

ET Summit 2024

Presented by



Addressing Barriers to Adoption: Emergency Water Heater Replacements

CalNEXT



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Adoption Barriers



- Higher Upfront Costs
- HPWHs can increase replacement costs by \$3-4k over gas water heaters



- Delay in Restoring Hot Water Service



- Complexity with Permitting and Trades
- Need for securing electrical contractor support for permitting and 240V service

Project Plan



The Objectives

- ✓ Assess factors influencing homeowner and contractor decisions in emergency water heater replacements
- ✓ Evaluate technical solutions for addressing emergency replacement barriers to HPWHs



The Method

- ✓ Mine and analyze data (e.g. ResStock, TECH, customer surveys)
- ✓ Research water heater market evaluations
- ✓ Interview contractors and manufacturers



BEFORE

AFTER

Opportunity Size



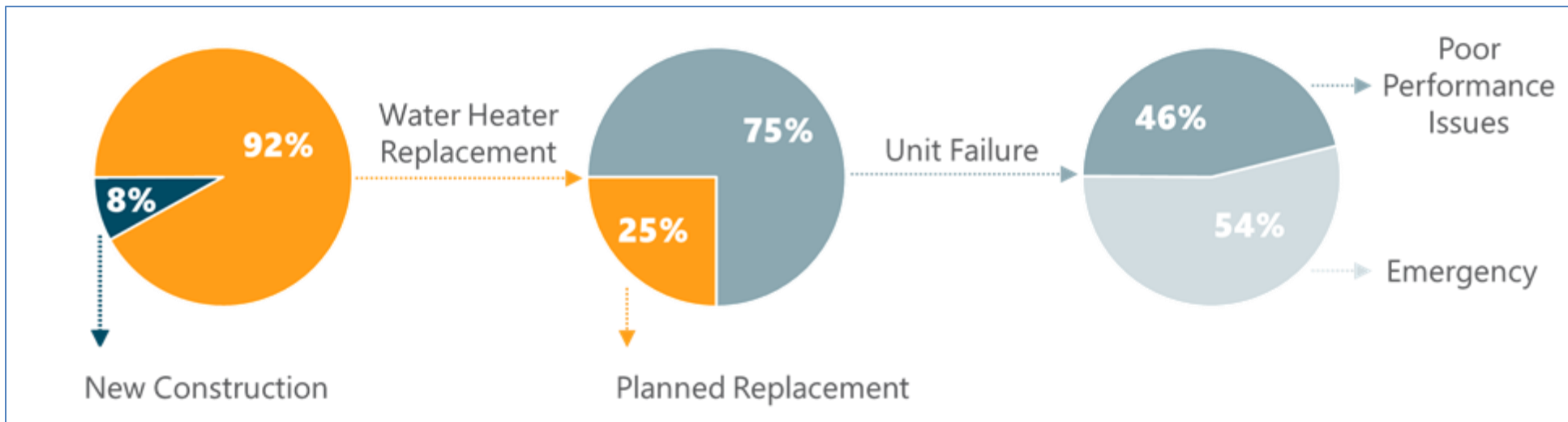
75% (or more) of water heater replacements at time of failure



