



First Quarter Ductless Heat Pump Update

Agenda



- Code & Tax Credit Update
- Contractor Highlights
- Quality Assurance Activity
- Supply Chain Engagement
- Cold Climate Applications
- Marketing Update
- Evaluation

Code and Tax Credit Updates

DHP Disconnect Interpretation - Washington

- Washington Labor & Industries released an interpretation regarding DHP indoor disconnect switch requirements

Tax Credit Update

- At the end of 2010, a tax bill was passed that includes a one-year extension of the 25c tax credit

Contractor Highlights

Master Installer Program

- Master Installer Program launched on GoingDuctless.com in November
 - Master Installers are listed first on Contractor Finder
- Master Installer status allows consumers to identify contractors who are:
 - Experienced with ductless technology
 - Committed to great customer service
 - Complete Best practices installations
- 45 contractors currently participating
- Continue to ensure Master installers have a regionally diverse presence.



Master Installer Locations

Contractor Highlights

Four Best Practices Installation Webinars have been delivered.

- Contractor feedback is positive



A total of 88 contractors have attended a Best Practices Installation webinar

- The Project will continue this webinar in 2011 to help enhance the quality of DHP installations

Quality Assurance Activity

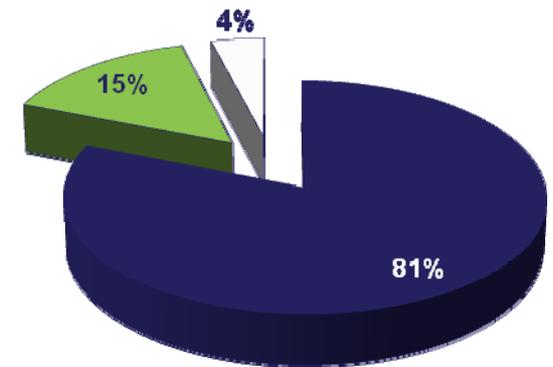
2010 Quality Assurance Inspections

- 81% Passes
- 15% Minor Deviations
- Best Practices Installation Webinar and Master Installer Program stress quality and customer service to regional contractors

Master Installer QA inspections

- Additional inspections on Master Installers gauge success of the program in increasing quality installations
 - 100% of these inspections resulted in a pass

2010 Quality Assurance Outcomes



■ Pass ■ Minor Deviation □ Major Deviation or Fall

Lack of refrigerant line set protection continues to be the leading cause of installation deviations

Quality Assurance

QA Resources

- Best Practices Installation Guide
- Best Practices Installation Webinar
- Attend the next Project QA inspection in your territory
- Communicate questions and concerns to the Project's technical team



Homeowner Education

- Ensure homeowner has provided with the in-door of unit operation.
- Provide homeowner with homeowners of www.G heating and cooling system.
- Educated homeowners

Contractor Resources

- For information on becoming a Project-oriented contractor, Project-oriented contractors are eligible to perform

Well Installed Outdoor and Indoor Unit = Happy Homeowner



Wall Penetrations Sealed With Insulative Sealant

Riser Block

Pad



Indoor Unit is Level

Indoor Unit is Centrally Located in Home for Best Air Circulation

Disclaimer: This document is only to be used as a general guide for providing quality installations. For complete information regarding installation requirements, features, benefits, operation, and maintenance, review the manufacturer's installation manual of the product being installed. Images of specific manufacturer product lines are not placed as endorsements, nor does this guide guarantee their quality.

An initiative of the Northwest Energy Efficiency Alliance, an alliance of NW Utilities and energy efficiency partners.

Best Practices for Ductless Heat Pump Installations

A Contractor's Guide



A quality ductless heat pump installation results from attention to details including: tools, installation and homeowner education. This guide provides information and suggestions to help you achieve successful ductless heat pump installations. Quality installations result in minimal call backs, more customer referrals, and increased awareness of ductless heat pump technology.

Required Tools

- R410A Specific Flaring Tools
- Programmable Refrigerant Charging Scale
- Torque Wrench
- R410A Gauge and Hose Set

Installation Best Practices

- Follow manufacturers' installation instructions. This guide is not intended to replace manufacturers' specifications.

