

HEAT PUMP WATER HEATERS AND THE NORTHWEST MARKET

Where we have been and where we are headed

ACEEE – Hot Water Forum
February 22, 2016

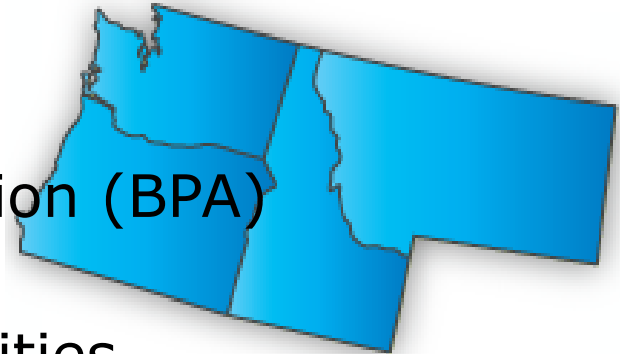
HOT
WATER
SOLUTIONS

AGENDA

- Overview
- Efficiency program perspective - NEEA
- Manufacturer's perspective - GE
- Utility perspective – PGE
- What does the future hold?
- Q&A

OVERVIEW - NEEA

- Northwest Energy Efficiency Alliance (NEEA) - Nonprofit organization using **market transformation** to maximize energy efficiency and meet future energy needs
- Funded by:
 - Bonneville Power Administration (BPA)
 - Energy Trust of Oregon
 - More than 100 Northwest utilities
- Covers Idaho, Montana, Oregon and Washington
- Energy efficiency is now the region's third largest power resource