Natural (forced) decision point and investment opportunity



New innovative solutions – Loaners and 120V Plug-In HPWHs



Source: NEEA Water Heater Market Characterization Report, April 2018

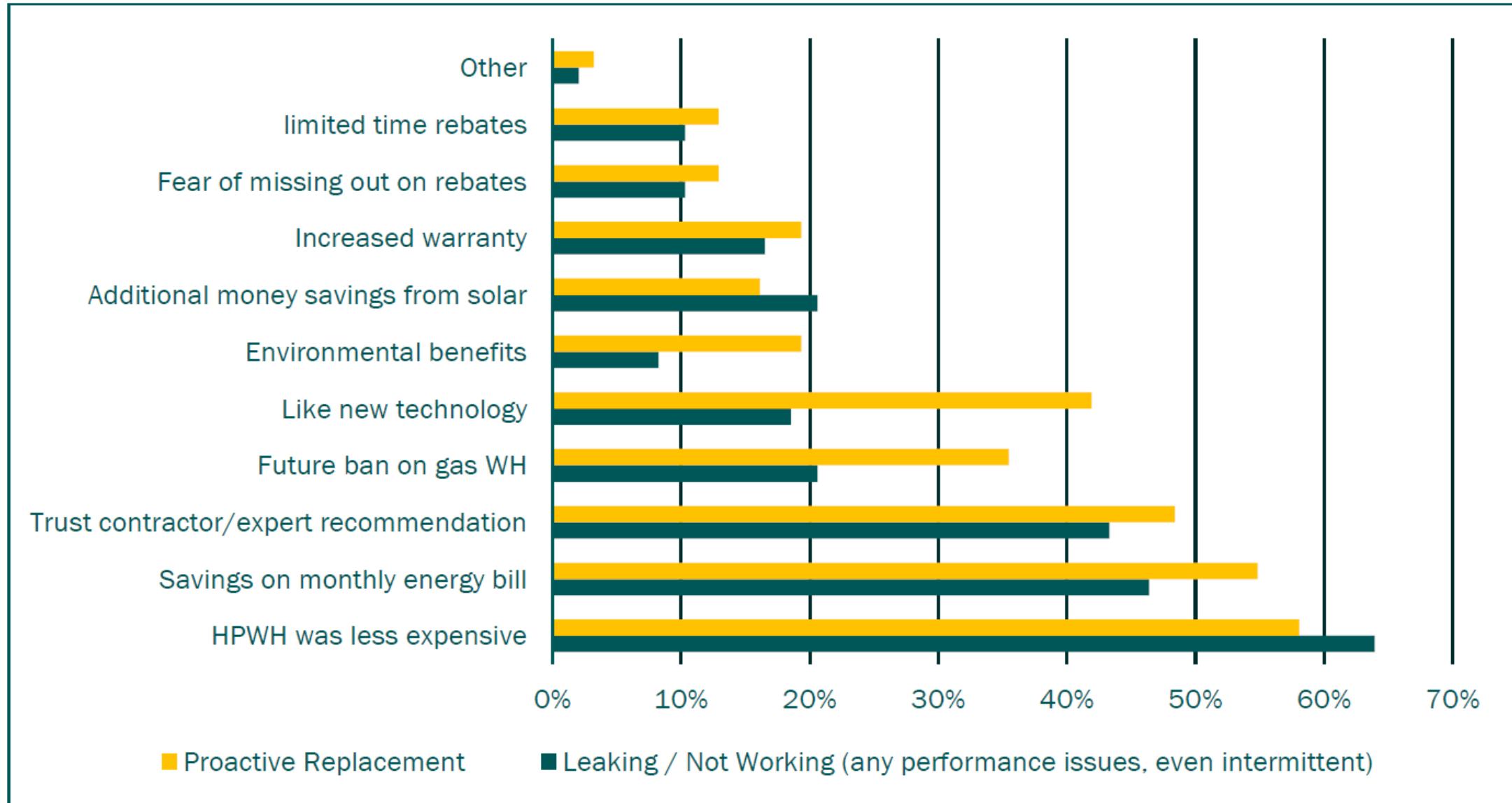
TECH Data Findings

- **Emergency replacements only 9% of HPWH installs** (vs. 75% in typical water heater replacements)
- **Top 3 contractors (> 150 installs) = 2%, 15%, and 29%** of HPWH installations as emergency replacements
- **22% of ERs are plug-in 120V HPWHs!!** (even with FHR testing issue)
- **Limited use of gas loaners** – except one contractor & new 3CREN program

