

# New Buildings Institute

## Statewide 120-Volt Heat Pump Water Heater Field Study

### Project Description

Heat pump water heaters present a clear pathway to support building decarbonization and energy efficiency, but adoption comes with barriers, such as high upfront and installation costs, installation complexity, retrofitting challenges, and consumer bias toward conventional models. The emerging 120-volt plug-in heat pump water heaters entering the market are aiming to address some of these key barriers.

New Buildings Institute (NBI) works closely with heat pump water heater manufacturers and utilities on a California [120-volt heat pump water heater field validation program](#). Through this program, NBI has installed and monitored 120-volt heat pump water heaters for 32 customers in most climate zones across California. This program is part of a national market transformation effort—NBI's [Advanced Water Heating Initiative \(AWHI\)](#)—to decarbonize water heating in buildings.

The Quick Start Grant project examined energy performance, installation, equipment, and operating costs, and customers and contractors were surveyed on their satisfaction with the heat pump water heaters. This work resulted in lessons for manufacturers, utilities, policymakers, and installers. Based on the study findings, we make the following recommendations to policy makers and utilities designing an incentive program for 120-volt heat pump water heaters.

- Absorb 120-volt products into current HPWH incentive programs
- Right market assessment and right sizing is a key for technology success
- Integrate 120-volt products into weatherization programs
- Obtain installer dual trade service certification
- Light commercial buildings
- Equity program aspects
- Need for small footprint with small form factor products



#### TIMELINE:

January – June 2023



#### HOUSING TYPE:

Single Family



#### EQUITY SEGMENT:

Utility  
Low-Income  
Customers



#### TECHNOLOGY:

Heat Pump Water  
Heaters



#### LOCATION:

Statewide

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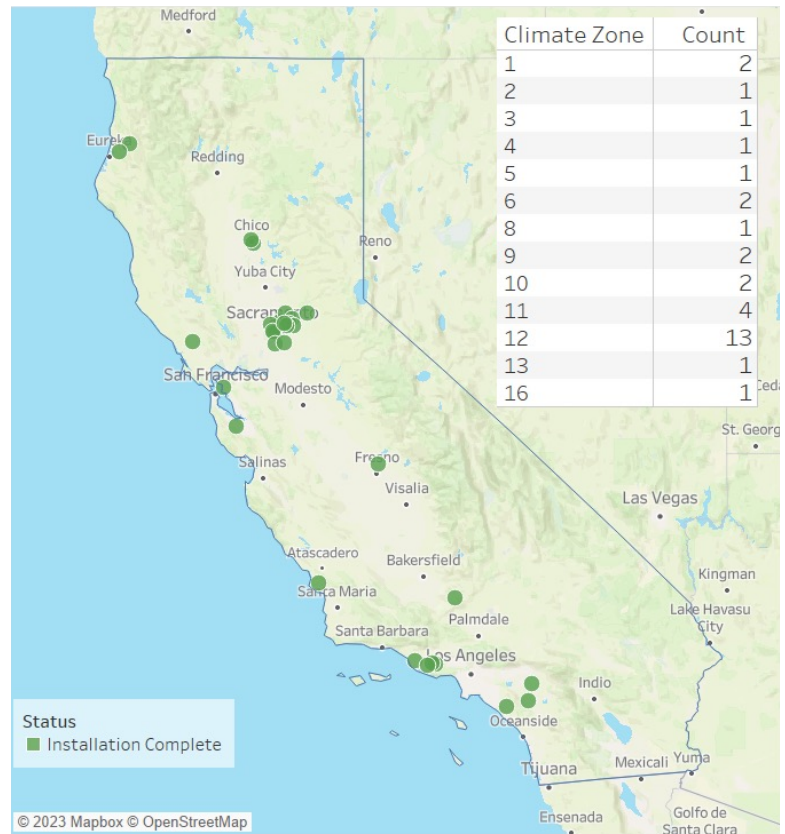
*This program is part of the TECH Quick Start Grants (QSG) program, designed to fund targeted, innovative projects that test approaches to overcoming market barriers to heat pump space and water heating adoption.*

## Key Learnings

Based on the project's findings, for the electrical and space constraint applications, the 120-volt heat pump water heater is a compelling technology that can be game-changing for meeting decarbonization or electrification goals for the retrofit market sector for residential and small commercial applications. Please request the full quick start grant final report for details on the following:

- Manufacturer recommendations
- Utility/incentive program recommendations
- Policy and market recommendations
- Market sector assessment, best applications, and key considerations
- Next steps

## Completed 120V Heat Pump Water Heater Installations



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