



# NORTHWEST DUCTLESS HEAT PUMP PROJECT

June 15, 2010

# Agenda

- Quality Assurance Update - Aaron Winer
  - Contractor Removal
  - Best Practices Installation Guide
  - Master Installer Program
- Impact & Process Evaluation Update – Poppy Storm
  - Field Monitoring
  - Lab Testing
  - Market Progress Evaluation Report (MPER) 2
  - Billing Analysis

# Quality Assurance Activity

- Contractor Removal
  - Installer removed from Project participation in April due to multiple installation related deviations.
  - Rationale based on:
    - Multiple deviations (4 Major, 2 Minor) and temporary suspension in 2009
    - Project QA team attempted to work with contractor to improve installation methods
    - Removal performed with support of all affected utilities

# Contractor Removal Process

- The Project is taking action to address future removals in the following manner:
  - Defining the elements of removal
    - Currently primary element is delisting from contractor referral listing on [www.goingductless.com](http://www.goingductless.com)
  - Documenting removal process
  - Alert contractors to removal process
    - Proposed language on Project forms
    - Contractor orientations and newsletters will highlight removal process

# Quality Assurance Activity

- **Best Practices Installation Guide**

- **Purpose**

- Designed to promote quality installations

- **Distribution Strategy**

- 5 copies sent to all Project oriented installers
- 1 copy sent out with all Sales Sheet requests
- QA Inspectors will give copy to contractors who attend inspections
- Limited number of additional copies available to distributors and utilities
- Available for download at [www.nwductless.com](http://www.nwductless.com)



# Quality Assurance Activity

## ■ Master Installer Program

### ■ Goal

- Goal is to broaden the reach of the Project's Quality Assurance effort and to further promote best practice installations

### ■ Implementation Plan

- Master Installers will agree to perform Best Practice Installations, provide thorough homeowner education
- Additional requirements to be finalized
- Master Installers will receive priority listing in contractor finder on [www.goingductless.com](http://www.goingductless.com)
- Program launch estimate – Q2 2010

