

**DOCKETED**

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# Advanced Water Heating Initiative

California Heat Pump Goals, Supply Chain, and Programs Workshop

Apr 5, 2022



**Smita Gupta**  
*Director*

*Building and Program Innovation*  
**New Buildings Institute**

# Opportunity to Align, Harmonize, and Collaborate



# AWHI Organization



# AWHI Market Transformation



HPWHs for every  
type of building



Create experts  
along the supply  
chain

Programs and  
policies working  
together



Drive higher  
consumer demand

# AWHI Vision, Mission, Goals

## VISION

Efficient heat pumps are universal in all water heating applications by 2030

## MISSION

1

Improve building **efficiency and cut emissions** by bringing HPWH to mainstream

2

**Engage and support community-based partners** with national coordination and expertise

3

**Promote equity** through workforce training and investment in local communities

## GOALS



RESIDENTIAL HPWHS

**100%** market share by 2030



COMMERCIAL HPWHS

**90%** of multifamily new construction by 2026

# Partners and Collaborators

**400 +**  
participating organizations

## Participants

A.O. Smith

American Council for an Energy Efficient Economy

Ariston Thermo USA

Association for Energy Affordability

BC Hydro

Beyond Efficiency

Bradford White Water Heaters

Building Decarbonization Coalition (BDC)

California Energy Commission (CEC)

Carbon Free Silicon Valley

California Public Utilities Commission (CPUC)

Colmac

D+R International

Duke Energy

e-Radio

East Bay Community Energy

Ecotope

Efficiency First CA

Energy Solutions

Electric Power Research Institute (EPRI)

Elevate

GE Appliances

Grastau Associates

Guttman & Blaevoet

HTP Comfort Solutions LLC

Hot Water Research

Katerra

Laars Heating Systems

Larson Energy Research

Los Angeles Dept. of Water & Power (LADWP)

Midwest Building Decarbonization Coalition

Mitsubishi Electric

Northwest Power Planning Council (NWPPC)

National Renewable Energy Lab (NREL)

Nyle

NYSEDA

People's Self Help Housing Corp

Redwood Energy

Repacor Plumbing

Rheem

Sanden

San Diego Gas & Electric (SDG&E)