Outdoor Unit (Compressor):

- Set the unit on a stable, level surface.
- Risers are essential to prevent snow and debris build-up and should be installed to allow better drainage of defrost water.
- Outdoor units should be secured to the pad, risers, and/or surface on which they are set using bolts and/or adhesive.

Refrigerant Tubing:

- Factory tubing flares and fittings are NOT TO BE REUSED.
- Create new flares using appropriate R410A flaring tool & measurement gauge.
- Apply refrigerant oil to the end of each flare.
- Connect tubing with R410A nuts (supplied with indoor and outdoor units) using a torque wrench tightened to manufacturer's specifications.

Refrigerant Charge:

- Adjust refrigerant charge ONLY IF NECESSARY. Most installations do not require adjustment from pre-charge levels.
- Gauges are not needed to verify refrigerant levels. (A scale should be used when adding or removing refrigerant.)
- Consult the manufacturer's installation manual to verify refrigerant protocols, specifications can often change.

Line Set Installation and Protection

- Insulation must cover entire line set length to avoid condensation and decreased efficiency.
- Once insulated, protect the outdoor portion of line set with rigid line hide to avoid premature degradation damage to the insulation.
- All penetrations through the shell of the home must be sealed with an insulative sealant.

Condensate Drain:

- Must slope downhill and can be routed with line set or run to a different termination point.

Refrigerant Tube

Inner surface must be flare-free

Smooth all around

Make sure proper flare nut is fitted

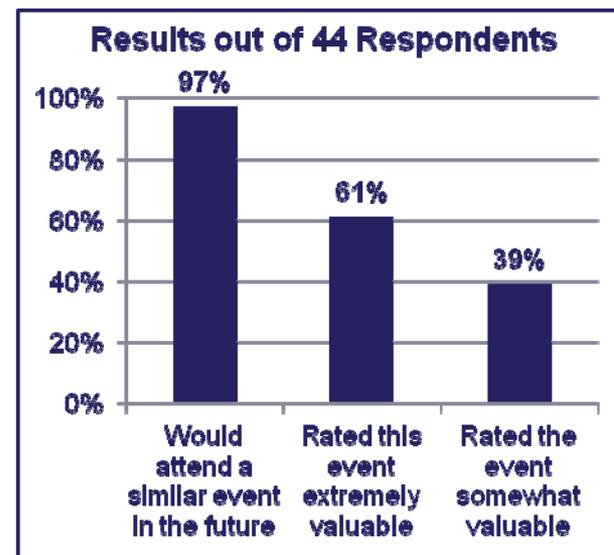
Improper Flaring

Inclined, Damaged, Cracked, Uneven, Bent

Supply Chain Engagement

Project/Mitsubishi November Training Events

- In November, the Project partnered with Mitsubishi and 9 regional utilities to offer a series of training events
- Focus on ductless sales strategies, technical knowledge, and NW Ductless Heat Pump Project awareness
- Survey distributed to contractors to gauge success of the events



Utility/Manufacturer Events - 2011

- Developing plans to support similar events throughout the region in 2011 based on utility and survey feedback

Supply Chain Engagement

DHP Display units

- Allow customers to experience DHPs
- Promote DHP technology education and awareness
- Available Project Support

Let us know if you are interested in a display for your location!



Cold Climate Applications

Northwestern Cold Climate Pilot

- Facilitated six installations of single zone Mitsubishi Hyper Heat DHPs in Northwestern Energy Territory
 - DHPs were installed by Intermountain Mechanical.
 - Installations funded by NEEA, metered by Ecotope.
 - Metering devices to be installed by early February 2011
- Pilot Goals
 - Explore potential benefits and efficiencies of DHPs in cold climates
 - Determine effectiveness of pan heaters installed in cold climate installations

Marketing Update

2010 Marketing Highlights

- Regional Radio Public Service Announcement Campaign
 - Facilitated distribution of :30 / :60 radio PSAs across the region from June-Dec



- 2010 Regional Cooling and Heating Paid Radio Campaign - Media Relations, Funding and Manufacturer Engagement
 - Designed a regional cooperative advertising platform for local market partner buy-in
 - Leveraged NEEA's non-profit status to obtain non-profit rates and matching PSA's to extend reach and frequency of paid campaign.
 - Provided \$30,000 in campaign funding, coordinated campaign planning and solicited funds from manufacturers
 - Influenced Mitsubishi to provide \$15,000 co-op funding within the regional heating season campaign

