

# Bringing the Heat: A Year of Heat Pump Water Heaters

California Climate and  
Energy Collaborative Forum  
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# What we will cover today

1. Heat Pump Water Heater (HPWH) Initiative Design
2. HPWH Initiative Implementation
3. Pico Rivera Project Success
4. Achievements and Lessons Learned
5. What's Next
6. Q&A



# General Overview



**SoCalREN believes in the power of public agencies to lead their communities toward a safe, secure, resilient, affordable, and sustainable clean energy future.**



# Southern California REGIONAL ENERGY NETWORK



The Southern California Regional Energy Network (SoCalREN) was created to harness the collective power of residents, businesses and the public sector to achieve an unprecedented level of energy savings across Southern California.

## EXISTING



Public Agencies



Residential



Workforce  
Education and  
Training



Finance

## NEWLY APPROVED



Agriculture



Commercial



Codes &  
Standards



The SoCalREN Public Agency Programs are administered by the County of Los Angeles and funded by California utility ratepayers under the auspices of the California Public Utilities Commission. Learn more at [socalren.org](https://socalren.org).



# SoCalREN's Streamlined Savings Pathway Program

## How it works

The program offers fast-tracked incentive processing for agencies that complete energy efficiency projects with SoCalREN.



**Quick and easy application process**



**Comprehensive project support, with incentives**



**Underserved\* agencies receive enhanced incentives**



\*Underserved = low-income, rural, and disadvantaged communities;  
[socalren.org/streamlined](https://socalren.org/streamlined)

# Collaboration on Heat Pump Water Heater (HPWH) Initiative Design





# Heat Pump Water Heater (HPWH) Technology

## Why heat pump water heaters?

- Slower uptake of HPWH in the Southern California region
- Opportunity to provide grid services
- Short lead times compared to other technologies
- Remote control and monitoring capabilities
- 2-3x more efficient compared to traditional water heaters

## What is a heat pump water heater

- High efficiency electric water heater that transfers heat from air into water stored in a tank

## How does it work?

- It works like fridge in reverse. While a refrigerator removes heat from an enclosed box and expels that heat to the surrounding air, a HPWH takes the heat from surrounding air and transfers it to water in an enclosed tank.



# Initiative Goals

The goal of the heat pump water heater offering is to assist public agencies with:



Electrifying facilities to meet statewide and local climate goals



Removing barriers to implement new technologies that reduce greenhouse gas emissions and improve air quality