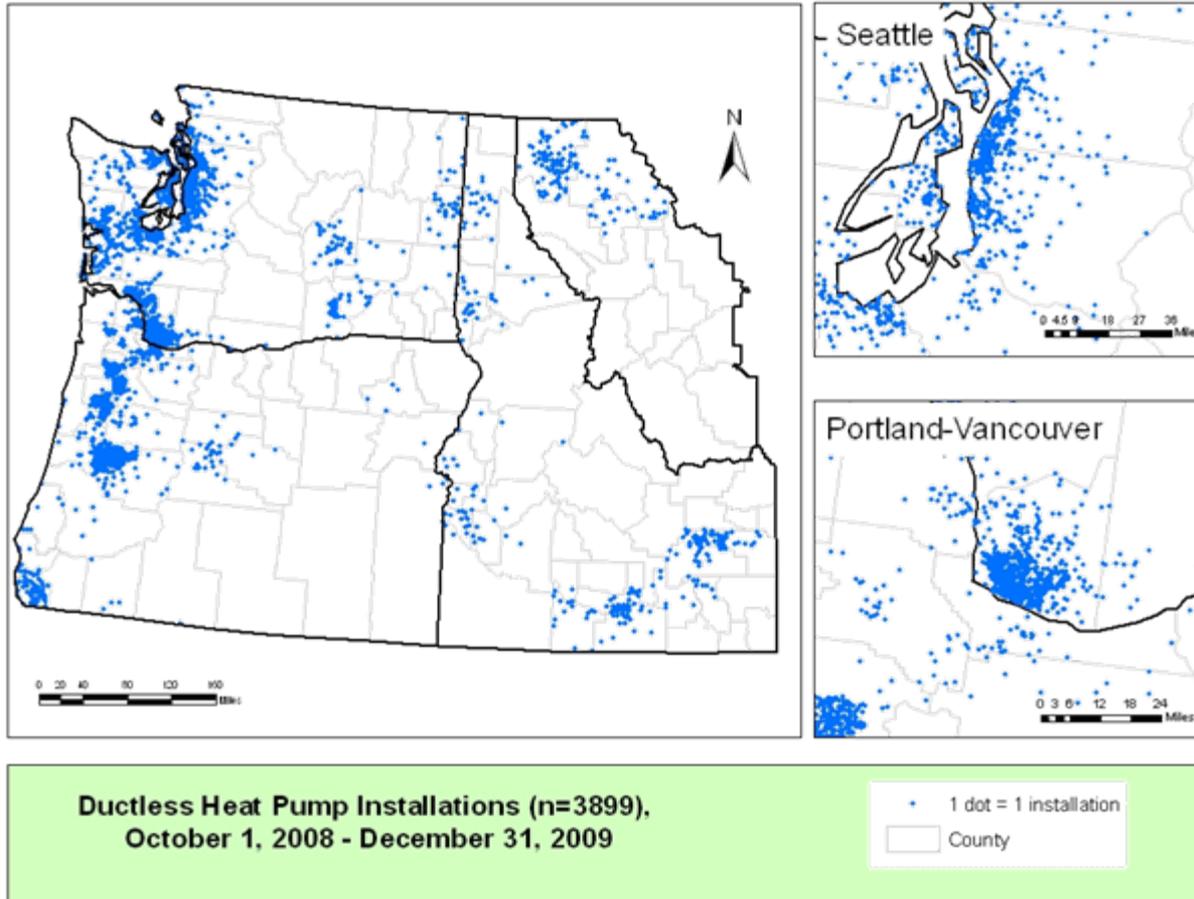
# DHP Evaluation Update

- Ongoing field monitoring and early findings
- Latest lab testing results
- Billing analysis update
- Wave 2 market and process evaluation
- Project schedule

# Field Monitoring Status

- 95 installations completed in the following clusters:
  - Spokane/Northern Idaho = 17
  - Central Puget Sound = 25
  - Boise/Southern Idaho = 16
  - Eastern Idaho = 10
  - Willamette Valley = 27
- 35 COP installed across region
- All sites to be extended through March 31, 2011

