

DOCKETED

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Advanced Water Heating Initiative

California Heat Pump Goals, Supply Chain, and Programs Workshop

Apr 5, 2022



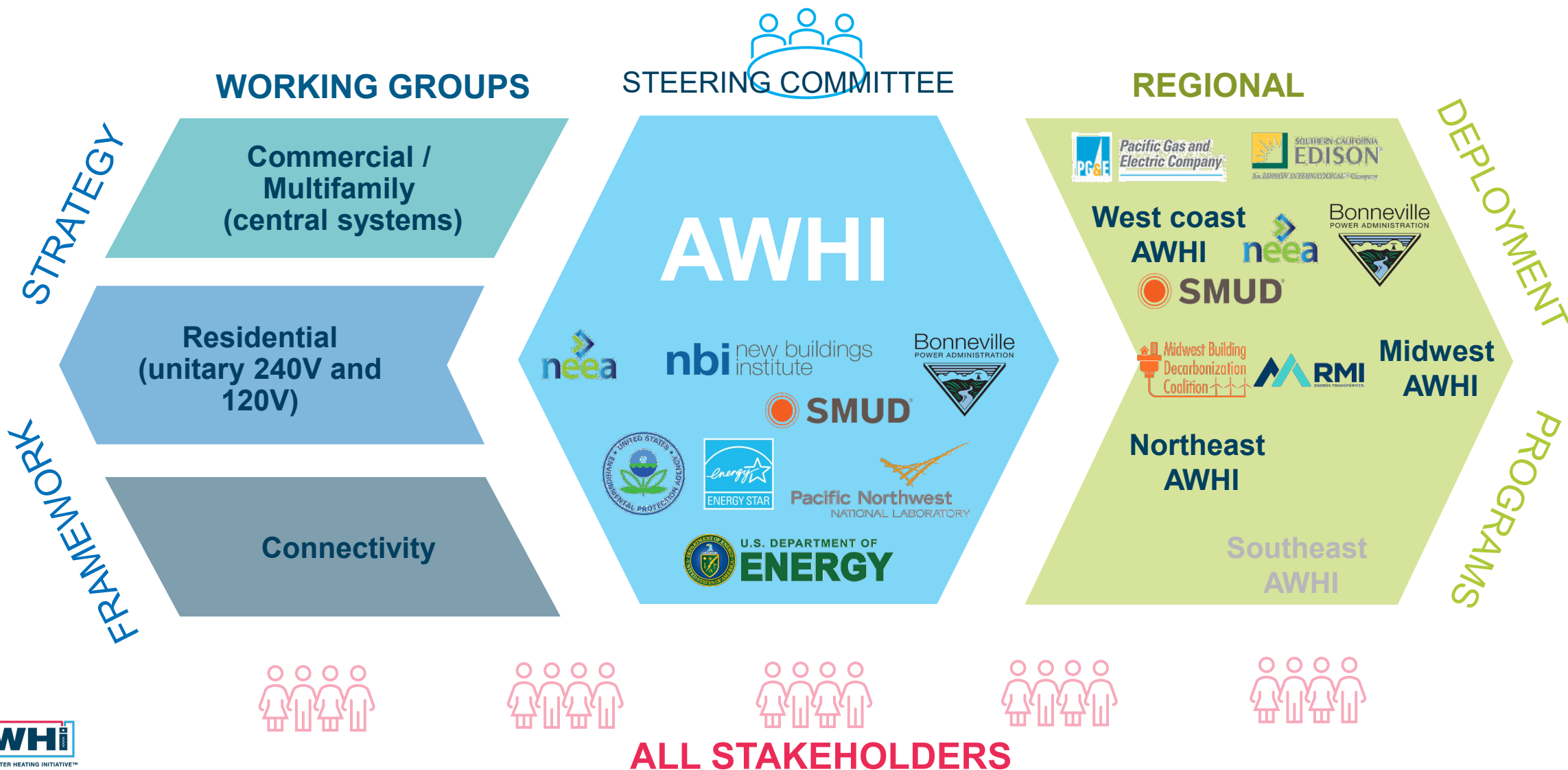
Smita Gupta
Director

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





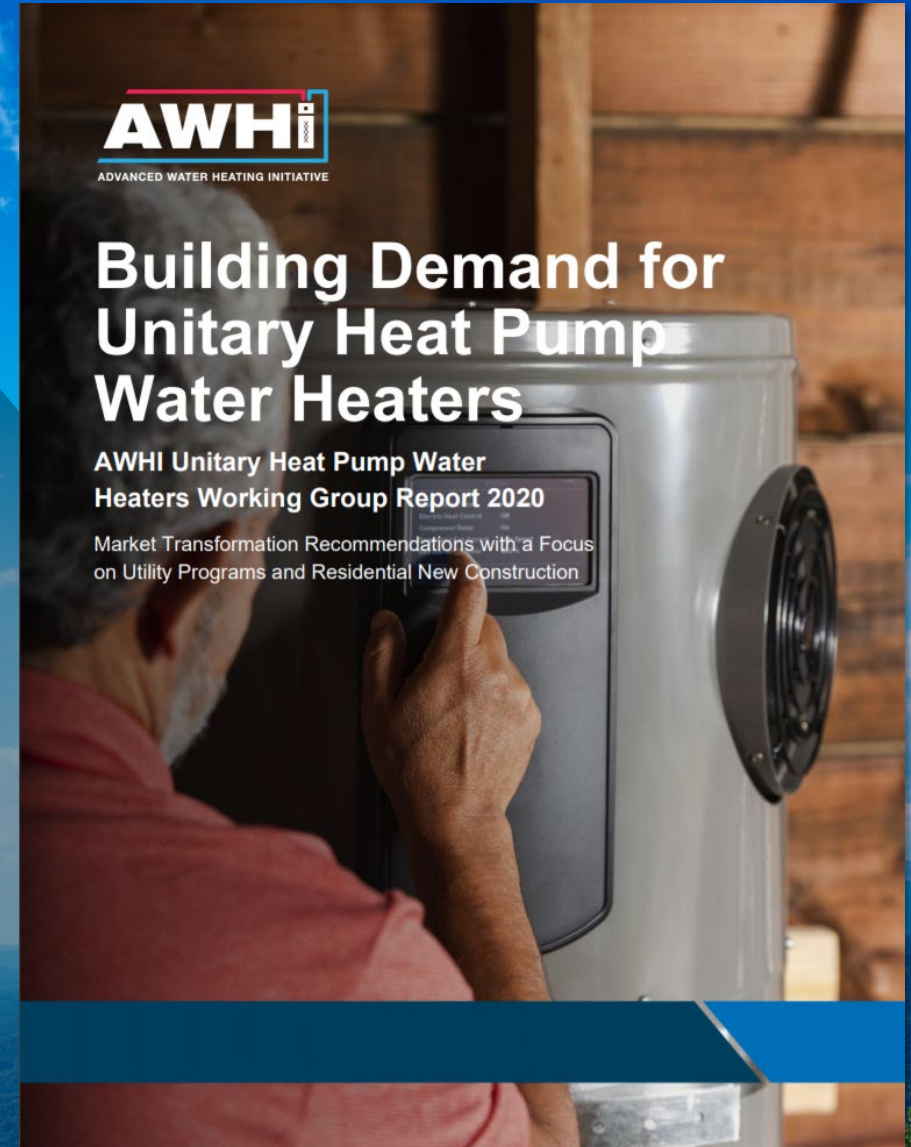
Owen Howlett
SMUD



