

Innovation to *Action*



***Transforming the
Gas Water
Heating Market***

Agenda

- NEEA overview
 - Natural Gas
- Opportunity
- Activities
- EHPWH Lessons Learned
- Roadmap
- Q&A

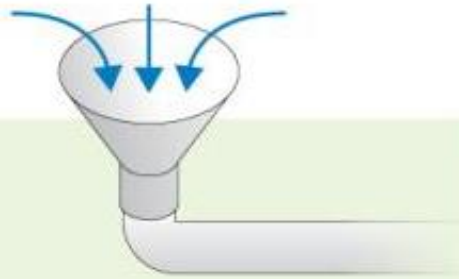


The Northwest Energy Efficiency Alliance (NEEA) is a nonprofit organization working to effect market transformation through the acceleration and adoption of energy-efficient products, services and practices. NEEA is an alliance of more than 140 Northwest utilities and energy efficiency organizations working on behalf of more than 13 million energy consumers.

TOGETHER We Are Transforming the Northwest



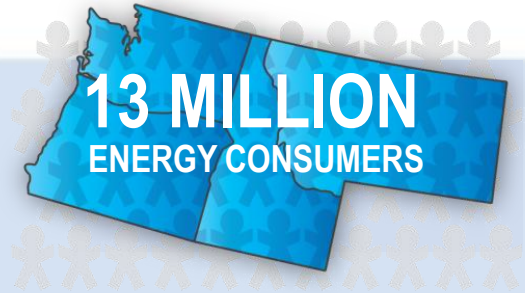
How NEEA Accelerates Energy Efficiency



Fill The Energy Efficiency Pipeline



Accelerate Market Adoption



Leverage the Power of the Region

Natural Gas Funders



***Objective: Accelerate development
and market adoption of efficient
natural gas products, practices and
services...***

Opportunity

Type	Advertised Efficiency Rating	Estimated Minimum	Estimated Maximum
Tankless	98%	\$4,000	\$5,000
Tankless Hybrid	90%	\$4,500	\$5,000
Tankless	82%	\$3,500	\$4,500
Gas Water Heater	96%	\$3,500	\$4,500
Natural Vent Water Heater	58% to 67%	\$1,000	\$1,925

130% EF
~\$2500

YES!

Storage Water Heaters	Dec '15 YTD	Dec '14 YTD	%Chg.
Residential Storage Gas	4,374,199	4,471,903	-2.2
Residential Storage Electric	4,027,067	4,227,329	-5.9

Opportunity

- Current high efficiency gas water heaters offer unattractive value propositions
 - Electric water heaters have highly efficient, cost effective options
- Gas heat pump technology offers significant gas savings
- Provides wins for gas utilities, gas consumers and trade allies alike

Opportunity

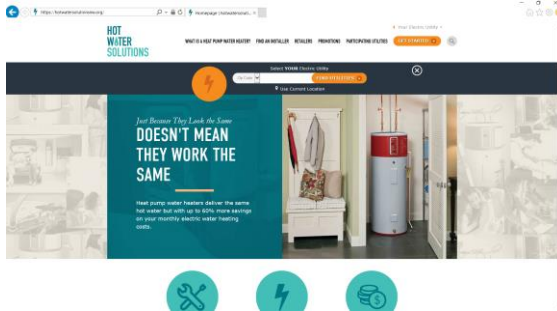
- Product development complete
- Field studies complete – it works
- 1.2-1.3 EF
- Prepared for OEM partners



Activities

- Technical, market, and marketing consultative support
- Energy Efficiency community coordination
- Supply chain communication, coordination, and education
- Product development, testing, and launch acceleration

Electric Heat Pump Water Heaters



SUPPLY CHAIN COLLABORATION

CONSUMER AWARENESS



REGIONAL TECHNICAL TRAINING

UTILITY PROGRAM DEVELOPMENT & SUPPORT

SPECIFICATION DEVELOPMENT AND EVOLUTION

QUALITY ASSURANCE

A Specification for Residential Water Heaters Advanced Water Heater Specification Version 6.0
 Updated May 18, 2016

Background
 In the early 1980s, electric utilities in colder portions of North America introduced heat pump technology into the residential water heating market. Heat pump water heater (HPWH) programs have subsequently spawned three generations of technology and product related measurements of technical performance and consumer satisfaction. The experience gained from these programs provides definitive direction about key consumer needs and expectations for technical and reliability criteria for present and future HPWH products throughout a range of climates.

The ENERGY STAR® program released its first specification for residential water heaters in 2009, which included qualifying criteria for heat pump water heaters. ENERGY STAR included requirements for efficiency (EER) of at least 3.0, capacity (first hour rating) of 30 gallons per hour, longevity (minimum 8 years), and electrical safety (UL 174 and UL 1988). While these measurements are important, the ENERGY STAR program does not address critical performance and reliability criteria which have been identified as key areas of concern for consumers. In 2009, several major manufacturers launched independent HPWH trials in North America markets which used ENERGY STAR applied but failed to address key performance issues in colder climates.