# DHP Pilot Project Installations



# Partial Heating Season Metering Summaries

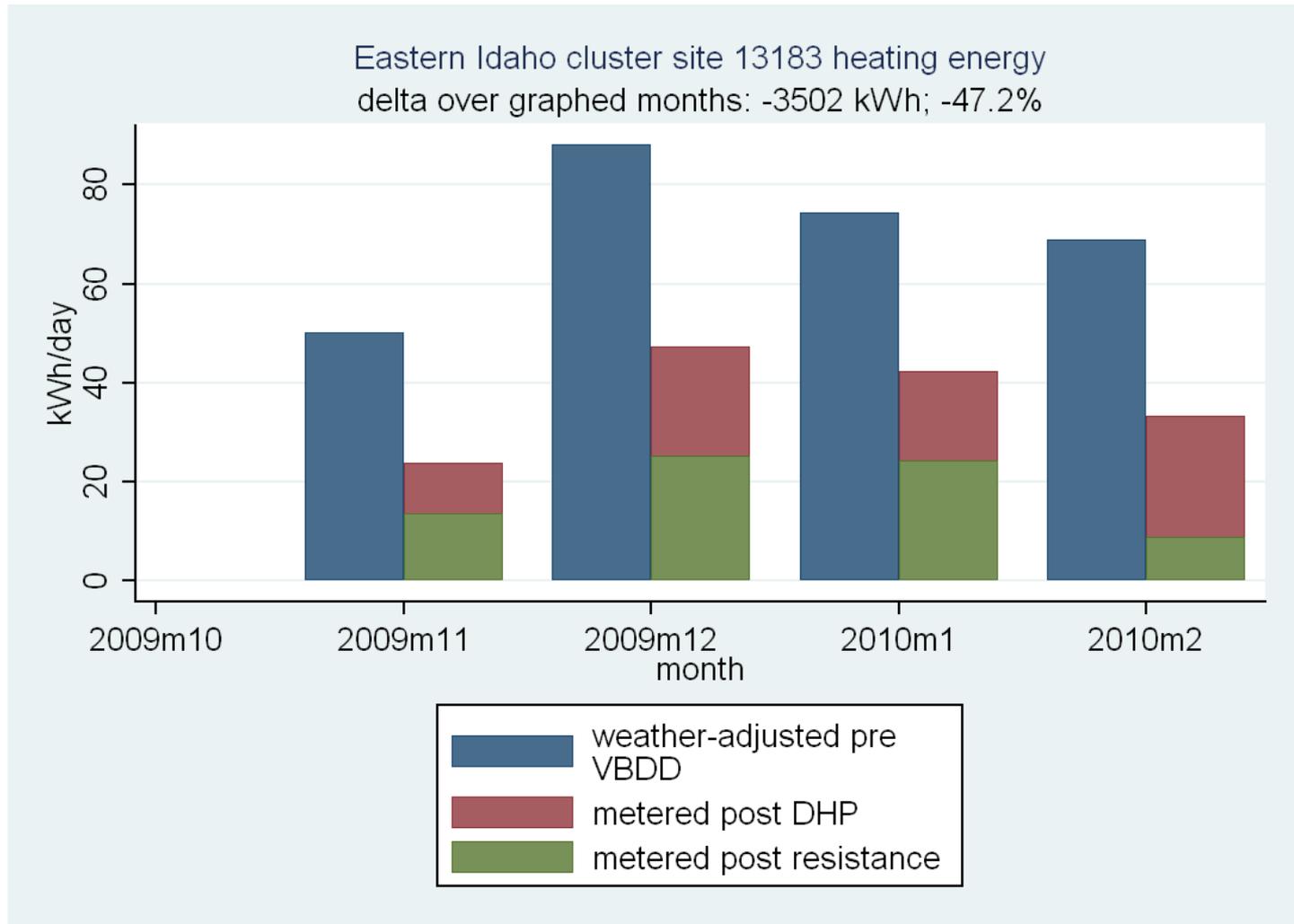
## Nov. 2009—Feb. 2010

- Base use established in screening process
  - Used VBDD fit to assess possible wood heat
  - Provided a first estimate of heating use (2008)
- Sub-metering allows a direct assessment of current space heating demand
  - Savings calculated from previous billing analysis applied to observed site temperatures
- Savings calculations made on 76 homes to date
- Very promising verification of lab and manufacturer's data

# Preliminary Savings: Heating Season to Date (2007-2008 Base)

Cluster	% saved (Raw)	N
Willamette	55.5	23
Puget Sound	37.5	22
Inland Empire	31.1	8
Boise/Twin Falls	38.5	14
Eastern Idaho	29.2	9