Silicon Valley Clean Energy

Sonoma Clean Power

South Coast Air Quality Management District

StopWaste

Skycentrics

Turnbull Energy

U.S. Department of Energy

Washington State University Energy Program

**nbi** new buildings institute



**U.S. DEPARTMENT OF ENERGY**





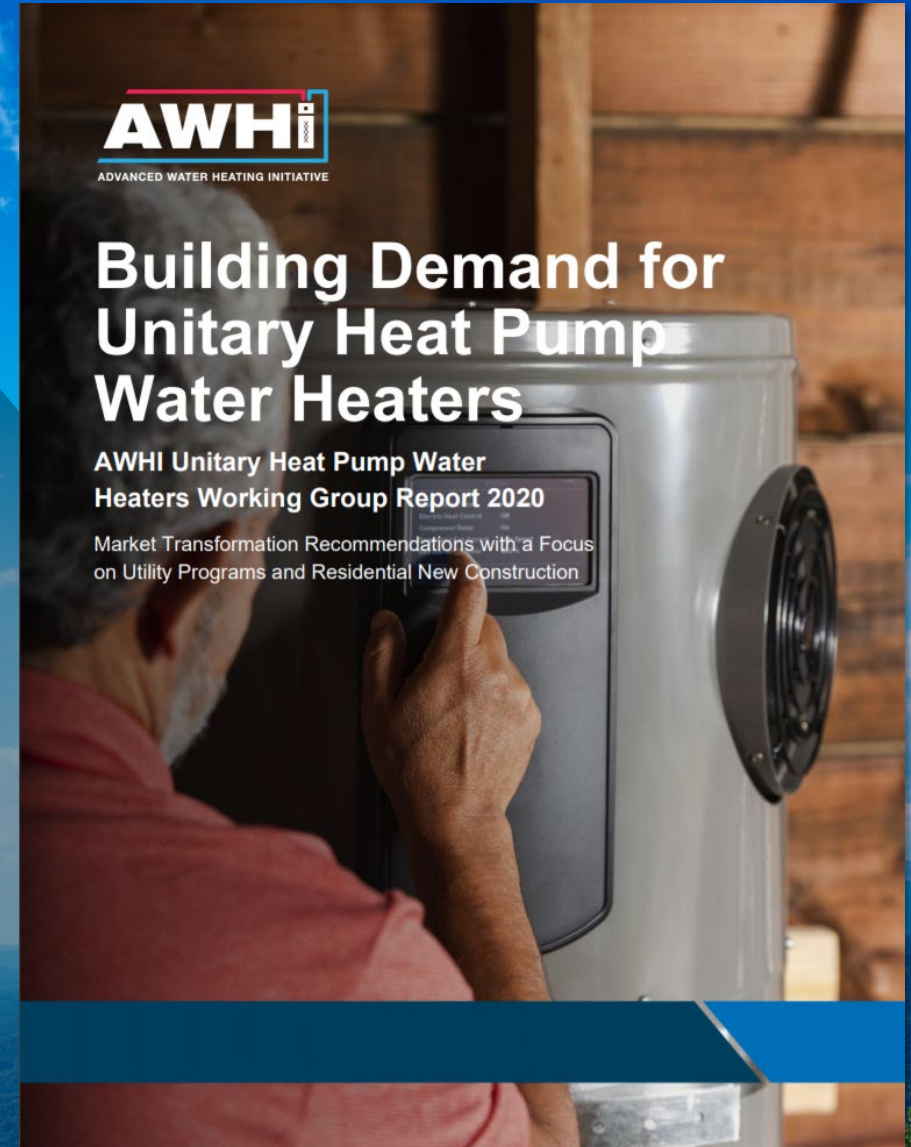
**Owen Howlett**  
SMUD



**Paul Campell**  
*EnergyStar Program  
Implementer*  
EPA - ICF

# Residential Working Group

240V and 120V



**GOAL**  
**100% market share by 2030**

**ACTIVITIES**

# Residential



## PROGRAMS



## POLICY



## MARKET



## TECHNOLOGY

### Near term

- Resources to support **program development**, Prog in a box - best practices, value props, calculations, tools, education and marketing –Program
- Establish program and device **databases**
- Engage state governments and utilities in “priority” markets, hold exec summits to gain support for new programs
- Help develop **programs**
- Develop national **training curriculum for installers**
- Direct outreach to major **developers and builders**
- Consumer **marketing** via partners
- Field validation** and market readiness of retrofit ready **120V** technology