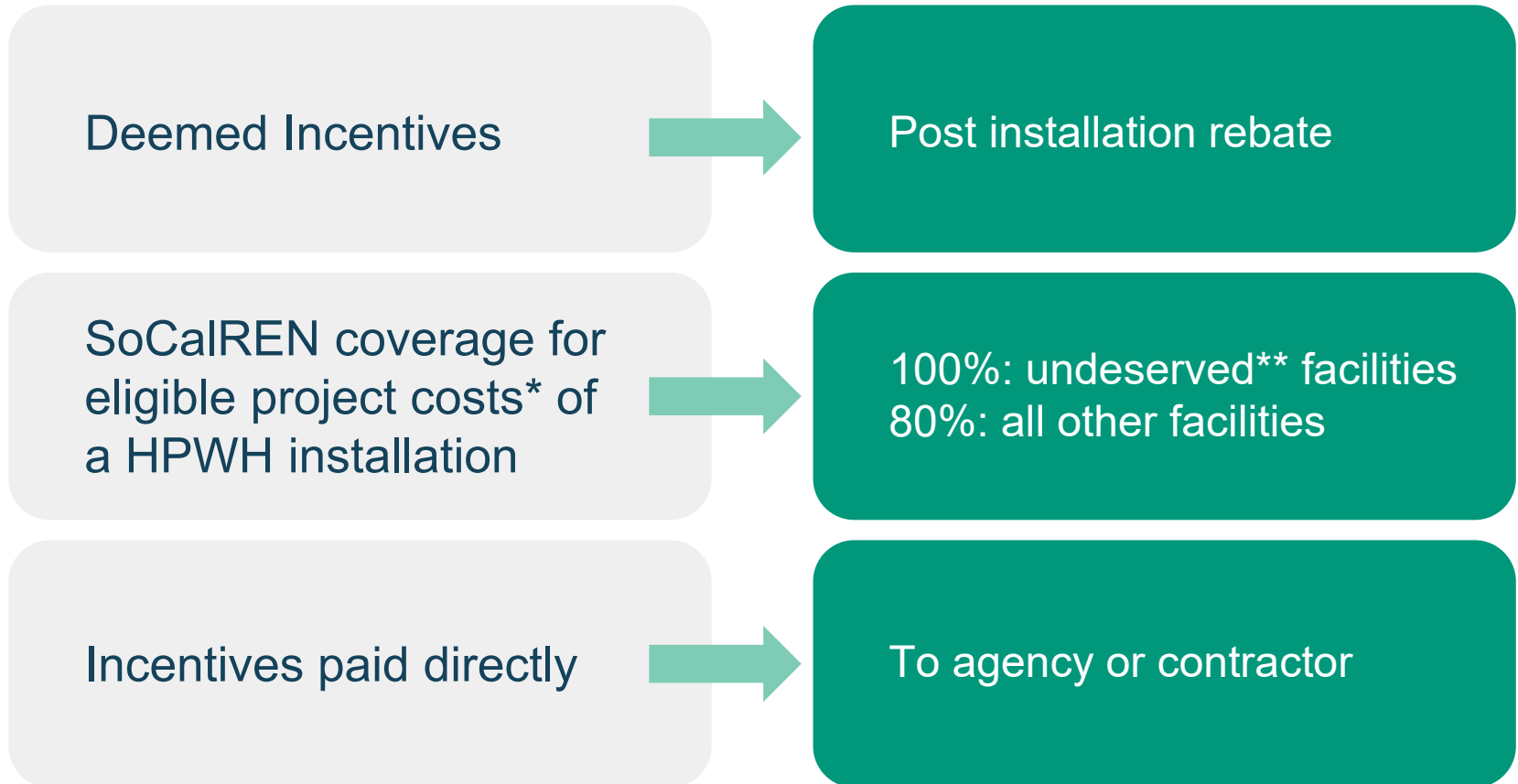


Saving money, modernizing equipment and reducing maintenance needs



# Incentive Structure and Funding

## SoCalREN Streamlined Savings Pathway HPWH Incentives



\*Eligible project costs include: HPWH equipment, contractor labor, cap existing gas line, demolishing existing vent, install of water heater electrical hookup, run electrical wire.

\*\*Underserved = low-income, rural, and disadvantaged communities defined by CalEnviroScreen, AB 1550, Title 1, Rural-Urban Commuting Areas codes.



# Incentive Structure and Funding



A statewide initiative to **accelerate the adoption of clean space and water heating technology** across California to help create an equitable pathway to carbon-free facilities.