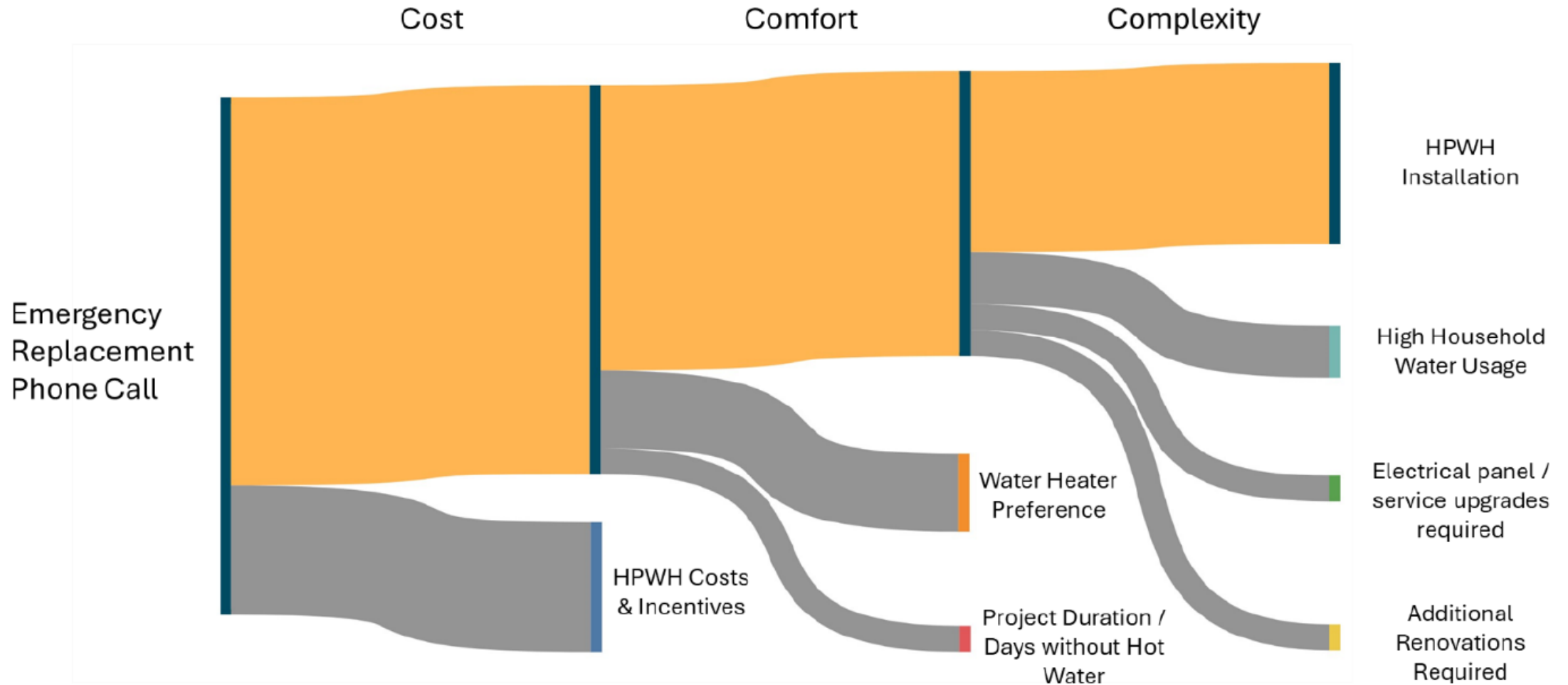
TECH CLEAN CALIFORNIA	TECH Emergency Replacements	Results	Comments
	Total Installations	1058	219 Contractors
	Emergency Replacements	96	Primarily two contractors (66%)
	ERs with Panel Upgrade	17%	
	Located in Garage	89%	81% in non-ER and 6% in basements
	Avg Total Project Cost	\$7,128	\$2,130 incl. incentive / \$6,905 non-ER
	HPWH Equipment Type (120V)	22%	15% for non-ER