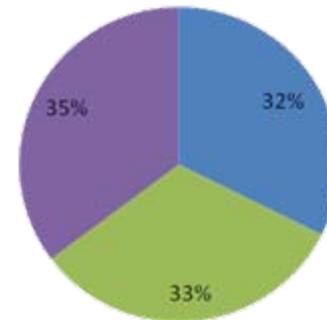
Marketing Update

2010 Marketing Highlights (Continued)

- 2010 Utility and Contractor Sales Sheets
 - Provided 104,426 customized sales sheets to utility and contractor / installer partners across the region (first 300 free per partner)

- Regional Messaging and Positioning

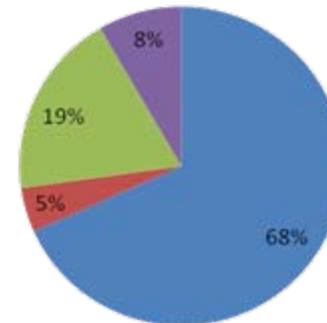
- The Project encourage the market to identify DHPs as a consumer-friendly product, leading with “Ductless Heating and Cooling Systems” on materials and advertisements.
- Keyword analysis from GoingDuctless.com indicates that efforts have influenced keyword traffic and consumer retention for “Ductless Heating and Cooling Systems.”



2009-2010 Website Keyword Trending

2009

- "Heating & Cooling"
- "HeatingAndCoolingUpgrade.com"
- "Heat Pump"
- "GoingDuctless"



2010

- "Heating & Cooling"
- "HeatingAndCoolingUpgrade.com"
- "Heat Pump"
- "GoingDuctless"

Marketing Update

2010 Marketing Key Learnings

- Communication Channels
 - **Website traffic increased 120% and from 2009-2010** as a result of diversifying communication channels and mediums, including:
 - **Radio** – PSAs and Paid Campaigns
 - **Online** – Keyword Buys, Banner Ads and Streaming Ads
 - ***The program will continue to diversity communication channels and mediums during 2011.***
- Leveraging the Market
 - NEEAs non-profit status was leveraged to increase the reach and frequency of the regional paid radio campaign from June-December – providing 1:1 matching spots/schedules from media
 - Public Service Announcements were able to be placed for low-to-no cost advertising across ID, MT, OR and WA, providing regional reach and over \$500,000 in valued media
 - ***The program will continue distributing radio PSAs during 2011 and will analyze additional channel opportunities***
 - TV Test Pilot February - April TV in Bend, Boise and Portland

Evaluation

- Quad meters continue to log energy use in participating homes across the region
- Meters will be removed starting April 1, 2011
 - NEEA will send announcements to affected utilities prior to decommissioning
- Ecotope will begin collecting post-installation bills from utilities in early Q2 2011
- Herrick Labs completed the testing of the Mitsubishi FE12NA and submitted its final lab report
- Ecotope is analyzing the lab testing data from both units (Mitsubishi and Fujitsu)
- All Wave 2 MPER data collection is complete; the final report is in progress

Evaluation

TIMELINE FOR DELIVERABLES	
Metering Report	October 2011
Lab Testing Report	April 2011
Billing Analysis Report	March 2012
Cost Effectiveness Report	April 2012
Market Progress Report	April 2011
Final Summary Report	July 2012

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First Quarter Ductless Heat Pump Update

January 26th, 2010



Agenda

- 2010 highlights and installation activity
- Product trends
- Overview of 2010 marketing campaigns
- Update on emerging technology study
- Preferred Product List
- Program resources for BPA utilities

