

ET Summit 2022

Presented by



Nonresidential Central Heat Pump Water Heating (HPWH) Applications

Overview and Latest Findings from 2022 Emerging Technologies Collaborative (ETC) Exploration

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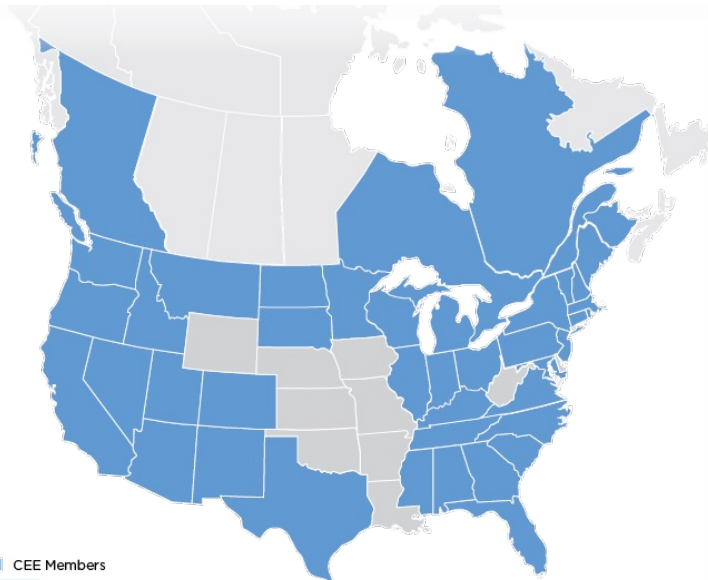
Consortium for Energy Efficiency



CEE and the ETC

- CEE members are responsible for more than 70% of the nearly \$6.5B in EE and DSM budgets
- CEE members serve over 102 million electric and 52 million natural gas customers

- *Together, CEE members develop strategies to accelerate commercialization of energy efficient solutions to benefit gas and electric customers, utility systems, and the environment*



■ CEE Members

Blue-colored states and provinces are where CEE members are located.

2022 CEE and the ETC

- ▼ Ameren Illinois
- ▼ Avangrid/United Illuminating
- ▼ BC Hydro
- ▼ ComEd
- ▼ Consumers Energy
- ▼ DTE Energy
- ▼ Efficiency Vermont
- ▼ Enbridge Gas
- ▼ FortisBC
- ▼ National Grid
- ▼ Natural Resources Canada
- ▼ Northwest Energy Efficiency Alliance
- ▼ PSE&G
- ▼ PSEG Long Island
- ▼ Sacramento Municipal Utility District
- ▼ San Diego Gas & Electric
- ▼ SoCalGas
- ▼ Southern California Edison
- ▼ Xcel Energy