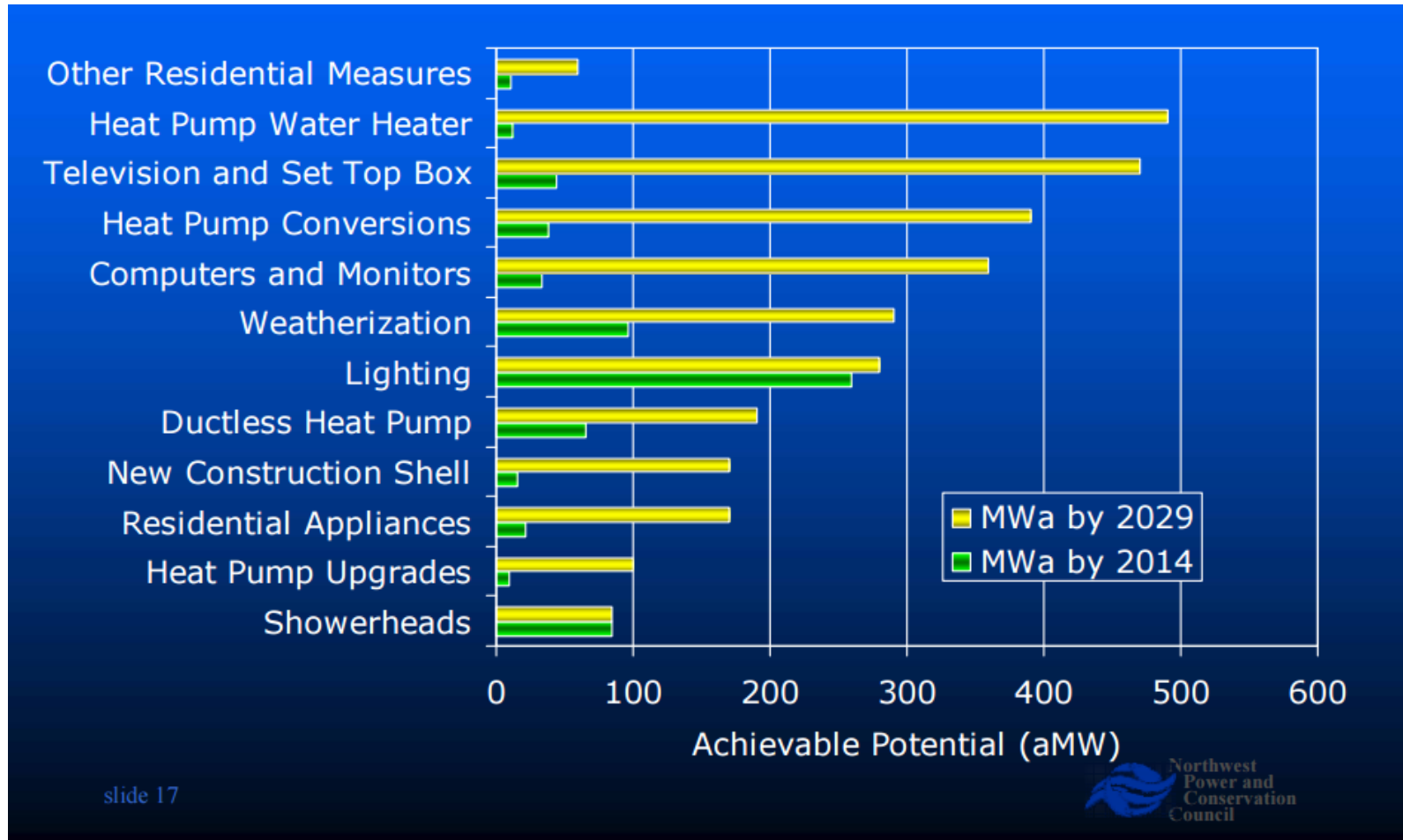


WHY HEAT PUMP WATER HEATERS?

- Prime choice for market transformation
 - **55%** of NW homes have electric water heaters
 - **6.3%** of existing homes replace their water heater yearly
 - **One of the largest energy saving** measure for the Northwest residential portfolio

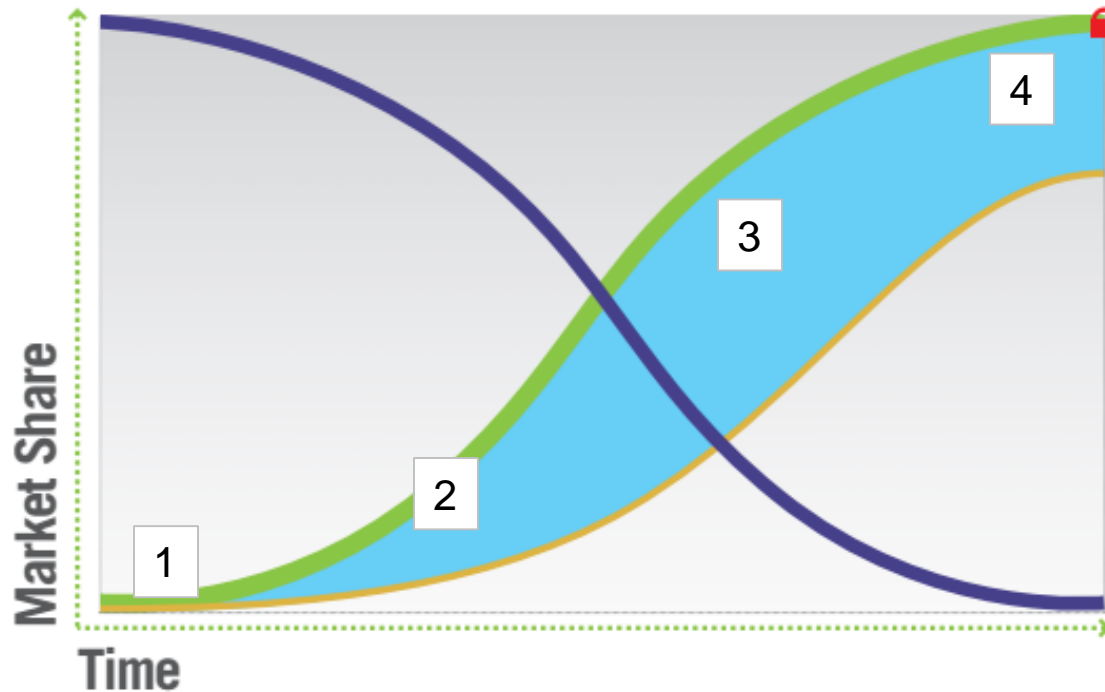


WHY HEAT PUMP WATER HEATERS?