2010 Installation Approval Activity

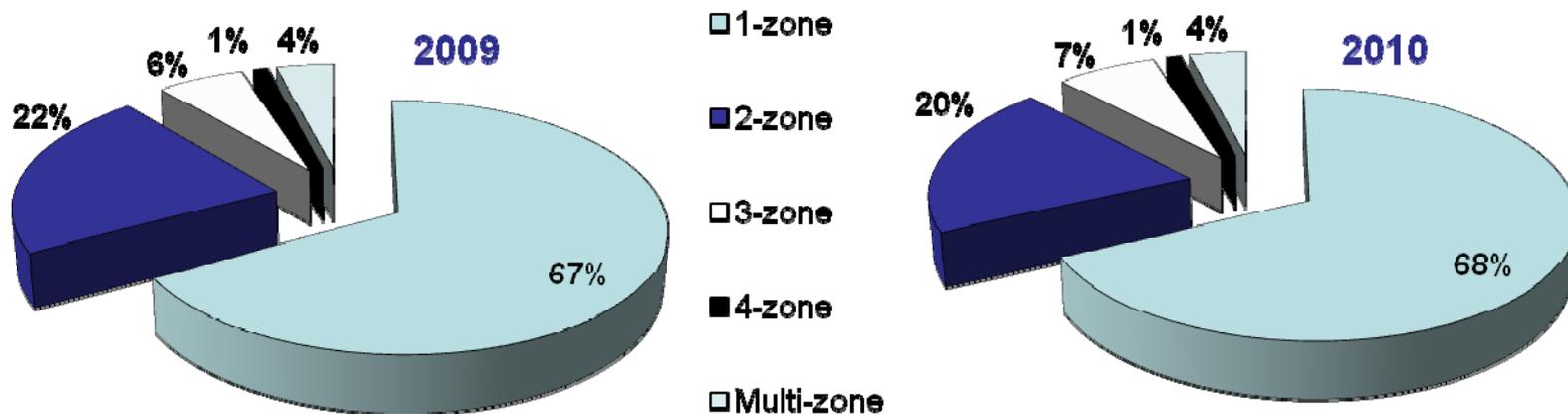
2009 Installations

- 2,772 installations approved in BPA utility territories
 - 54 active utilities

2010 Approvals

- 4,185 installations approved in BPA utility territories
 - 72 active utilities

The majority of systems installed continue to be single zone:

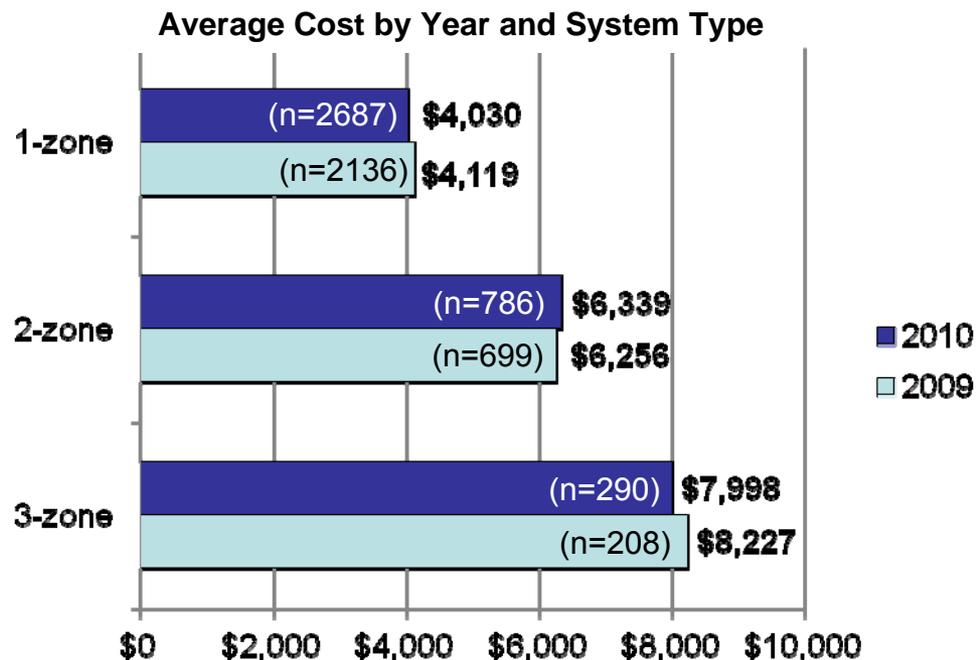


NOTE: Data reflects activity for calendar year 2009 and 2010

2010 Installation Activity

Installed DHP System Cost

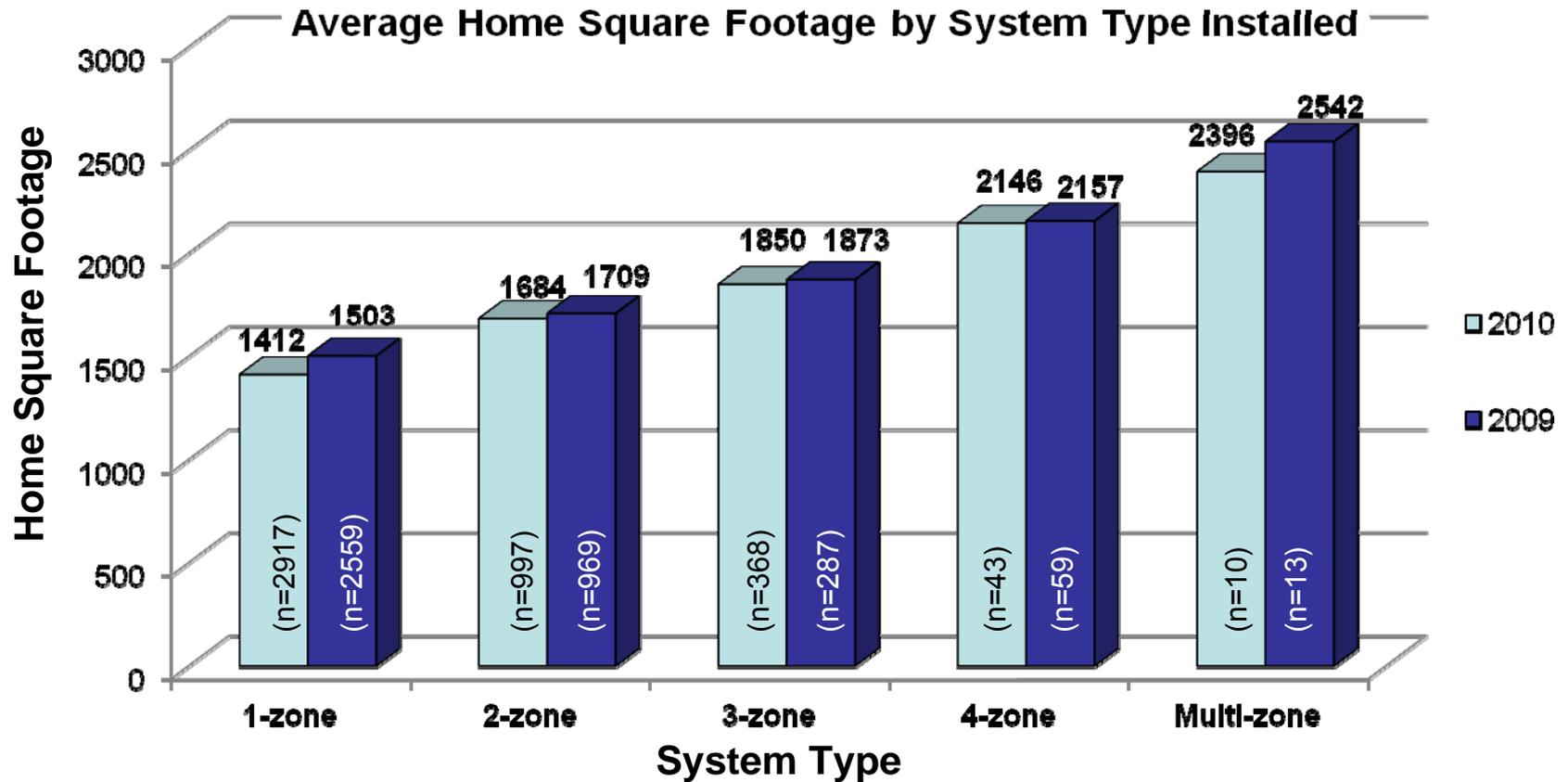
- The average cost of an installed single zone DHP system remained steady between 2009 and 2010