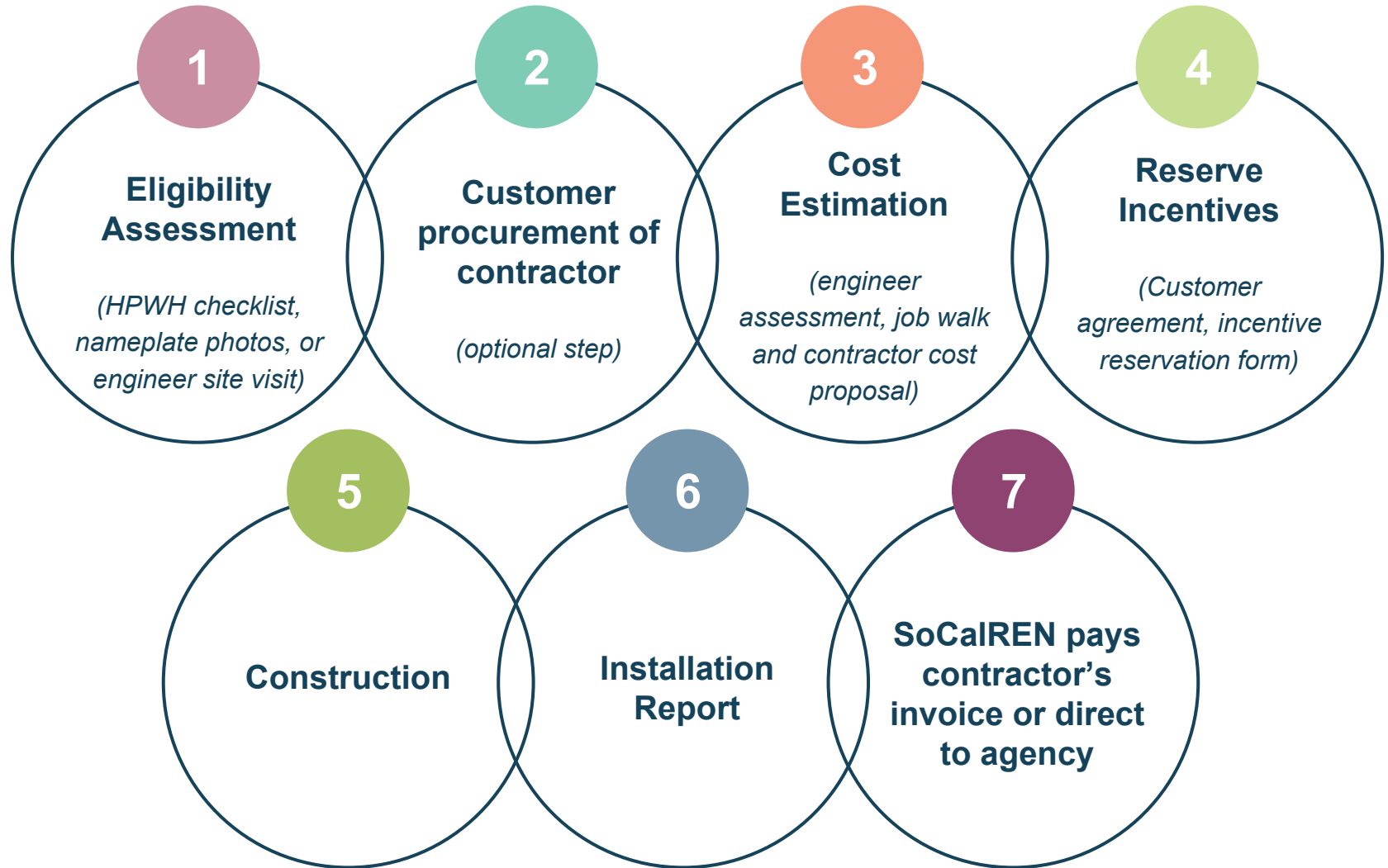
The program provided supplemental and stackable incentives:  
**\$3,100 per eligible HPWH unit.**



Free non-binding Demand Response program that rewards users for reducing energy consumption at peak times.



# The process



# HPWH Initiative Implementation



# Project Development

## Phase 1

### Outreach

- Contractor outreach
- Marketing to public agencies (webinars, flyers, e-blasts)

**Southern California REGIONAL ENERGY NETWORK**  
SoCalREN Public Agency Programs | ren@scnren.org

Get heat pump water heaters for your facilities through the SoCalREN!  
*Entire costs covered for underranked areas only*

**LIMITED TIME OFFER - COSTS WILL BE COVERED WHILE SUPPLIES LAST**  
SoCalREN will cover up to 100% of eligible project for heat pump water heater installations at facilities underranked areas. Up to 50% of eligible project will be covered in other areas.\*

**Stay in the Know with Our Electrification Webinars!**  
SoCalREN Public Agency Programs info@scnren.org | Tue, Feb 7, 2023, 12:14 PM

**Eligibility Criteria**  
✓ Your facility's current water heater is natural gas as its fuel source  
✓ Existing water heaters that are 10+ years old  
✓ Your facility must be served by a water utility

**Eligible Project Costs**  
Heat pump water heater installation, gas line with a brass plug, and heater electrical hookup, unit, and venting.  
\*SoCalREN is committed to ensuring all projects for cost-effectiveness & coverage depending on the scope.

