

Heat Pump Water Heater barriers and mid-stream solution study

1. Overview

As CA policy focuses on reducing GHG emissions, residential natural gas use is one of these sources of GHG emissions in the state that warrants attention. The majority of existing single family and low-rise multifamily buildings use natural gas for some or all of the following end-uses: space heating, water heating, cooking, clothes drying, fireplace and pool heating.

The State has allocated funding from several different sources for residential electrification efforts targeting space and water heating equipment. As the market is developing and initial programs have launched to support these efforts, several challenges have been identified that could significantly delay market transformation.

Converting existing gas water heaters to heat pump water heating equipment across the state will require a comprehensive effort across the entire industry, including education for homeowners and equipment manufacturers, enforcement personnel, distributors and installers. Initial efforts have identified several challenges that inhibit selection and installation of Heat Pump Water Heaters (HPWH), including, but not limited to:

- Insufficient panel capacity
- Location of existing equipment (e.g., most HPWH require 240V supply, no electricity (or only 120V) at equipment location)
- Permitting (both electrical and plumbing)
- Familiarity with technology (both for homeowners and contractors)
- Equipment not locally stocked

As most water heater replacements are triggered by equipment failure with the majority resulting in emergency replacements, the objective of this DRET study is to identify potential solutions to these barriers, with a focus on leveraging mid-stream channels such as contractors, distributors, and retailers to increase adoption of this technology.

2. Collaboration

This study is a joint Energy Efficiency (EE)/DR Emerging Technology Study. PG&E is planning to hire a third party to lead this research project. The third party is responsible to partner with other initiatives that are related to heat pump water heater such as Technology and Equipment for Clean Heating (TECH) and Building Initiative for Low Emissions Development (BUILD).

3. Results/Status

The implementer developed a Midstream Heat Pump Water Heater Study and

Field Test SharePoint extranet site. The extranet will provide contractors and distributors access to the Resource Library which is a searchable catalog of materials on the study. The implementer developed different marketing materials and marketing plans. HPWH contractors and distributors were recruited for the study. In addition, the implementer also interacted with the major heat pump water heating manufacturers like AO Smith, Bradford White, Rheem, and Nyle.

4. Next Steps

The study is targeted to focus on the following tasks in the next two quarters:

- Completion of the PG&E Midstream HPWH Study and Field Test: Supply Chain Market Study
- Work with PG&E WE&T team, PG&E Code Compliance, and BayREN Code Training on the best pathway for knowledge sharing from the Supply Chain Market Study to help support their existing efforts on HPWHs
- Recruit more distributor into the Field Test.