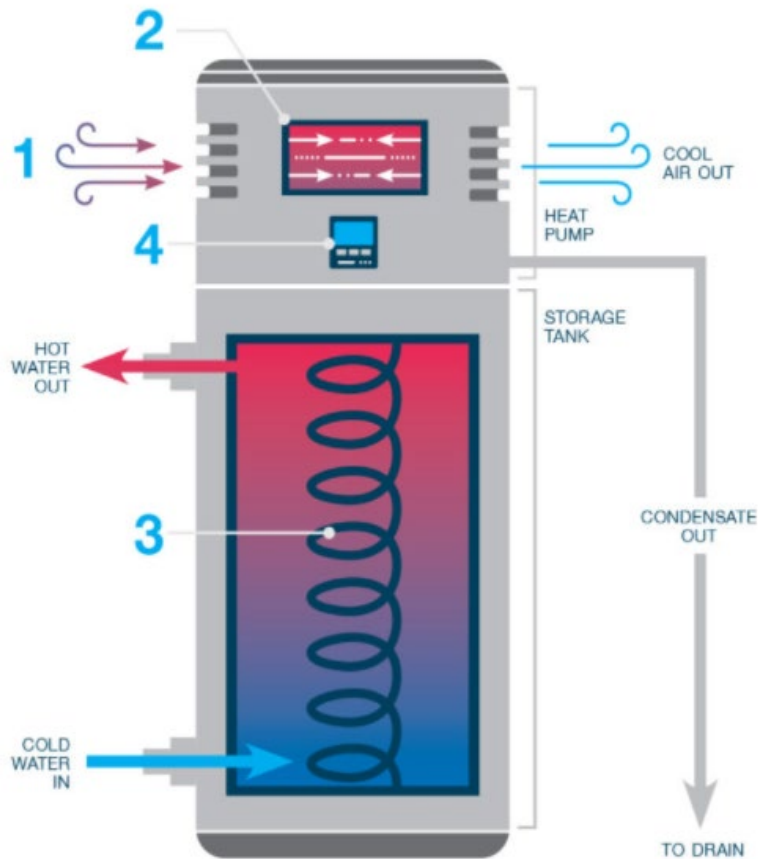
### Medium term

- Use databases and analysis to support continuous improvement of programs
- Use data and analysis to support electric NC code development
- Achieve sufficient market share for federal appliance standard for HPWHs
- Provide support for changes in licensing to allow more contractors to install HPWH
- Validation and market readiness of new techs TBD, including low GWP