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

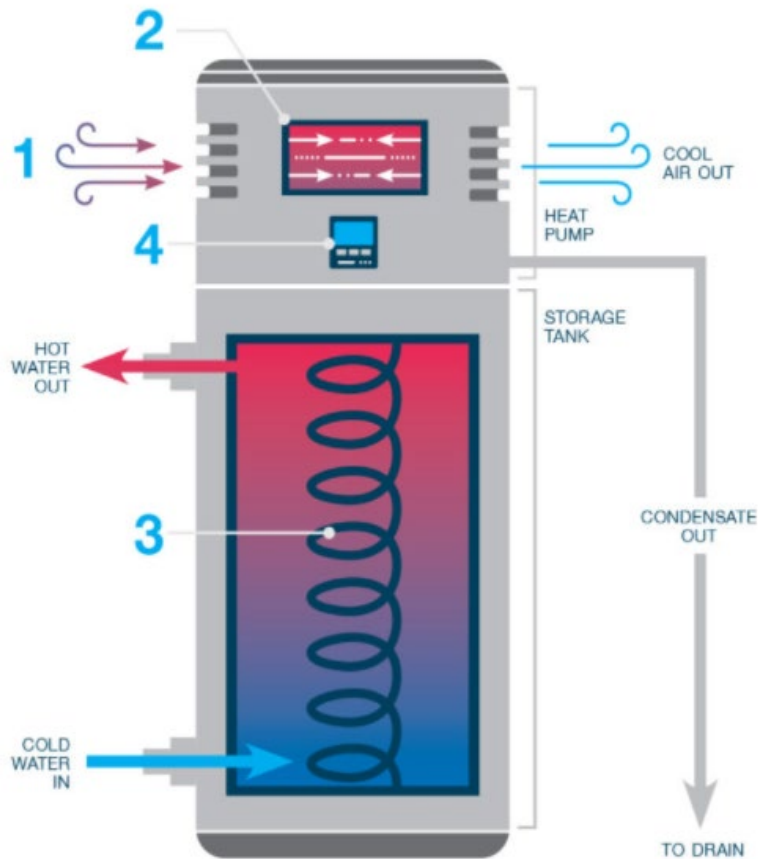
Medium term

- 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