WHY HEAT PUMP WATER HEATERS?

- The heat pump water heater (HPWH) opportunity



Investment

Return

Market Transformation

Baseline

Codes and standards

PRIMARY MARKET BARRIERS

- Upfront cost
- Limited consumer awareness and demand
- Limited availability in supply channel
- Lack of trained and motivated installer base



OVERVIEW – HOT WATER SOLUTIONS

- Hot Water Solutions – NEEA's market facing program
- Working to influence federal standards requiring HPWHs for all electric storage tanks greater than 45 gallons
- Influenced over **10,000** HPWH sales to-date

The screenshot displays the 'HOT WATER SOLUTIONS' website. At the top, there is a navigation bar with the logo on the left and a search bar on the right. The main navigation menu includes links for 'WHAT IS A HEAT PUMP WATER HEATER?', 'FIND AN INSTALLER', 'RETAILERS', 'PROMOTIONS', and 'PARTICIPATING UTILITIES', followed by a 'GET STARTED' button and a search icon. Below the navigation, a dark grey banner contains a lightning bolt icon, a 'Zip Code' input field, a 'FIND UTILITIES' button, and a 'Use Current Location' option. The main content area features a teal background on the left with the text: 'Just Because They Look the Same DOESN'T MEAN THEY WORK THE SAME'. Below this, it states: 'Heat pump water heaters deliver the same hot water but with up to 50% more savings on your monthly electric water heating costs.' To the right, there is a photograph of a red and white heat pump water heater installed in a utility room next to a white bench.

OVERVIEW – HOT WATER SOLUTIONS

- Manufacturer promotions
- Utility support
- Supply chain engagement
- Marketing support



GE PROMOTION EDDM

Save hundreds with rebates from Lowe's® and your local electric utility.



Lowe's® limited-time offers good until July 31, 2015

GE® GeoSpring™ 50-gallon model GEH50DFEJSR
 Regular price **\$1,199**
 After Lowe's® instant savings **\$699**

GE® GeoSpring™ 80-gallon model GEH80DFEJSR
 Regular price **\$1,899**
 After Lowe's® instant savings **\$1,599**

ADDITIONAL UTILITY MAIL-IN REBATES**

	50-gal	80-gal
Idaho County Light and Power	\$500	\$500
Kootenai Electric Coop.	\$500	\$500
Rocky Mountain Power.	\$350	\$350

To learn more, visit GeoSpring.com

*****1CWRSSDDM*****
 LOCAL
 POSTAL CUSTOMER

POSTNET
 US POSTAGE
 PAID
 LOUISVILLE, KY
 PERMIT #1326



GE APPLIANCES

PARTICIPATING UTILITIES



Idaho County Light & Power



Kootenai Electric



Let's get the answer on.

**Rebate amounts and eligibility requirements vary by electric utility and installation conditions; contact your local electric utility to confirm the rebate amount and eligibility. Some utilities require professional installation by an approved contractor. Some utilities require units installed in conditioned space to be ducted out of conditioned space to be eligible.

Lowe's® GE, Gable Mansard Design, and Never Stop Improving are registered trademarks of L.L.C. All are used with permission. Lowe's® shall not be responsible for the fulfillment of the electric utility rebate.

83097D



STANDARD WATER HEATERS CAN'T COMPARE

YOUR STANDARD ELECTRIC WATER HEATER gives you hot water. Unfortunately, it also drains your wallet. Heat pump water heaters give you the same reliable hot water, but they can reduce your electric water-heating costs by up to 50%. It's like comparing apples to apples, except one of the apples is costing you a lot of money.

INSTALLER MEDIA SUPPORT

HOT
WATER
SOLUTIONS

We've Teamed Up To Help You
STOP WASTING MONEY!



