



# E3T Pilot Assessments

Presented by:

Dan Villalobos, Energy Services Specialist  
Inland Power & Light



# RTU Pilot



# RTU Pilot

- Inland Power Summer of 2008 Research Project Results
  - Serviced 22 RTUs at 3 businesses (Group Health, Spokane Produce and Systems TWT)
  - M&V on 10 RTUs
  - 37,600 kWh total estimated savings
    - Significant savings -w- Programmable T-Stats
  - HWM credit split between FY08 and FY09
  - Project cost?

# RTU Pilot

- Inland's Role
  - Initial business selection and contact
  - Provide billing data
  - Accompany PECl on initial visit (optional)
  - Informed member of estimated savings

# RTU Pilot

- Benefits of participating in the Pilot
  - Ease of Administration
  - Kept informed
  - Acquired kWh savings
  - No data entry into PTR system
  - Member education
  - Provide valued customer service

# Peppertree Inn PTHP Pilot



# Peppertree Inn PTHP Pilot

in partnership with the BPA and EMP2, INC.

## ■ Objective

- Determine energy savings by replacing Package Terminal Air Conditioners (PTAC's -w- electric resistance heat) -w- PTHP's and measure additional savings by installing room-based occupancy sensors.
  - Group #1 - 28 PTAC's -w- ER and Manual Controls (baseline)
  - Group #2 - 38 PTHP's -w- manual Controls
  - Group #3 - 33 PTHP's -w- Occupancy Sensors
- Front desk DigiSmart control system
- Balanced occupancy rates
- Six month pilot project

# Peppertree Inn PTHP Pilot

- Estimated project cost - \$67,000
- Estimated kWh savings - 137,793 kWh/year
- Estimated reimbursement - \$27,588
- Simple payback - 11.5 years
  
- Actual project cost - \$40,823
- Actual kWh savings - 11,401 kWh/year
- Actual reimbursement - \$2,280
  - Member also rec'd \$10,000 participation fee
- Simple payback – 85.6 years

# Peppertree Inn PTHP Pilot

Savings Analysis	Savings per Room per Year (kWh)	Total Savings for Hotel (kWh)	Savings Percentage from PTAC/PTHP Baseline (%)	Savings Percentage from Entire Hotel Baseline (%)
Savings from PTAC to PTHP	86	8,641	8%	1%
Savings from PTHP to PTHP w OCS	138	13,781	12%	2%
Savings from PTAC to PTHP w OCS	224	22,422	20%	4%

# Peppertree Inn PTHP Pilot

Similar studies have shown significant savings in other applications

Study/Utility	Occupancy Based Controller Savings (kWh/room/yr)	Baseline (kWh/room/yr)	% Savings
FEMP M&V Study	767	3,212	24%
PG&E	1,767	2,850	62%
BCHydro	252	663	38%
SDG&E (Hampton Inn)	345	1,240	28%
SDG&E (Navy Lodge)	384	3,020	13%
SDG&E (Doubletree)	1,437	2,485	58%
SDG&E (US Grant)	2,641	3,902	68%
<b>Average</b>	<b>1,085</b>	<b>2,482</b>	<b>44%</b>

# Peppertree Inn PTHP Pilot

- What happened?
  - EMP2 believes primary reasons for Peppertree's lower kWh savings are hotel operating procedures and employee education
    - Turn it off!
    - Room rental practices
      - Inside to outside
      - Ground floor to upper floors

# Peppertree Inn PTHP Pilot

- Lessons Learned
  - Behavior and employee education will influence outcome
  - Front desk controls can reduce energy usage
    - Cost Effective??
  - Know your Key Accounts

# E3T Pilot Assessments

Questions?