NOTE: Data reflects activity for calendar year 2009 and 2010

2010 Installation Approval Activity

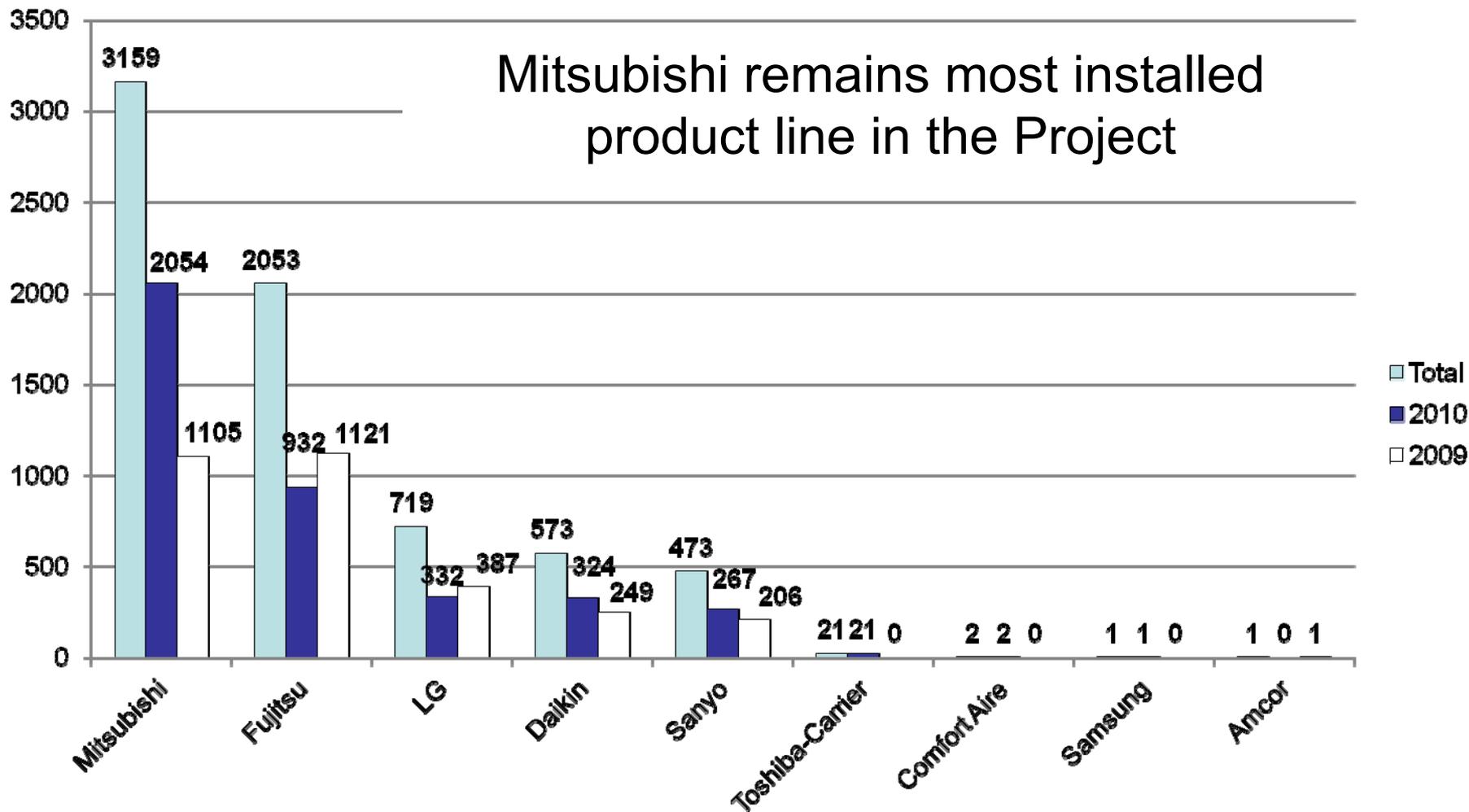
Home square footage increases with system type



NOTE: Data reflects activity for calendar year 2009 and 2010

2010 Product Trends

Mitsubishi remains most installed product line in the Project



NOTE: Data reflects activity for calendar year 2010

2010 Product Trends

At a Glance: DHP Installations by State and Manufacturer in 2009 and 2010

Manufacturer	State								Totals		% Change
	Idaho		Montana		Oregon		Washington				
	2009	2010	2009	2010	2009	2010	2009	2010	2009	2010	
Mitsubishi	58	42	72	162	297	585	678	1265	1105	2054	86%
Fujitsu	42	25	37	74	650	233	392	600	1121	932	-17%
LG	1	3	0	6	319	161	67	162	387	332	-14%
Daikin	23	15	1	0	54	60	171	249	249	324	30%
Sanyo	7	3	12	18	83	146	104	100	206	267	30%
Toshiba-Carrier	0	0	0	0	0	3	0	18	0	21	N/A
Comfort Aire	0	0	0	2	0	0	0	0	0	2	N/A
Samsung	0	0	0	0	0	0	0	1	0	1	N/A
Amcor	0	0	0	0	0	0	1	0	1	0	-1%