While the specification initially focused on "northern" climates (generally considered to be any location with an annual average temperature less than 50 degrees Fahrenheit), it is critical to understand that climate is a key variable. Meeting heat pump use case requirements, additional performance-related functionality, and consumer satisfaction, across the specification and testing methodology provides high efficiency water heating in all climates.

1.0 Purpose
 This specification provides guidance to manufacturers and other market actors who are interested in developing products that not only meet ENERGY STAR criteria but are able to provide high levels of consumer satisfaction and energy performance in a range of

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PRODUCT DEVELOPMENT ACCELERATION



RETAIL PLACEMENT & PROMOTION

CUT WATER HEATING COSTS
 Save hundreds with a Rheem EcoSense water heater.
 Limited-time offer: 4/15 - 6/10

THE HOME DEPOT

Get \$300 instant savings >

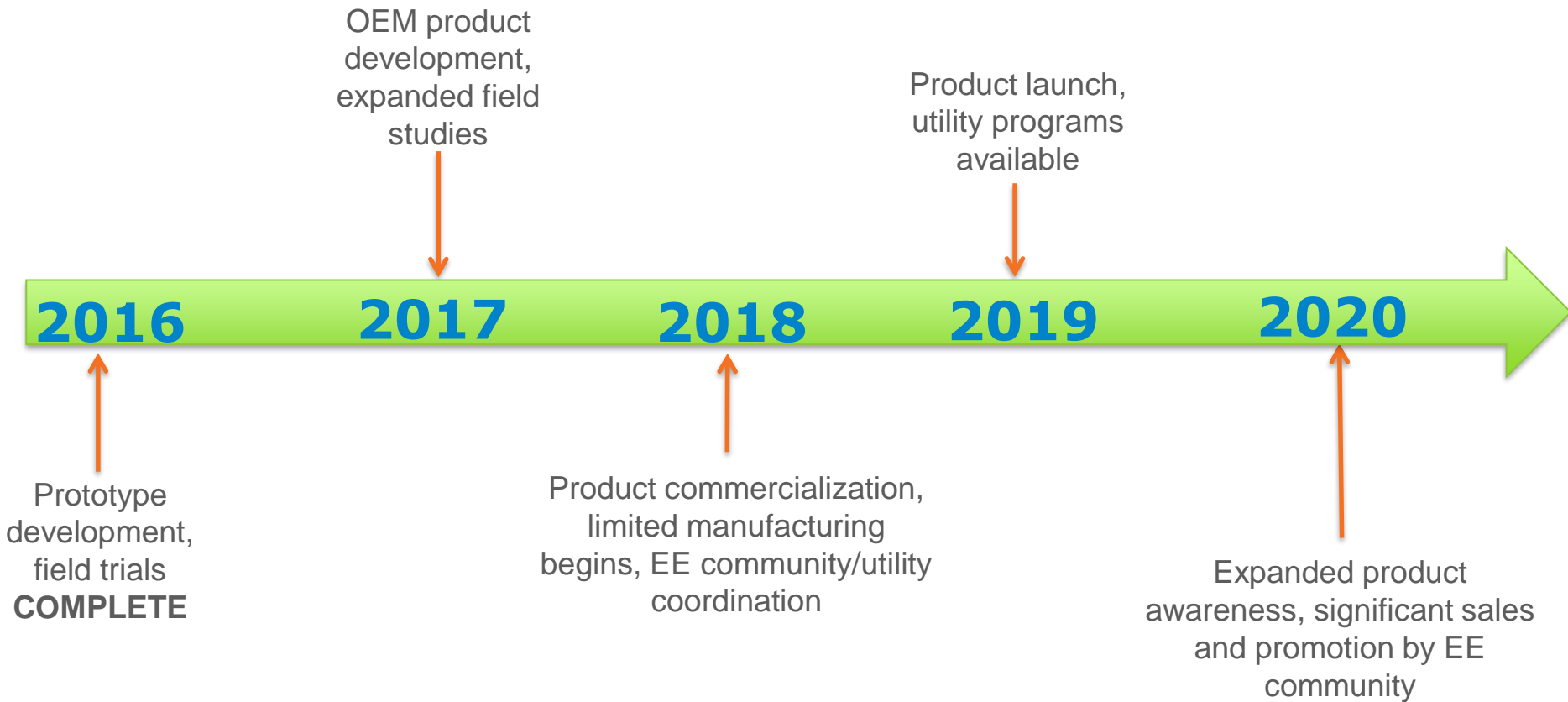
LAB & FIELD TESTING

2009 2010 2011 2012 2013 2014 2015 2016

Electric Heat Pump Water Heaters Lessons Learned

- Manufacturer guidance should be flexible and inclusive
- Demonstrating long term value proposition is crucial to achieving supply chain commitment
- National alignment and support provides market stability
- Small = nimble *but* risky
- Widespread buy-in, constant reinforcement required
- Upstream/midstream incentives move the most units

Roadmap



***Ready to
accelerate?***



***EE organizations
are the drivers!***

Questions?

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