GE APPLIANCES



PUGET
SOUND
ENERGY



SAVE UP TO \$200/YEAR
in energy bills with GE GeoSpring.

Starting Price **\$1899***

Utility Rebate: up to **\$800**
(depending on utility)

Manufacturers Discount **\$300**

Fast Special **\$100**

INSTALLED PRICE \$699**

UP TO \$1200 IN TOTAL SAVINGS NOW
Call for more info: **800-804-7861**

* Pricing shown for 50-gallon unit. 80-gallon units as low as \$1,199 installed.

**Utility rebate cannot exceed purchase price.

- Must have an existing electric water heater.
- Unit must be located in an unheated space.

PRODUCT SELECTOR TOOL

Based on your selection, these heat pump water heaters are recommended for installation in your home (recommended units are determined by the number of bedrooms and bathrooms in your home, not by the number of occupants):

- **A.O. Smith** 60 gallons (PHPT-60)
- **A.O. Smith** 80 gallons (PHPT-80)
- **A.O. Smith** 50 gallons (SHPT-50)
- **A.O. Smith** 66 gallons (SHPT-66)
- **A.O. Smith** 80 gallons (SHPT-80)
- **American** 60 gallons (HPE10260H045DV)
- **American** 80 gallons (HPE10280H045DV)
- **American** 50 gallons (HPSE10250H045DV)
- **American** 66 gallons (HPSE10266H045DV)
- **American** 80 gallons (HPSE10280H045DV)
- **Bradford White** 50 gallons (RE2H50R10B)
- **Bradford White** 80 gallons (RE2H80R10B)
- **General Electric** 50 gallons (GEH50DEEJXXX)
- **General Electric** 50 gallons (GEH50DFEJXXX)
- **General Electric** 80 gallons (GEH80DEEJXXX)
- **General Electric** 80 gallons (GEH80DFEJXXX)
- **General Electric** 50 gallons (GEH50DEEDSC)
- **General Electric** 50 gallons (GEH50DEEDSR)
- **Kenmore** 60 gallons (153.32116)
- **Kenmore** 50 gallons (153.321151)
- **Kenmore** 80 gallons (153.32118)
- **Lochinvar** 66 gallons (HPA066KD)
- **Lochinvar** 80 gallons (HPA080KD)
- **Reliance** 50 gallons (10 50 DHPST)
- **Reliance** 66 gallons (10 66 DHPST)
- **Reliance** 80 gallons (10 80 DHPST)
- **Reliance** 80 gallons (10 80 DHPT)
- **Rheem** 50 gallons (HB50RH)
- **Rheem EcoSense** 50 gallons (HB50ES)
- **Richmond** 50 gallons (HB50RM)
- **Ruud** 50 gallons (HB50RU)
- **State** 60 gallons (EPX 60 DHPT)
- **State** 80 gallons (EPX 80 DHPT)
- **State** 50 gallons (SPX 50 DHPT)
- **State** 66 gallons (SPX 66 DHPT)
- **State** 80 gallons (SPX 80 DHPT)
- **Stiebel Eltron** 58 gallons (Accelera 220 E)
- **Stiebel Eltron** 80 gallons (Accelera 300)
- **U.S. Craftmaster** 60 gallons (HPE2K60HD045V)
- **U.S. Craftmaster** 80 gallons (HPE2K80HD045V)
- **U.S. Craftmaster** 50 gallons (HPSE10250H045V)
- **U.S. Craftmaster** 66 gallons (HPSE2K66HD045VU)
- **U.S. Craftmaster** 80 gallons (HPSE2K80HD045VU)
- **Whirlpool** 60 gallons (HPE2K60HD045V)
- **Whirlpool** 80 gallons (HPE2K80HD045V)
- **Whirlpool** 50 gallons (HPSE2K50HD045V)
- **Whirlpool** 66 gallons (HPSE2K66HD045V)
- **Whirlpool** 80 gallons (HPSE2K80HD045V)

WEBSITE INSTALLER FINDER



Select **YOUR** Electric Utility ✕

⚡

Zip Code ▾ [FIND UTILITIES](#) ▾


📍 Use Current Location

FIND AN INSTALLER

Find an installer in your area who can answer your questions and help you schedule an in-home consultation. Enter your location for installers near you.