NOTE: Data reflects activity for calendar year 2009 and 2010
2010 numbers may increase as paperwork is submitted for 2010 installations

2010 Marketing Overview

- 2010 Regional Cooling and Heating Paid Radio Campaign
 - Leveraged NEEA's regional consumer advertising platform, providing \$115,000 in cooperative funding for a regional cooling and heating season radio campaign
 - Active from July through December



6

ID stations



4

MT stations



15

OR stations



16

WA stations



41

radio stations



43,102
:30/:60 ads



\$335,000
campaign value



570
dhp installs



\$202
cost per install

2010 Marketing Overview

■ 2010 Contractor Tools

- **Customized Sales Sheets** - Facilitated customization and funding for utility and contractor/installer sales sheets



111,026
total customized



6,600
bpa funded

- *NEEA provided first 300 free to each partner*

- **Contractor Co-op** - Provided 25 contractors and installers across the regional with cooperative funding opportunities



\$2,500
co-op per contractor



\$47,243
total co-op provided



\$162,031
leveraged funding

2010 Marketing Overview

- AdWords
 - **AdWords** – Purchased DHP-related keywords to influence website traffic from July through November



748
visitors to website



\$3.19
cost per visitor

Emerging Technology Study

Progress to date:

Building type	Heating source	Number of units needed	Number of sites recruited for meters
Single family	Electric forced air	10	8
Multi family	Zonal	10	0
Manufactured	Electric forced air	10	4
Cold climate	Zonal	5	5
Small commercial	Zonal or forced air	15	0

- Incentive opportunities still exist for small commercial and manufactured installs

Preferred Product List

Updates and modifications are being considered

We want your input!

- Do you use this list?
- Suggestions for future versions?
- Additional feedback

Ductless Heating and Cooling Systems

PREFERRED PRODUCT LIST

The NW Ductless Heat Pump Project has created a Preferred Product List of ductless heat pump systems as a resource for contractors, utilities, and consumers. In order to be included on the Preferred Product List, each system must meet the following criteria:

- Product meets program equipment qualification requirements as a split system heat pump employing inverter-driven outdoor compressor units, with inverter-driven or variable speed indoor blowers.
- Product is available for purchase in the Pacific Northwest and is supported by a supply chain that provides access to repair parts and services.
- Product manufacturer offers installation training and technical support to regional installation contractors.
- Product is certified by the Air-Conditioning, Heating, and Refrigeration Institute.
- Manufacturer installation manual and homeowner operation guide accompanying product must provide clear and concise information.
- Product manufacturer provides the program with technical specifications and installation manuals for each product. Technical specifications must, at a minimum, include the following:
 - List of indoor unit and outdoor unit compatibility for each product line.
 - Refrigerant line procedures, including maximum allowable line length, the length of line accommodated by the manufacturer's refrigerant pre-charge, and the additional or removal of refrigerant.

As system technology evolves and new products are released, the Preferred Product List will be updated with additional products meeting the above criteria.

Tax Credit Qualifying Models									
HSPF: Heating Seasonal Performance Factor									
SEER: Seasonal Energy Efficiency Ratio									
EER: Energy Efficiency Ratio									
Manufacturer Name	Outdoor Model	Outdoor Model Size in Tons	Indoor Model	Indoor Model Size in Tons	# of Indoor Units Outdoor Unit Will Support	HSPF	SEER	EER	Fed. Tax Credit Qualified
Daikin	RX09FVJU	0.75	FTXS09DVJU	0.75	1	7.7	13	10	No
Daikin	RXG09HVJU	0.75	FTXG09HVJU	0.75	1	11	22	15.8	Yes
Daikin	RXS09DVJU	0.75	FTXS09DVJU	1	1	8.8	16	11	No

Program Resources

■ Regional Installation Database Tool

- Utilities can download live pre-approval and approval activity
- Monthly electronic installation reports available
- Specific PTR compatible report available for BPA utility reporting needs
- For assistance or to obtain a log in, contact Fluid directly