**Announcing SoCalREN's All-New Webinar Series**  
**FLIP THE SWITCH**  
SoCalREN Webinar Series

**FLIP THE SWITCH**  
A SoCalREN Webinar Series

Decarbonization Strategies for Local Agencies  
May 24th, 2023 | 11:00 AM  
Zoom Webinar

## Phase 2

### Preliminary Assessments

- Desktop eligibility assessment
- Agency meetings

**Southern California REGIONAL ENERGY NETWORK** Streamlined Savings Pathway Program  
Heat Pump Hot Water Heater Checklist

The purpose of this checklist is to assess the SoCalREN incentive-eligibility of installing a heat pump water heater. Upon completion, please return the checklist to your SoCalREN Project Manager.

- Does the building fit into one of these classifications? Check the box that applies.
  - Assemblies (e.g. community and convention centers, fitness/recreation centers, libraries, museums, park day use facilities, art centers, airports, transit centers)
  - Corporate or public works yards, office buildings, schools, police departments, courthouses
  - Other: \_\_\_\_\_ (Seek SoCalREN's Guidance)
- Does the customer have both a commercial SCE electric and SGO gas account? Yes/No \_\_\_\_\_
- Does the current hot water heater utilize gas as the sole fuel source? Yes/No \_\_\_\_\_
- Please provide a photo of the water heater's nameplate?  
*Please include the manufacturer, model number, size, and size*  
\_\_\_\_\_
- What year was this water heater installed?  
*Please enter year of installation or existing equipment*  
\_\_\_\_\_
- Is the electrical panel in a different room? Is the panel on a different floor (elevation) from the heat pump?  
*Enter distance from panel or supplier here*  
\_\_\_\_\_
- A heat pump water heater may be 2-3 inches wider and 6-12 inches taller than a comparable natural gas water heater. Is there enough space around the existing water heater to accommodate a heat pump water heater?
  - Yes
  - No
  - Maybe

Site Agency Name: \_\_\_\_\_ Site Contact Name: \_\_\_\_\_  
Site Phone Number: \_\_\_\_\_ Site Email: \_\_\_\_\_

SoCalREN Streamlined Savings Pathway Program Heat Pump Hot Water Heater Checklist | Version 4/27/2023

## Phase 3

### Pre-Construction

- Job walks (engineer assessment + cost estimation)
- Customer agreement form + incentive reservation

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2023 Heat Pump Water Heater Cash Incentive Reservation Form

For a limited time, the Southern California Regional Energy Network (SoCalREN) Public Agency Programs are offering enhanced incentives for heat pump water heater (HPWH) projects that complete construction in 2023. Complete your HPWH project this year, and SoCalREN will cover up to 100% of eligible project costs for facilities in underranked areas and up to 50% of eligible project costs for all other eligible facilities. To reserve your 2023 HPWH incentive, complete the table below detailing the measures being installed at your facility. The incentive payment will be distributed after SoCalREN approves of submitted incentive application materials which include paid invoices & images of installed equipment.

Agency: \_\_\_\_\_  
Project Name and Incentive ID: \_\_\_\_\_  
Facility address and Service Account Number: \_\_\_\_\_  
Payee name and address: \_\_\_\_\_  
Project energy savings (kWh, kWh thermal): \_\_\_\_\_

High Local Heat Pump Water Heater Project Details						
	Scope of Work	Quantity	Estimated Project Cost	HPWH Max Incentive Amount	Agency Amount Due to Contractor	Anticipated Construction Completion Date
<input type="checkbox"/>	Plumbing: 1/2" galvanized heat pump water heater (model #), expansion tank, mixing valve, labor (fittings, hot and cold lines, methacrylate straps, drip pan and haul away/disposal of old water heater)					
<input type="checkbox"/>	Electrical: Materials and Equipment: One 30 AMP/240V Circuit					

\* Projects currently pending or that recently completed water heater upgrades through utility or utility third party incentive programs are not eligible for incentives on the same equipment through SoCalREN.  
\* Actual cost quote from contractor necessary.  
\* Construction must be completed in 2023 to receive a bonus incentive. If projects do not complete construction by 12/31/23, SoCalREN cannot guarantee incentive payment.