Shared ETC Objectives

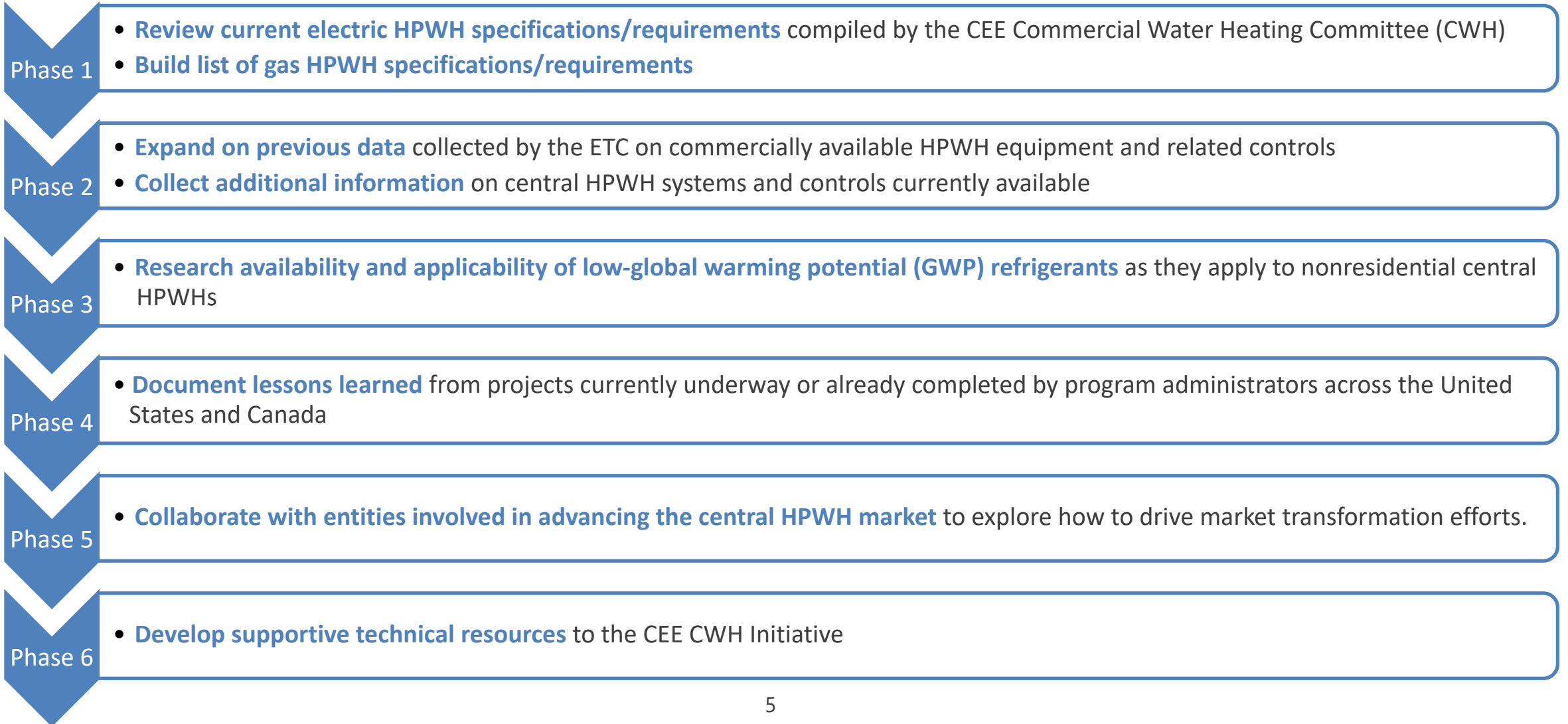
Local ETC Member Programs

- Accelerate program or market adoption of EOs with high energy benefits potential by bridging the gap between R&D and meeting the *criteria for compelling energy program and market adoption*
- *Reduce the risk* that customers or energy programs invest in EOs that do not deliver on expected benefits

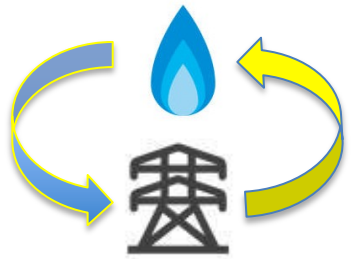
Binational ETC

- Accelerate voluntary consideration and uptake of **impactful binational EOs** among CEE members and customers
- Increase the effectiveness of individual EO programs by sharing information and expertise

Nonresidential Central HPWH Applications Project



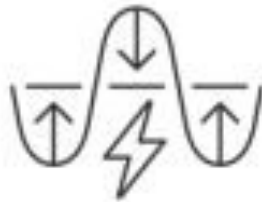
Top Objectives Identified by the HPWH Working Group



Fuel switching



System Efficiency



Demand Response
Capabilities



Cold climate needs



Customer Interest

Research Questions From Working Group

- What types of applications are nonresidential HPWHs used for?
- What are the ranges of system sizes?
- What buildings are they intended for?
- What's out there in terms of:
 - HPWHs?
 - Low-GWP refrigerants?
 - Thermal storage?



Key Working Group Findings



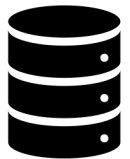
- ✓ Programs, building codes, and policy are driving the demand for electric HPWHs



- ✓ Look to refrigerants that will be valuable 10 to 20 years in the future



- ✓ Skid-mounted and other plug-and-play systems can provide a way to avoid complexities related to installation



- ✓ A central database for gas or hybrid systems would be a valuable source of information



- ✓ Costs for gas heat pumps relative to other technologies are increasing disproportionately for end users

Challenges Identified by Working Group

- ❌ Lack of nonresidential central HPWH studies
- ❌ Understanding markets that could adopt central HPWHs
- ❌ Space limitations for retrofits
- ❌ Electrical upgrades in older buildings
- ❌ Training on both the component and system level

Thank You!

Questions?

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