# Observed Heating vs Predicted



# Lab Testing Purpose & Goals

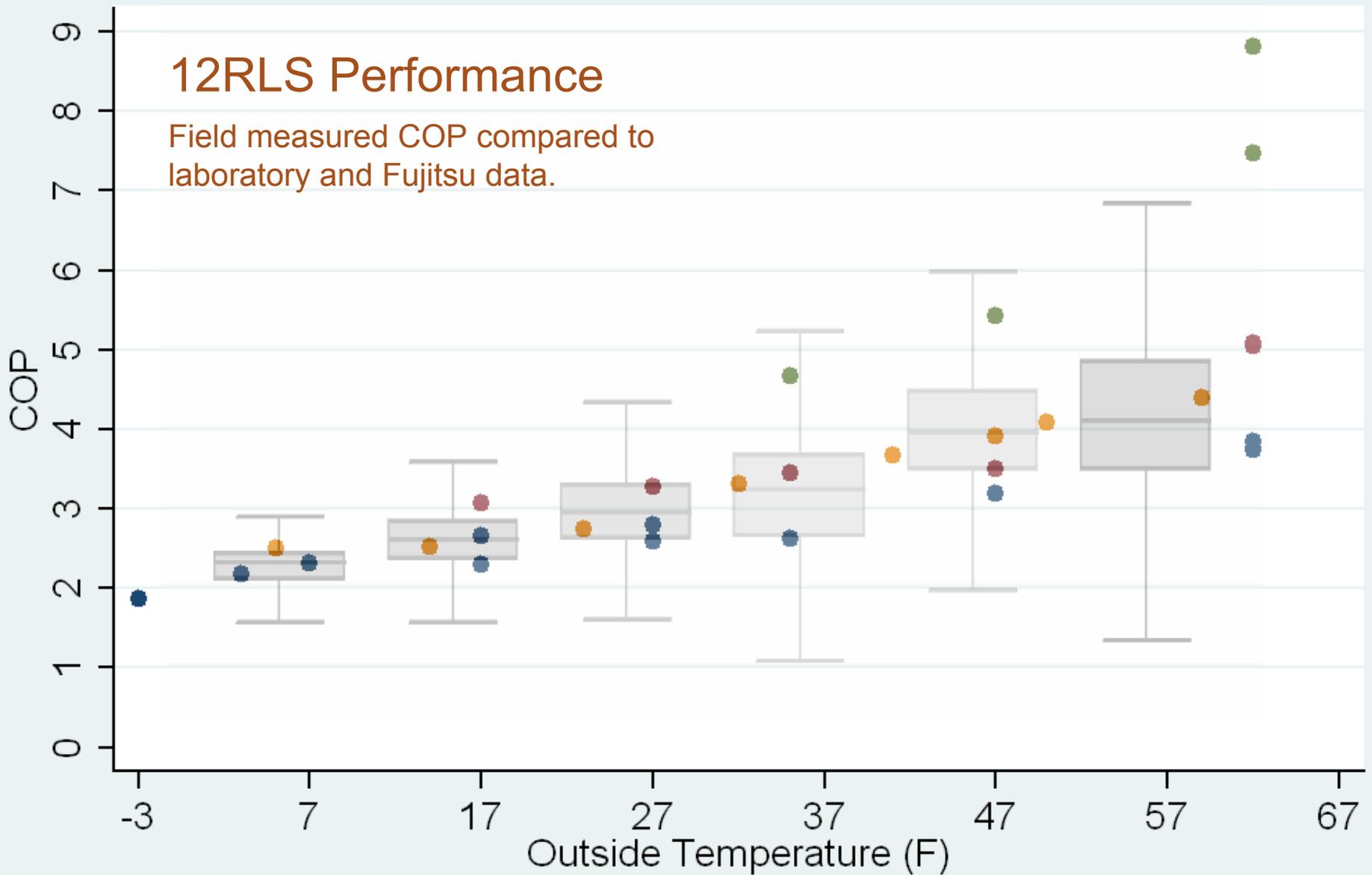
- AHRI ratings exist for DHPs but provide limited information on field performance
- Lab evaluation will expand our information base to cover a wide range of observed operating conditions
- Conduct measurements to verify and inform the data collected in the field metering
  - Evaluate two DHPs from manufacturers constituting a large fraction of all installed units:
    - Fujitsu 1365 (37%) installs & Mitsubishi 1274 (35%) installs
- Establish empirical performance curves that can be used to predict the efficiency and output of the equipment in simulations (SEEM)

# Latest Lab Testing Status

- Lab evaluation of Fujitsu 12RLS complete.
  - Includes both heating and cooling data.
    - Heating results have been analyzed
    - Currently analyzing cooling results.
- 2nd unit evaluation underway: Mitsubishi FE12NA
  - Heating tests in progress. Cooling to follow shortly.
- In process: creating equipment performance curves for use in simulations (SEEM)
  - Each DHP can perform drastically different from one another.
    - Still, there are similarities among manufacturers and product generations allowing for generalization
- Lab data and field data show good agreement so far
- Lab testing report in Q4 2010

# 12RLS Performance

Field measured COP compared to laboratory and Fujitsu data.



# Billing Analysis Update

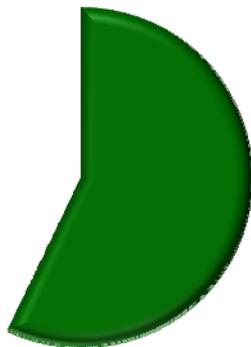
- Billing analysis will include 3,899 sites
- Collection of pre-installation billing histories underway
- Report on baseline energy use in Q4, 2010

- Completed Wave 1 MPER in Q1 2010  
<http://www.nwalliance.org/research/reportdetail.aspx?ID=773>
- Currently revising survey instruments
  - Focus on second year perceptions, experiences
- Wave 2 data collection scheduled for 2010