# Procurement Support

## Procurement Methods

- Single sourced ★ Most used by public agencies for this initiative!
- Informal bidding/simplified acquisition
- Formal bid

## Procurement Resources

- Preferred contractor list
- Technical specifications
- General scope of services and requirements
- Single source justification
- Piggybacking language





# Pico Rivera Project Success



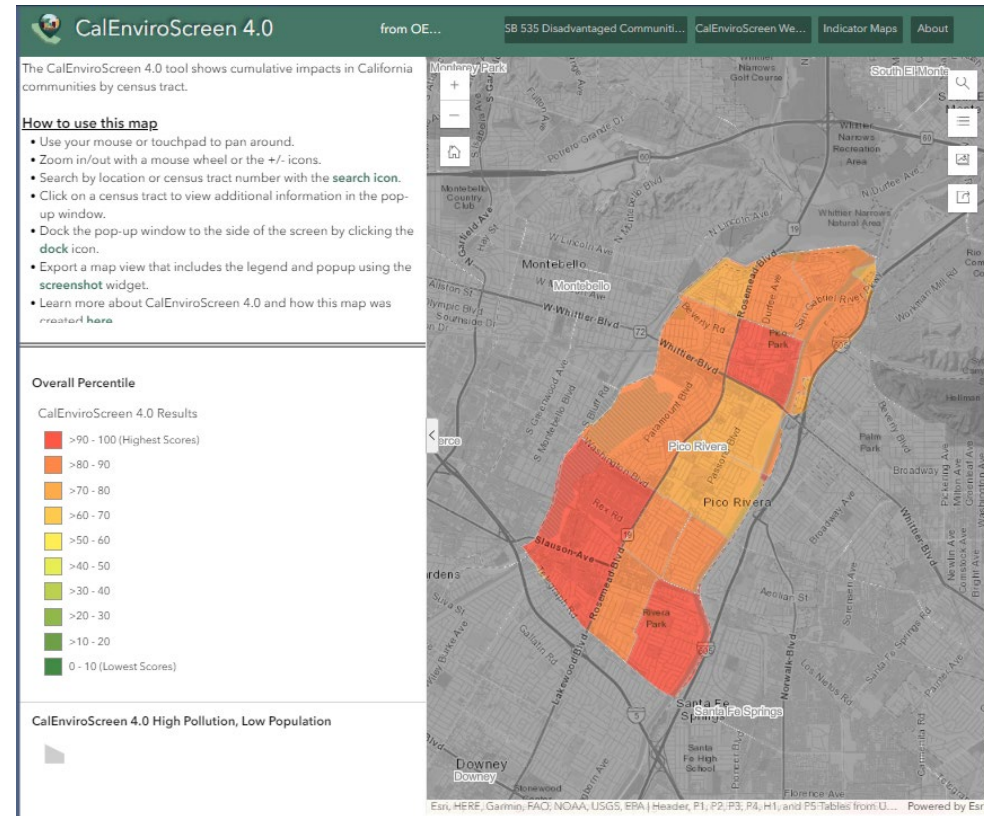
# About the City of Pico Rivera, CA

The City of Pico Rivera is surrounded by major highways:

- Santa Ana Freeway (I-5) to the south
- San Gabriel River Freeway (I-605) to the east
- Pomona Freeway (CA 60) less than 2 miles to the north

**Freeways are major transportation arteries impacting air pollution**

- Significant impact on air quality in Pico Rivera
- Pico Rivera designated a “Disadvantaged Community” by the State due to air quality issues



# City of Pico Rivera Office of Sustainability



Pico Rivera City Council created the **Office of Sustainability in July 2021.**



6 of 78 Los Angeles and Orange County Cities have **dedicated Sustainability Departments.**

Build a safer, greener, and healthier community by implementing environmental initiatives.