Location ▾ [SEARCH](#) ▾

📍 Use Current Location



Market Progress Evaluation Report

- Most HPWH sales are planned purchases
- Current HPWH purchasers are more educated and have higher incomes
- Rebates are important in purchase decisions
- HPWHs meet the majority of consumer expectations
- The new construction market may be a large opportunity

NEEA Consumer Messaging Research

- Most consumers plan to replace their water heater when it breaks
- The most motivating HPWH messages were reported to be:
 - Saving money on energy bills
 - Saving energy
 - Durability of equipment

Key Purchasing Influencers

- Utility endorsement
- Peer reviews/testimonials
- Contractors



STANDARD ELECTRIC WATER HEATER	HEAT PUMP WATER HEATER
<input checked="" type="checkbox"/> Heats Water	<input checked="" type="checkbox"/> Heats Water
<input checked="" type="checkbox"/> Built To Last	<input checked="" type="checkbox"/> Built To Last
<input checked="" type="checkbox"/> High Quality	<input checked="" type="checkbox"/> High Quality
<input type="checkbox"/> Uses Up To 50% Less Energy	<input checked="" type="checkbox"/> Uses Up To 50% Less Energy

JUST BECAUSE THEY LOOK THE SAME DOESN'T MEAN THEY WORK THE SAME.
That's because heat pump water heaters work much more efficiently than their standard electric counterparts. And that means you can save up to 50% on your monthly electric water heating costs for years to come.

- Continue influencing **planned replacements** through product markdowns and marketing campaigns
- Begin influencing **emergency replacements** by:
 - Continuing to overcome cost barriers
 - Increasing consumer awareness and familiarity
Increasing installer and retail sales associate education and buy-in
- Explore opportunities in the **new construction market**



GE APPLIANCES

WATER HEATER MARKET TRANSFORMATION



CHALLENGES AND OPPORTUNITIES

HPWH TECHNOLOGY READY FOR PRIME TIME



HEAT PUMP WATER HEATERS, THE MOST EFFICIENT

ELECTRIC

NATURAL GAS

PROPANE GAS

HEAT PUMP

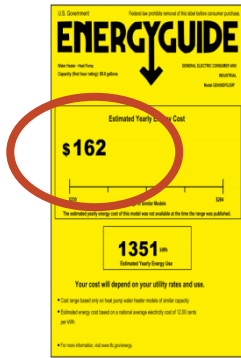
STANDARD

TANK

TANKLESS

TANK

TANKLESS



GeoSpring™ hybrid electric water heater
50 gal.
GEH50DFEJSR
3.25 EF
<http://products.geappliances.com/appliance/gea-product-search?Ntt=geh50dfejsr&x=0&y=0>



Rheem Performance Model # XE50M06ST45U1 50 Gal. Medium 6 Year 4500/4500-Watt Elements Electric Water Heater
0.95 EF
<http://www.homedepot.com/p/Rheem-Performance-50-gal-Medium-6-Year-4500-4500-Watt-Elements-Electric-Water-Heater-XE50M06ST45U1/205810732>



Rheem Performance Model # EC0H200DVLN 50 gal. Tall 6 Year 36,000 BTU Natural Gas Water Heater
0.60 EF
<http://www.homedepot.com/p/Rheem-Performance-50-gal-Tall-6-Year-36-000-BTU-Natural-Gas-Water-Heater-EC0H200DVLN/205811151>



Rheem EcoSense Model # XP50T06HE36U0 9.5 GPM 199,900 BTU Ultra Low NOx Natural Gas Indoor Tankless Gas Water Heater
0.94 EF
<http://www.homedepot.com/cat/1100/pdf/images/677/67c45064-57d3-4712-8d1f-565798bf130c.pdf>