# Profile of the DHP Customer



**57% of respondents were over the age of 60**



**41% were not satisfied with their previous heat**



**66% were considering some type of new heating equipment prior to learning about pilot**

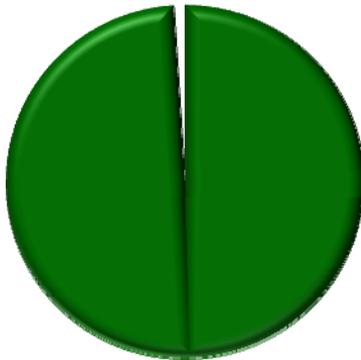


**20% were considering some type of AC equipment before deciding on DHP**

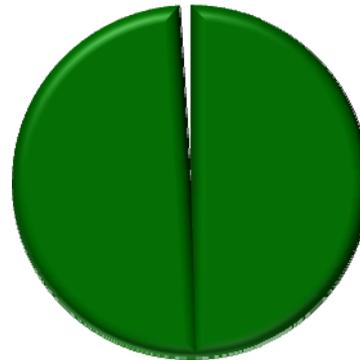


# Ductless Heat Pump Application

**99% of consumers use their DHP to heat existing living spaces**



**99% of consumers said DHP was now their primary heating source**



**No consumers were still planning to purchase additional AC equipment**

# MPER Next Steps

- **Wave Two Data Collection**
  - Second round of interviews with the same participants, manufacturers representatives, distributors, installers, program staff, pilot implementation staff, and utility/energy agency staff
- **Phase Two Report**
  - Second MPER addressing overall pilot results, key findings, process evaluation, and market progress
- **Final Pilot Program Report**
  - Final report summarizing market and process research, as well as all other pilot results

# Schedule Milestones

2009

- Field Monitoring Installations, by Q4
- Launch Lab Testing, Q2
- Launch Market & Process Evaluation, Q2

2010

- Wave 1 MPER, Q1
- Collect all Pre-Bills, Q2
- Lab Testing Report, Q4

2011

- Wave 2 MPER, Q1
- Field Monitoring Analysis & Report, Q4

2012

- Billing Analysis & Report, Q1
- Cost-Effectiveness Analysis, Q2
- Final Report, Q3

# Questions & Answers

# Contact Information

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Bonneville Power Administration  
**Ductless Heat Pump Update**

Mark Johnson, DHP Program Manager  
Erica Thompson, Fluid Market Strategies

June 15, 2010



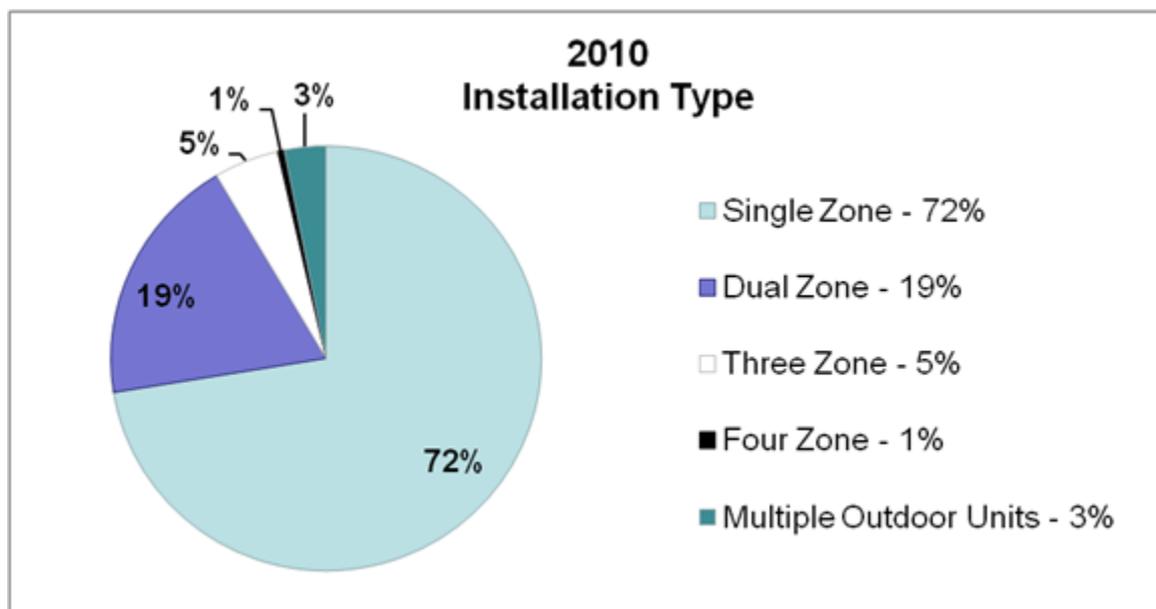
# Agenda

- 2010 installation trends
- DHP Preferred Product List
- Project marketing update and opportunities
- Resources for BPA utilities
- Additional services provided by Fluid Market Strategies
- Contact information