Source: TECH Clean California, February 2024

Top Reasons for HPWH Installations



Cost, Comfort and Complexity



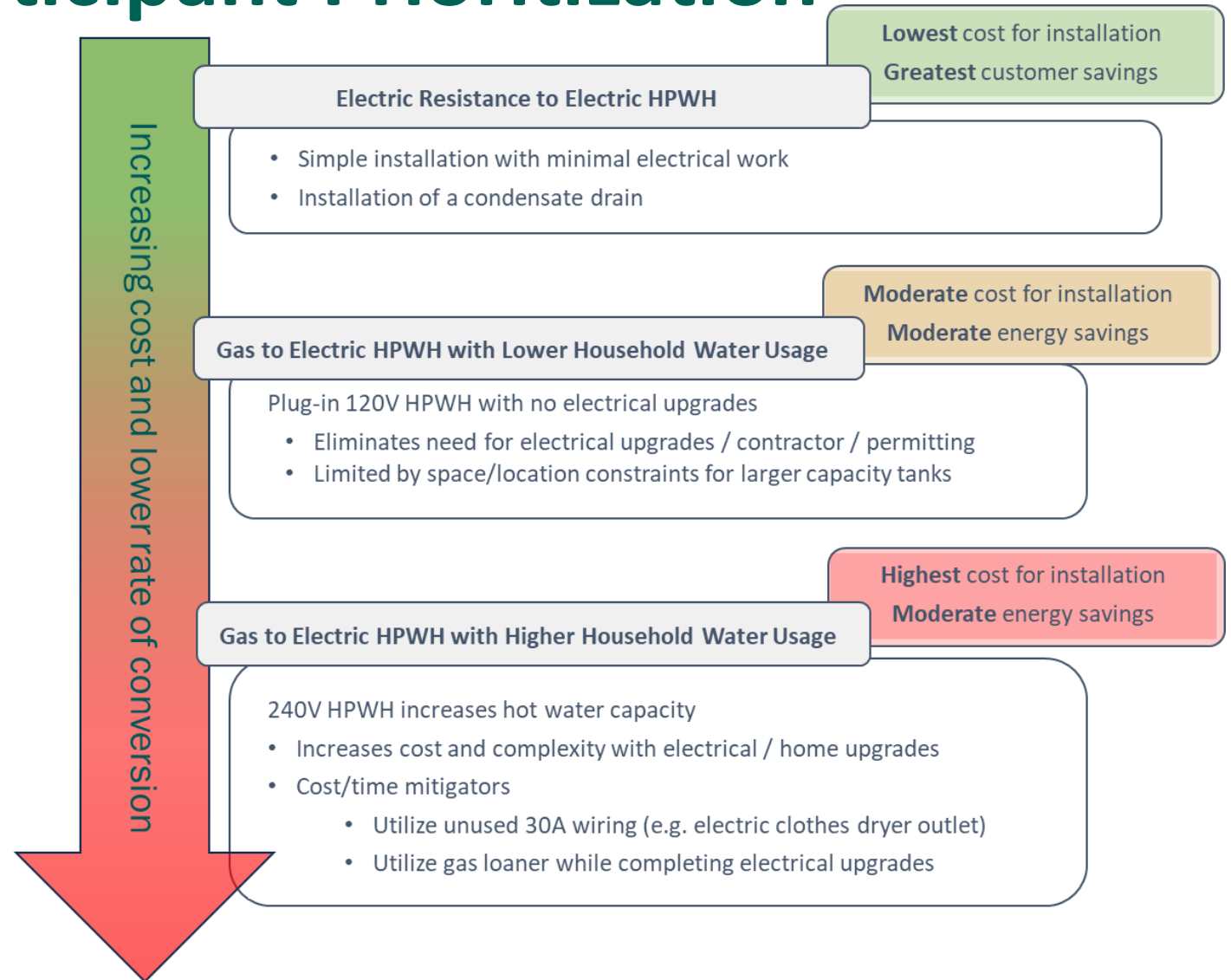
Program Participant Prioritization

1. Least Cost/Complex

- Electric to HPWH
- Gas to Plug-in 120V HPWH

2. More Cost/Complex

- Gas to 240V HPWH
- Find electrical shortcuts
- Loaners and splitters



Including Recommendations in Programs

Simplify rebate programs & permitting

Emergency replacements offer the largest opportunity but the most cost-sensitive, stressful moment for HPWH conversions. Programs need to make decisions simpler, not harder for the contractor and customer.

Lower upfront HPWH costs

Cost is the number one decision factor identified by homeowners and contractors. This requires significant rebates to move the needle, but that Evaluate rates, layering “behind the meter” on-bill incentives and loans to maximize federal funding and reduce upfront HPWH costs

Invest in innovation

Gas loaners, plug-in 120V HPWHs have proven to be effective in addressing emergency replacement barriers. More is needed. Alternatives to panel upgrades, 120V/240V temporary electrical wiring solutions and support for electrical licensing in HVAC/plumbing trades.

This project was funded by



For more information contact Rebecca Rothman at rrothman@veic.org

The project report can be found [here](#)

Q&A