CSV ← Click here to open the results in a

Ref#	Utility	Cust	Stre	City	State	Zip	Built
RHV	Clar		232	Van	WA	986	
RHV	Mon		270	Mon	OR	973	
RHV	Mon		190	Mon	OR	973	
RHV	Koot		310	Spiri	ID	838	
RHV	Clar		240	Van	WA	986	
RHV	Clar		370	Van	WA	986	
RHV	McM		153	McM	OR	971	
RHV	Clar		150	Van	WA	986	
RHV	City		384	Port	WA	983	
RHV	Clar		240	La C	WA	986	
RHV	Coop		522	Brook	OR	974	

Database log in: Database.NWDuctless.com

Program Resources

- 2011 Utility Participation List
 - Updated participation information
 - ✓ 2011 unit forecasting
 - ✓ Permitted applications
 - ✓ Incentive offerings
 - ✓ Loan availability
 - ✓ Unique requirements
 - Pre-approval
 - Inspection activity
 - ✓ Current contact information

To sign up, or for more information:

- Contact your EER or Fluid directly
- Fluid will set up a time to discuss participation details and provide an overview of processes

Check your listing! www.NWDuctless.com > Key Project Downloads > Utility Participation List

Participation Forms

- Coming soon: fillable participation forms
 - Generic BPA forms
 - To be posted to NWDuctless.com > Forms
 - Benefits
 - Promote accurate data
 - Encourage quick form submission
 - Increased convenience for homeowners and contractors

Homeowner Participation Form		DUCTLESS HEAT PUMP PROJECT	
To be completed by homeowner/utility account holder and installation contractor. Answer the following questions based on your house prior to installation of the ductless heat pump(s). All fields are required for approval. Ensure contractor eligibility with your utility prior to selecting a contractor.			Official Use Only: Customer ID
Contact Information			
1. Homeowner name:		2. Name of company installing ductless heat pump:	
3. Home phone: ()		4. Alternative phone: <input type="checkbox"/> Call <input type="checkbox"/> Work ()	
		5. Email address:	
6. Site address:		7. City/ State/ Zip code:	
		8. County:	
9. Homeowner mailing address: (if different from site address)		10. City/ State/ Zip code:	
Homeowner Eligibility			
11. What type of primary electric resistance heat does the house have?			<input type="checkbox"/> Zonal ¹
11a. if zonal, where are the heating units located (Check all that apply): <input type="checkbox"/> Ceiling <input type="checkbox"/> Wall <input type="checkbox"/> Baseboard			<input type="checkbox"/> Electric furnace if you have a furnace, you may or may not qualify for project participation. Verify your eligibility with your contractor and utility.
12. Does the home have a secondary heating system? <input type="checkbox"/> Yes <input type="checkbox"/> No			
12a. if yes, what type (mark one): <input type="checkbox"/> Freestanding stove <input type="checkbox"/> Fireplace <input type="checkbox"/> Other (describe):			
12b. if yes, what type of fuel (mark one): <input type="checkbox"/> Wood <input type="checkbox"/> Pellets <input type="checkbox"/> Propane <input type="checkbox"/> Kerosene <input type="checkbox"/> Oil <input type="checkbox"/> Other:			
12c. if yes, how much fuel (per year): (amount in cords of wood, pounds of pellets, gallons of propane/kerosene/oil, etc.)			
13. How was the home constructed? <input type="checkbox"/> Site-built			<input type="checkbox"/> Manufactured Home if you live in a manufactured home, you may or may not qualify for project participation. Verify your eligibility with your contractor and utility.
14. Which of the following describes the home? <input type="checkbox"/> Detached single-family house <input type="checkbox"/> Duplex <input type="checkbox"/> Triplex <input type="checkbox"/> Fourplex			<input type="checkbox"/> Multi-family if you live in a multi-family home, you may or may not qualify for project participation. Verify your eligibility with your contractor and utility.
Site Information			
15. Has this party occupied the home for more than one year?			<input type="checkbox"/> Yes <input type="checkbox"/> No
16. Is this home a primary residence?			<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Who occupies this home? <input type="checkbox"/> Homeowner <input type="checkbox"/> Renter			
18. Does the house have a natural gas meter?			<input type="checkbox"/> Yes <input type="checkbox"/> No

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