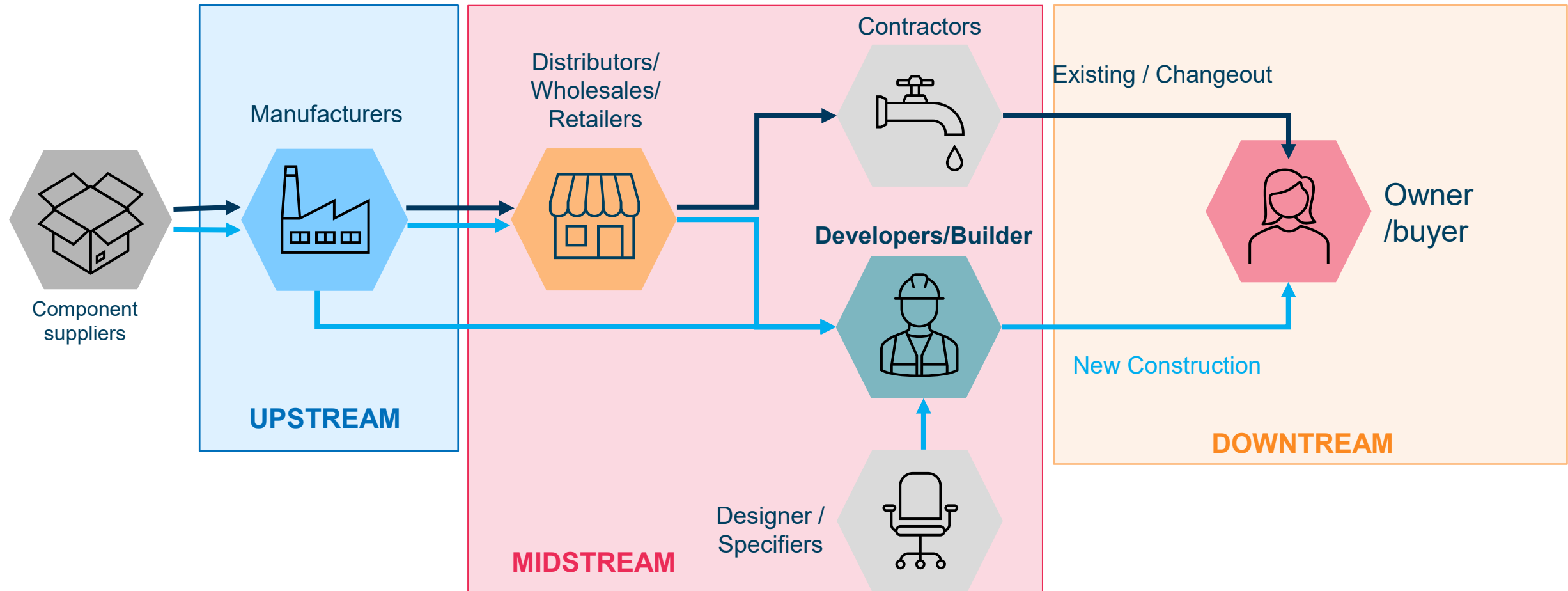


1. New Construction – 240V

2. Electric Resistance change outs – 240V

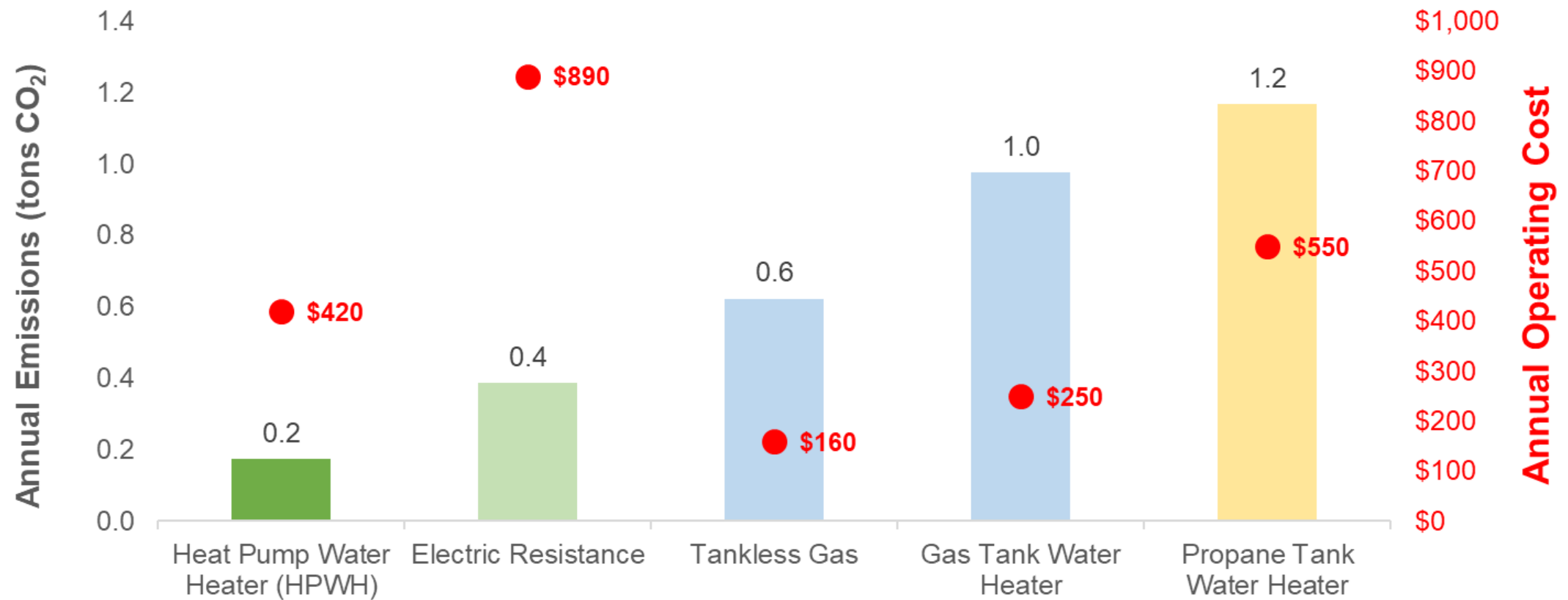
3. Gas/Propane change outs to 240V / 120V