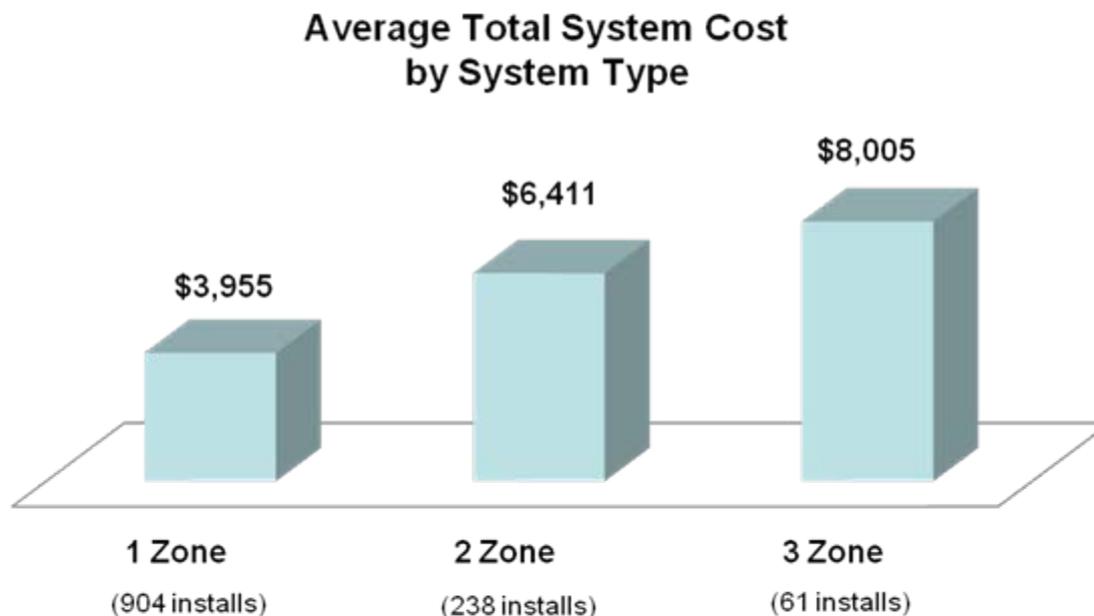
# Installation trends

- 1,248 BPA installations since Jan. 1, 2010
  - 51 BPA utilities with installations in 2010
- The majority of systems installed are single zone



## Installation trends (cont.)

- The average cost of a single zone DHP in 2010 is \$3,955



# DHP product trends

- Mitsubishi most popular product line among 2010 installs
- The most popular units are all tax credit qualifying systems
- 2010 installations by state and manufacturer

	ST				
Manufacturer	ID	MT	OR	WA	Totals
ComfortAire	0	1	0	0	1
Daikin	3	0	16	43	62
Fujitsu	10	25	148	205	388
LG	0	0	108	48	156
Mitsubishi	8	38	156	376	578
Sanyo	0	9	14	39	62
Toshiba/Carrier	0	0	0	1	1
<b>Totals</b>	<b>21</b>	<b>73</b>	<b>442</b>	<b>712</b>	<b>1248</b>



# Preferred Product List

- Posted to [www.NWDuctless.com](http://www.NWDuctless.com)
  - Will be posted to [www.GoingDuctless.com](http://www.GoingDuctless.com) in coming weeks
- Includes model information, efficiency ratings and tax credit qualification
- Key product criteria includes:
  - AHRI certification
  - Manufacturer technical support and installation training for regional contractors
  - Accompanied by manufacturer installation manual and homeowner user guide
  - Manufacturer provides Project with technical specifications and installation manuals for each product



# Marketing update

- Radio campaigns
- Newspaper campaign overview
- Contractor co-op targeting
- Refill requests for contractor sales sheets



# Marketing update - radio

- Working to get a DHP Public Service Announcement distributed across WA, OR, ID and MT
  - PSA will increase consumer awareness and deliver interested listeners to [www.GoingDuctless.com](http://www.GoingDuctless.com) to find an oriented contractor.