Rheem Model # XP50T06HE36U0 Performance 50 gal. Tall 6 Year 36,000 BTU High Efficiency Liquid Propane Water Heater
0.62 EF
<http://www.homedepot.com/p/Rheem-Performance-50-gal-Tall-6-Year-36-000-BTU-High-Efficiency-Liquid-Propane-Water-Heater-XP50T06HE36U0/205812798>



Rheem EcoSense Model # EC0H200DVLP 9.5 GPM 199,900 BTU LoNox Liquid Propane Gas Indoor Tankless Gas Water Heater
0.94 EF
<http://www.homedepot.com/cat/1100/pdf/images/677/67c45064-57d3-4712-8d1f-565798bf130c.pdf>

HEAT PUMP IS CHEAPEST TO OPERATE



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HEAT PUMP WATER HEATERS PROVIDE BIG SAVINGS

2-4 people



\$160 - \$330 Savings

5-6 people



\$410 - \$490 Savings



50
Gallon



80
Gallon

A SMART INVESTMENT



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Source: https://www.energystar.gov/index.cfm?c=heat_pump.pr_savings_benefits

2015 ENERGY STANDARDS STANDARD ELECTRIC > 55 GALLON ARE GONE

50 Gallons

Energy Factor
95% ~0.95



Standard electric



GeoSpring 50G
3.25 EF



80 Gallons

Energy Factor
200% ~2.0

Must now use heat pump technology!



GeoSpring 80G
3.12 EF



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\$300 FEDERAL TAX CREDIT

WAREHOUSE MY ACCOUNT WHERE TO BUY CONTACT US MY PARTS CART

GE APPLIANCES

KITCHEN LAUNDRY & HOME SPECIAL OFFERS FILTERS & PARTS SUPPORT

Home / Rebates & Promotions

GEOSPRING
for the energy savers

GEOSPRING™ HEAT PUMP WATER HEATER

[See All GeoSpring Water Heaters](#)

GEOSPRING QUALIFIES FOR A \$300 FEDERAL TAX CREDIT IN 2015 & 2016!

Get a \$300 Federal Tax Credit for any GeoSpring installed between January 2015 and December 31, 2016. File IRS forms 5695 line 22a with your 2015 or 2016 tax filings along with the product purchase receipt and a copy of the [GeoSpring Manufacturer's Certification Statement](#).

PLUS
GeoSpring heat pump water heaters qualify for many State Tax Credits and utility rebate programs, so you may save even more!

[Check for Rebates in Your Area](#)



GE APPLIANCES

2016 HPWH UTILITY INCENTIVES (not

exhaustive)

Washington

NEEA \$300 INSTANT ++
Puget Sound Energy - \$800
Pacific Power - \$550
Seattle City Light - \$500

Idaho

NEEA \$300 INSTANT ++
Idaho County Light & Power - \$500
Rocky Mountain Power - \$350
Kootenai Electric - \$300

South & North Dakota

Dakota Electric - \$500

Vermont

Efficiency Vermont - \$400

Maine

Efficiency Maine - \$500

New Hampshire

NH Saves - \$500

Massachusetts

MassSave - \$750 (50G)

Rhode Island

National Grid - \$750

Montana

NEEA \$300 INSTANT ++
Montana State Tax Credit - up to \$500 ++
Flathead electric - \$500
Ravalli Electric - 300
Black Hills Power - \$250

Illinois

ComEd - \$500
Mid American - \$400

Michigan

Efficiency United - \$850
Indiana Michigan Power - \$350

New York

ConEd - \$500
Central Hudson - \$450 (50G)
National Grid - \$400

Iowa

Eastern Iowa REC - \$650
Mid American Energy - \$400
Alliant Energy - \$300

Ohio

DP&L - \$800
AEP Ohio - \$500
Duke Energy - \$350

Pennsylvania

PECO - \$400
First Energy - \$300
PPL - \$300
Duquesne - \$286

Connecticut

Energize CT - \$400 INSTANT

Oregon

NEEA \$300 INSTANT ++
Oregon State Tax Credit - \$600 ++
Energy Trust of Oregon - \$300 (50G)