### Longer term

- Use data and analysis to support electric retrofit code development

# Pathways for Residential HPWH

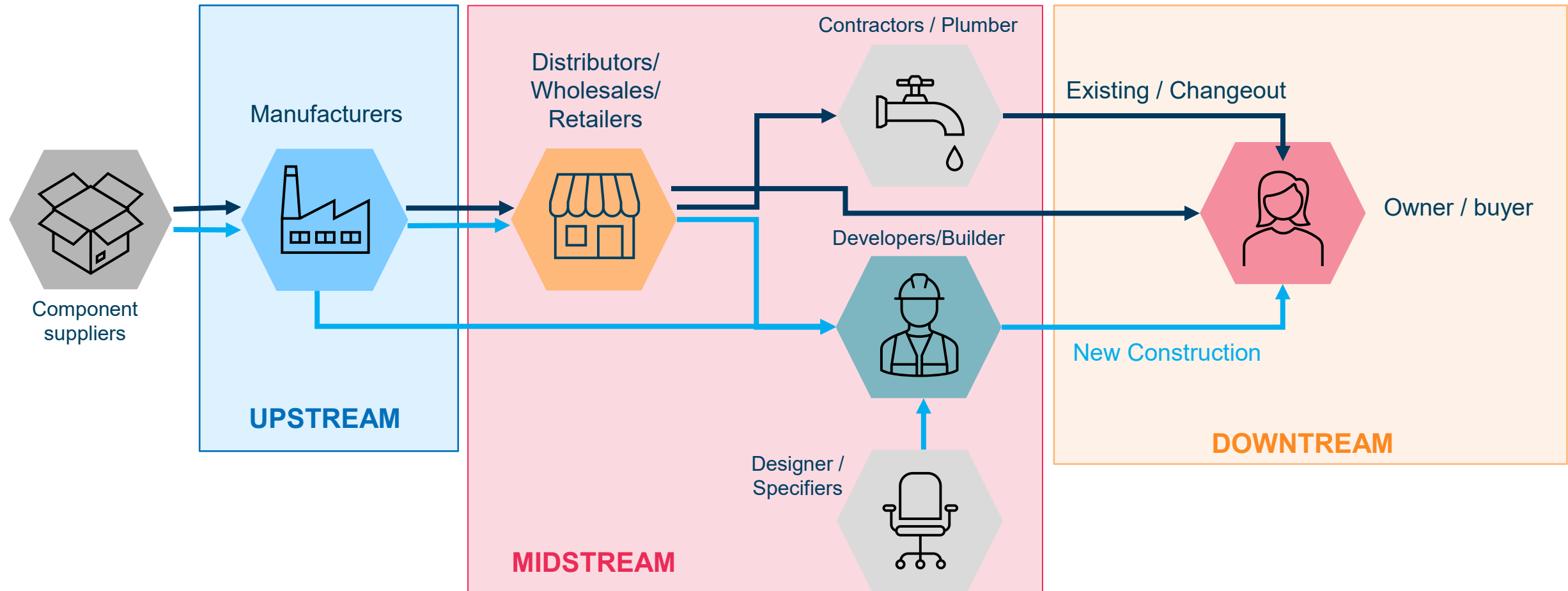


1. New Construction – 240V

2. Electric Resistance change outs – 240V

3. Gas/Propane change outs to 240V / 120V

# Supply Chain and Programs



Utility and other Programs

# Residential Water Heater Comparison

## Water Heater Market At-A-Glance

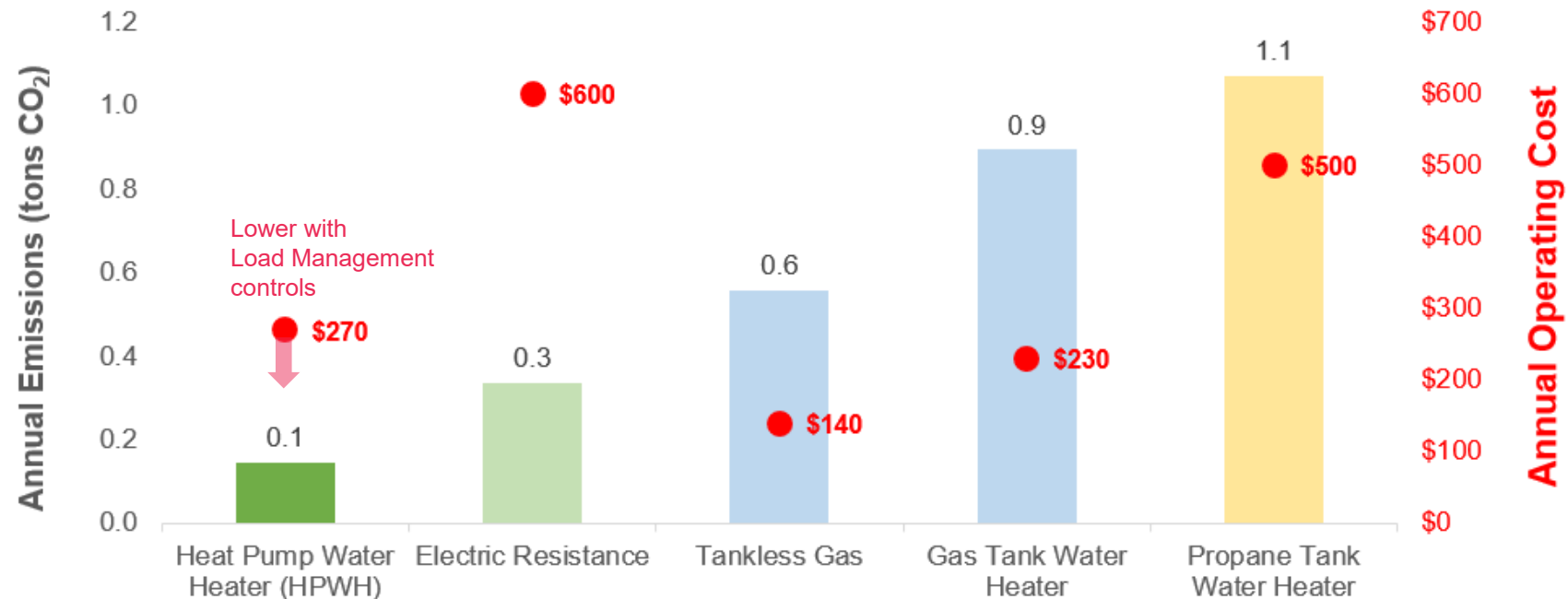
**Step 1:** Choose your home size and city (or climate zone) from the dropdown menus below

Home Size (# of bedrooms)	3 bed
Location (city)	Covina
CA Climate Zone (6, 8-10, 13-16)	9

Your home size selection determines the typical annual water consumption used in the calculations