States Contacted Thus Far:	WA, MT (in process)
Total Stations Playing PSA:	53
Estimated # Plays/Week:	457
Estimated Total Campaign Plays June-Dec:	12,796
<b>Total PSA Campaign Value (June-Dec):</b>	<b>\$198,492</b>



# Marketing update - radio

- Paid campaign utilizing the PSA and is soliciting funds from manufacturers to extend the campaign.
  - Increase consumer awareness and deliver listeners to [www.GoingDuctless.com](http://www.GoingDuctless.com).
  - Heating and cooling season schedules (16 week campaign)
  - 16,000 radio spots (target)
  - 500,000 web radio spots
  - 40+ radio stations across WA, OR, ID and MT

## :30 NW Ductless PSA

Describes DHP benefits, rebates and CTA to find an installer at [GoingDuctless.com](http://GoingDuctless.com)

*"Your local utility wants to help you pay for an upgrade..."*

:30 Manufacturer Advertisement (coop funded) follows and CTA to find an installer at [GoingDuctless.com](http://GoingDuctless.com)

*"[Manufacturer] has installed over XX ductless systems in the northwest under this project..."*



# Marketing update - newspaper

- Region-wide newspaper campaign - soliciting funds from manufacturers to extend the campaign.
  - Increase consumer awareness and deliver listeners to contractors
  - Heating and cooling season schedules
  - 20+ newspapers across WA, OR, ID and MT
  - 4 runs in each paper (80 ads total)
  - ½ page format (10 column x 10")
  
- Sample Call to Action – Call a Contractor:



HVAC Advanced Products Division

Associated Heating  
509-445-4235  
Comfort Flow Heating  
509-445-4235  
PACE Heating & Air  
509-445-4235



Judson's Inc.  
509-445-4236  
Pacific Air Comfort  
509-445-4236  
Pacific Air Comfort  
509-445-4236



Perfect Temp  
509-445-4237  
Pacific Air Comfort  
509-445-4237  
CJ Hansen Co.  
509-445-4237



Pacific Air Comfort  
509-445-4238  
Priority One Heating  
509-445-4238  
Home Comfort Heating & AC  
509-445-4238



Pacific Air Comfort  
509-445-4239  
Automatic Heat Co.  
509-445-4239  
Home Comfort Heating & AC  
509-445-4239



# Marketing update – contractor co-op

## ■ Contractor Co-op Targeting

- \$118,000 funds
- Targeting top contractors in each region (20 regions).
- Coordination will occur over the next months as the newspaper and radio campaigns take shape.

## ■ Contractor Sales Sheets

- NEEA is providing contractors with up to 300 customized sales sheets (75,000 distributed in 2010 thus far).
- BPA is providing additional sales sheets to contractors in member territories.



# Resources for utilities

- New marketing templates on website
  - Visit [www.NWDuctless.com/utilities/marketing-materials](http://www.NWDuctless.com/utilities/marketing-materials)
- Utility participation list
- Installation reports
  - [www.NWDuctless.com](http://www.NWDuctless.com) installation database
    - View all activity in your territory
    - PTR export report
  - Utilities may request electronic monthly activity reports
    - Contact Erica Thompson for more information or to request

RefNo	CustomerName	Street	City	State	Zip	Building	UniqueID	CTNumbe	SectorTyp	Quantity	Lost Oppo	CompletedDate
RHV03764		2882 NE 15th Ave	Vancouver	WA	98664		10001			1		10/9/2008
RHV03764		24 NE 70th Ave.	Vancouver	WA	98684		10005			1		10/16/2008
RHV03764		376677 N 86th Ave	Battle Ground	WA	98662		10006			1		10/16/2008
RHV03764		15935 NE 81st St.	Washougal	WA	98682		10009			1		10/31/2008



# Additional services

Fluid can also provide:

- Rebate processing
- PTR data entry

Contact Fluid Market Strategies for more information.



## For more information, contact:

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