**Community Choice  
Aggregation  
Program – PRIME**

Renewable Energy and  
Energy Efficiency

**Climate Action and  
Adaptation Plan**

GHG Reduction  
Air Quality Improvement  
Carbon Neutrality by 2045

**Materials  
Management**

Franchise Waste Hauler  
SB 1383



# Leading by Example...

*Promoting building electrification starts with us.*

## Benefits of Heat Pump Water Heaters (HPWH)

Energy efficiency  
Emission reduction

## Residential\* and Commercial Implementation of HPWH

Incentives, tax credits, etc.



\*Residential customer incentive opportunities can be found through SoCalREN's Residential sector at <https://socalren.org/residential>

# Behind the Scenes of the Project

## Project Planning

- Research and analysis
- Initial planning and strategy development
- Coordination with city departments and SoCalREN

## Execution

- Funding, contracts, risk, and scheduling




## Challenges

### Timing:

- Project initiated in late November 2023
- Needed to be installed by December 2023



# The City of Pico Rivera installed 8 HPWHs at three sites

-  **3,330** lifetime avoided GHG emissions (tCO2)
-  **91,525** lifetime therms saved
-  **\$114,789** incentives awarded

## Project Timeline



# Pico Rivera Installation



# Procurement and Installation Experience



- ★ Professional
- ★ Communicative
- ★ Accommodating
- ★ Patient
- ★ Procurement: qualified contractors, funding, and efficient



- ★ Professional, communicative, responsible, respectful, and efficient.
- ★ Attention to detail
- ★ Great quality work
- ★ Quickly rectified incorrectly installed heat pump water heater at no cost to the City





# Lessons Learned

1. Have incentive programs pay contractor directly to help circumvent lengthy procurement processes
2. Utilize incentive program list of qualified contractors to reduce internal staff workload around project
3. If an organization does not have a sustainability department, connect with Public Works to expedite these projects
4. Participate in initiatives sooner



# Post-Implementation Review

- **6-Month Usage Review:**

- No service disruptions experienced from transitioning to HPWH from gas water heaters
- Bradford White Connect Application made it easy for staff to remotely make HPWH control adjustments
- Peace of mind with reducing demand during peak hours on TOU rates

- **Staff Satisfaction:**

- "We were concerned about inconsistent water temperatures, but we do not notice a difference...smart heat pumps make our jobs easier." - Facilities Manager



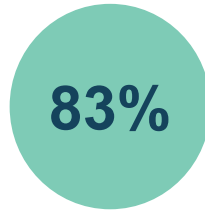
# Initiative Achievements & Lessons Learned



# Achievements to Date



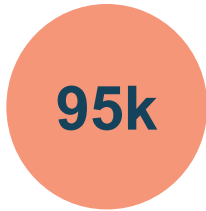
HPWH units  
installed



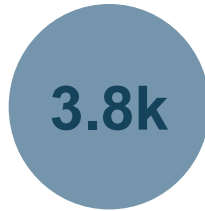
HPWH units installed in  
underserved communities



Incentives  
distributed



Annual therms  
saved



Lifetime MTCO<sub>2</sub>  
saved



Cars off  
the road



# Lessons Learned

1. Understand customer's preferred procurement methods and construction timelines
2. Account for cost estimate increases as a result of different factors such as inflation or prevailing wage requirements
3. Share resources and provide training for maintaining new equipment with customers ahead of installation
4. Coordinate with electrical and plumbing subcontractors early on to appropriately size the new HPWH and to assess whether an electric panel upgrade is needed
5. Identify supplemental funding sources ahead of time



# What's Next for the HPWH Initiative?



# What's Next for SoCalREN's Heat Pump Water Heater Initiative



1. Continued collaboration with Water Heater Warehouse, LA County, Pico Rivera, and other SoCal public agencies looking to install new heat pump water heaters
2. Continue to offer enhanced incentives
3. New construction measure application types
4. HPWH serving pools or space heating/cooling will not be eligible for this specific offering, but SoCalREN can still support at a lower incentive rate
5. Flexible sizing bands
6. Potential analysis on actual bill impacts from facilities with installed HPWH



Questions?





# Thank You!

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