Select your location from the dropdown

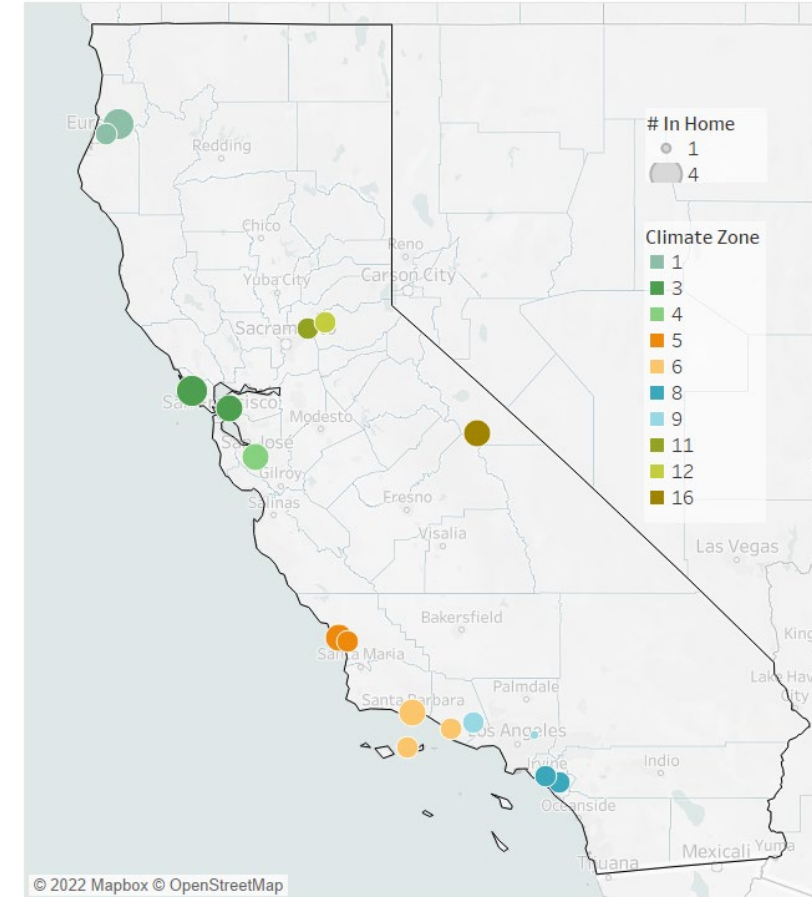
Overwrite this input with your climate zone, if needed



# 120V HPWH – Retrofit Ready



- 120V (shared & dedicated circuit) plug-in
- Higher storage water temperatures
- Integrated electronic mixing valve
- Tank size: 40, 50, 65, 80 gallons
- CTA-2045 and demand management capable
  - Time-of-use rate scheduling
  - Utility demand response ready



# Magnitude of the Potential in CA

**14 mil**

Residential Water  
Heater Stock

**500+ k**

Annual Change outs

**50%**

Market share for  
change outs by 2030

**350 k**

HPWH annually by  
2030

**2.5 mil**

Electric Resistance

**11.5 mil**

Gas / Propane

**100 k**

Annual New  
Construction (SF +  
MF unitary)