Supply Chain and Programs



Utility and other Programs

Residential Water Heater Comparison



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)

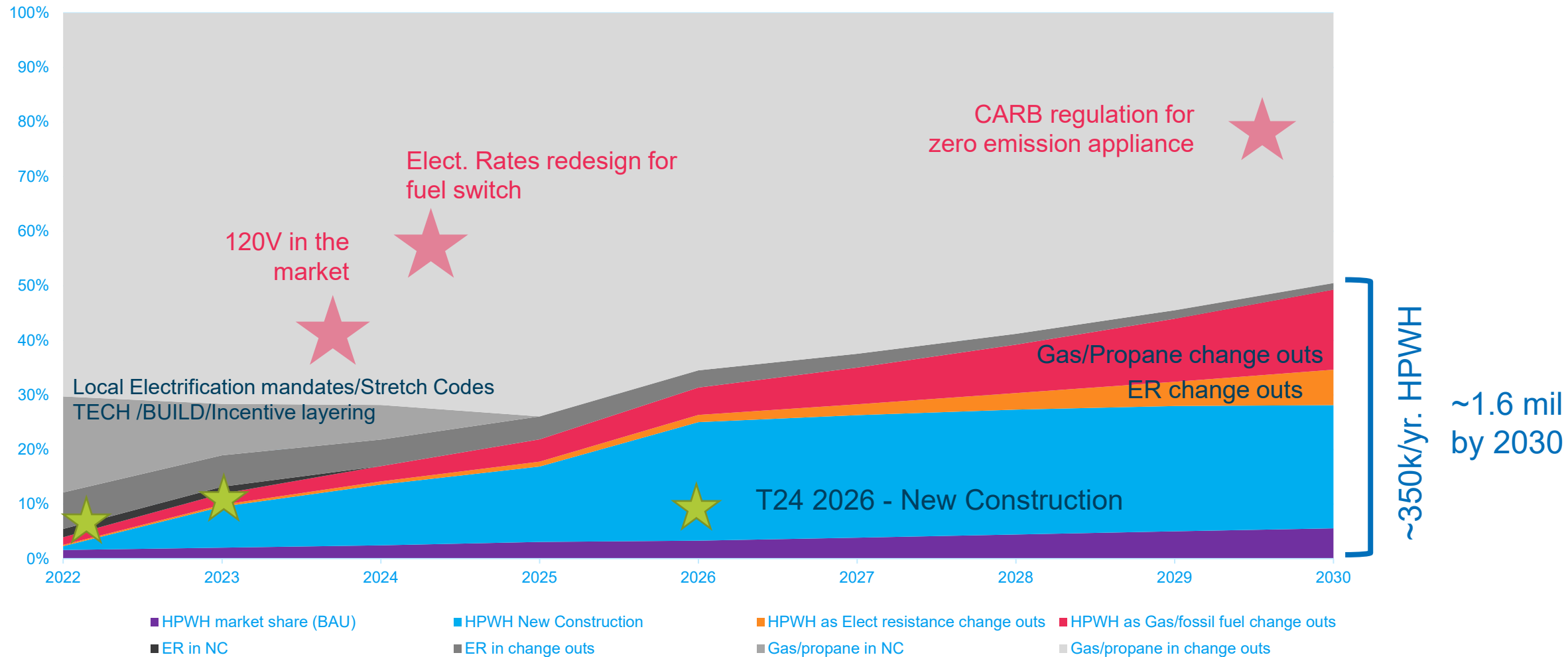
100%

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

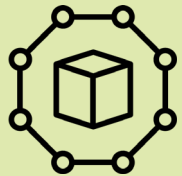


Price

- 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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