Wyoming

Rocky Mountain Power - \$300

Utah

Rocky Mountain Power - \$600

Indiana

Indiana Michigan Power - \$350
Vectren - \$300

West Virginia

AEP Appalachian Power - \$500

New Jersey

NJCEP - \$500

California

SMUD Sacramento - \$1,000
Pacific Power - \$600
PG&E - \$500
SDG&E San Diego - \$250
INSTANT
SCE Los Angeles - \$200

Colorado

Xcel Energy - \$450
Tri-State Coops - \$350

Delaware

Energize Delaware - \$600

Kentucky

Duke Energy - \$350
LG&E, KU - \$300

Maryland

EmpowerMD - \$500

Oklahoma

PSO - \$80

Arkansas

Energize Arkansas - \$350

Tennessee

TVA (e-score) - \$200

Carolinas

Duke Progress Energy - \$350
Duke Energy - \$350

Hawaii

Hawaii Energy - \$300

Texas -

Austin Energy - \$800
CPS Energy - \$225 (50G); \$300 (80G)

Mississippi

Mississippi Power - \$300

Georgia

Georgia Power - \$250

Florida

OUC Orlando - \$650
City of Tallahassee - \$300
Clay Electric - \$175



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FORMIDABLE BARRIERS TO
ADOPTION REMAIN



HEADWINDS....UPFRONT COST AND CONSUMER NOT AWARE OF ENERGY SAVINGS, INCENTIVES

FAILURE BASED UNPLANNED PURCHASE CRISIS EMERGENCY

	2015 Q2
<i>Sample Size</i>	233
Old one didn't work at all	53.7
Old one required service	30.0
Other reason	4.2
Just wanted a new one	6.5
Moved to a new home	3.3
Remodeled my kitchen	2.3
Wanted an additional one	0.0

HEADWINDS....SUPPLY CHAIN NOT PROACTIVE ENOUGH

HPWH lack of awareness/training among the trade

HPWH not stocked by major plumbing distributors, retailers

NAECA work-arounds:

- Down size**
- 55G standard electric**
- Commercial grade large tanks > 55G**
- Mixing valves**
- 2 small tanks**
- Tankless electric booster**

MAINTAIN/INCREASE INCENTIVES ON HPWH > 55G

HEADWINDS....SWITCH TO MARKDOWN INCENTIVES TOO SLOW

MARKDOWN LIFT 4X TO 6X OVER MAIL-IN REBATES

Markdown incentives in WA, OR, ID, MT, CT, VT, CA (SDG&E)

Solve for leakage concerns:

Regional coordination of mostly Statewide programs in the Northeast

Split rebates – Markdown + mail-in

Promote Wi-fi connected solutions to capture consumer data



THE ROAD AHEAD



NORTHWEST BLUEPRINT FOR SUCCESS

**Advances in energy
benefits, comfort**

**Inclusion in
new
construction**

**Instant Utility
markdowns**

**Specification
by energy
raters**

**Consumer
advertising**



**Local stock at
distribution locations**



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DEMAND RESPONSE AND THERMAL STORAGE

Load shifting, peak shaving, integration of renewables



Static Storage Capacity (w/ 20F rise)

- **50 gal 2015 model: ~2.2KW**
- **80 gal 2015 model: ~3.6KW**

Static Storage Capacity (w/ 40F rise & Mixing Valve)

- **50 gal 2015 model: ~4.4KW**
- **80 gal 2015 model: ~7.2KW**



UTILITY PERSPECTIVE

- Insert slides from Utility representative
- What's worked so far and future focus

WHAT DOES THE FUTURE HOLD FOR HPWH

- Continued product advancement
- Leveraging HPWH connectivity for demand response
- Increasing number of utility rebate programs
- Instant in-store rebates
- Improved consumer awareness
- More market promotions
- Increased large-tank uptake
- Updated standards for small-tank



QUESTIONS?

THANK YOU

Jill Reynolds, NEEA

Francois LeBrasseur, GE

Roch Naleway PGE

HOT
WATER
SOLUTIONS