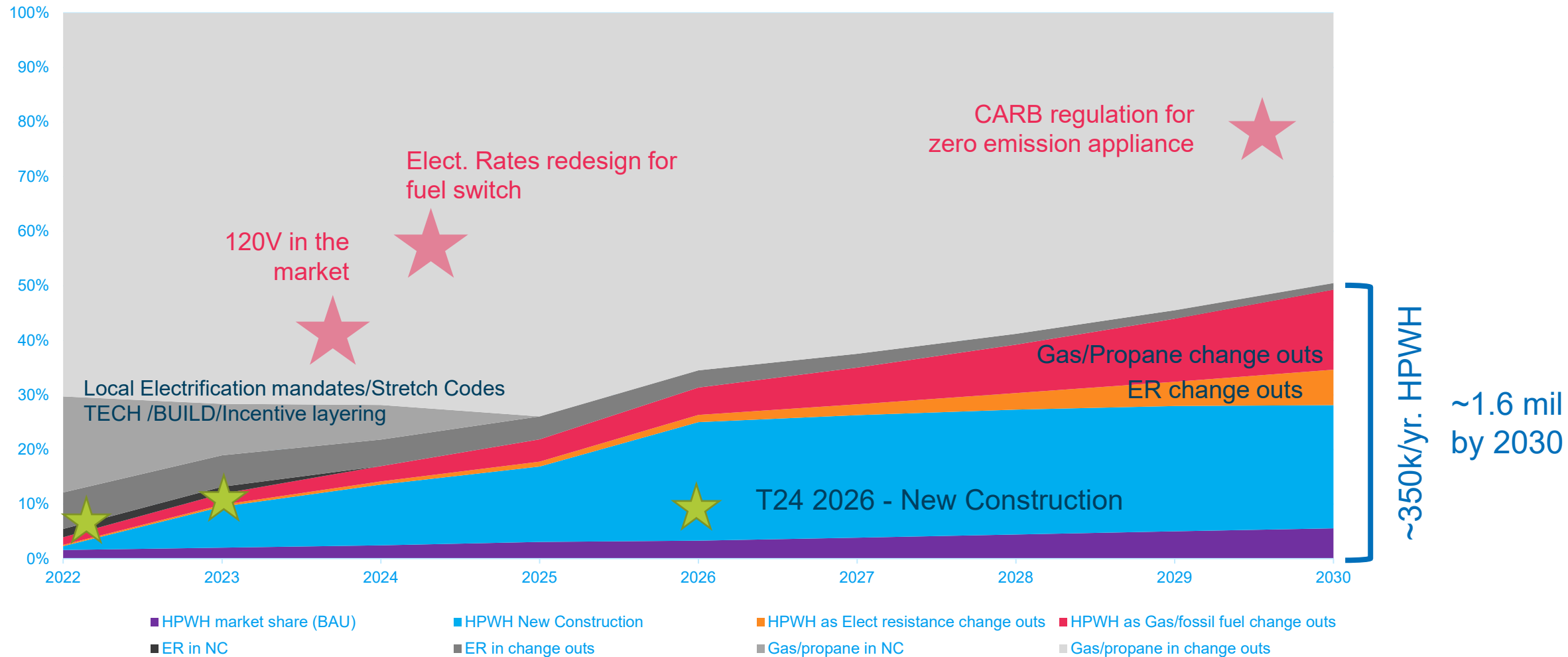
**100%**

New Construction by  
2030

**1.6 mil**

HPWH by 2030

# Accelerating Market Transformation





**Keshmira McVey**  
*Program Manager,*  
*Emerging Technologies*  
Bonneville Power Administration

# Commercial Working Group

Commercial and Multifamily  
Central Systems



## GOAL

CHPWH systems are installed in 90% of multifamily new construction by 2026

# Commercial / Multifamily

## STRATEGIES

## PROGRAM TARGETS

## ACTIVITIES

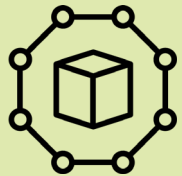


Price

- CHPWH programs are in place across at least 10 states by 2025;

- Model energy code require heat pumps in NC by 2024

- Standard AWHs v. 8
- Midstream pilots
- Model incentive program
- QPL Qualified Products List



Product

- Nine commercial products by 2023
- AWHs v.8 validated
- 30,000 doors by 2022

- EcoSizer: system sizing tool
- EcoSim: energy modeling tool
- National M&V Database

- Demo and UL Tested
- Deployments
- Research
- Design guides



Customer

- Engaged and informed Supply chain - manufacturers, distributors, design engineers, Code officials, contractors...

- Everyone knows about the products and wants ones

- Interactive Tools
- Trainings
- Certification Program
- National Campaign



**Geoff Wickes**  
*SENIOR PRODUCT MANAGER*  
*EMERGING TECHNOLOGIES*  
NORTHWEST ENERGY EFFICIENCY ALLIANCE

# Connectivity Working Group

ECOPORT

# Grid Connectivity

## Progress

- **Progress since June 2021 full group meeting**
  - *AHRI 1430 Alignment with Connectivity Group*
  - *Public facing trade name EcoPort and logo development*
  - *Intertek getting up to speed on testing*

**ECOPORT**

## Plans

- **Planned work for the next quarter**
  - *QPL website launched with products listed by December 2021*
  - *Central Systems load shifting recommendation*
  - *Development of White paper for explaining how to implement a DR program for utilities*
  - *White Paper on Security Standards and alignment*

## Continued Work

- **Key areas**
  - *Communication team for messaging on roll out, style guide for EcoPort*
  - *Input from Utilities on training needs for building modules for utilities to start rolling out programs*

# The future of water heating is here.

Heat pump water heating technology is a game changer in the climate change fight.

Will you join us?

<https://www.advancedwaterheatinginitiative.org/>

News:

U.S. DOE announces support for national level AWHI

[Read more](#)



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# Thank you !

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