ✓ Encourage consistency between local jurisdictions
- ✓ Help building departments and applicants get on the same page

# Key Points

- Resources need to:
  - ✓ Address the right questions
  - ✓ Be reliable and accurate
  - ✓ Reduce confusion
- Information is especially needed for new technologies and new policies

# Key Points

Collaboration is important when developing and promoting resources

For example:

**This document is the product of a collaborative effort:**

Building Decarbonization Coalition

BayREN

Peninsula Clean Energy

Silicon Valley Clean Energy

East Bay Clean Energy

New Buildings Institute

Statewide Utility Codes and Standards Program: Reach Codes  
& Staff from Multiple California Jurisdictions

# Contact information

Karen Kristiansson

415-778-5260

[codes@bayren.org](mailto:codes@bayren.org)