# Contact

For more information, contact:

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# E3T Technology Assessment Pilots

Presented by:

Joseph V. Vaccher, LC  
Eugene Water & Electric Board



# Utility LED Pilot

Jordan Schnitzer Museum of Art





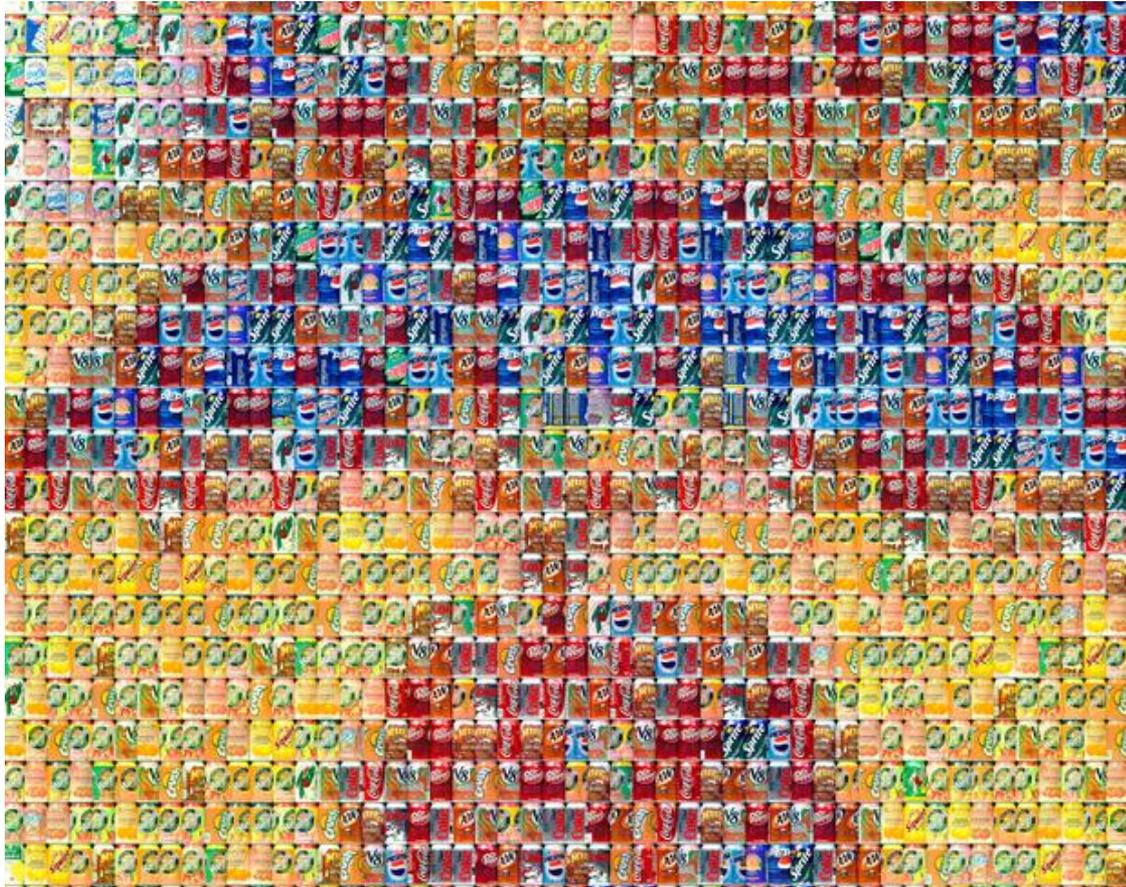
# Running the Numbers



# “A Sunday on La Grande Jatte”



# 106,000 The number of aluminum cans used in the United States every 30 seconds



# Art Museum Lighting

- The museum installed 55 LED lamps, instead of 40 halogen lamps to light the exhibition.
- There was 12 average vertical footcandles on the murals.
- The current lamps used by the museum are Capsylite PAR 38 halogens, which last for 5,000 hours, with a 25-degree beam spread, 1,000 lumens, and 79 watts.
- The replacement CREE LRP-38 LED lamps provided by Bonneville and EWEB last 50,000 hours, have a 20-degree beam spread, put out 500 lumens, and are 11 watts.

# Energy Savings

- This translates to 75 percent savings, or approximately 5,760 kilowatt hours (kWh), and \$230 annually

# Cree PAR 38 Lamps

- The LED lamps will be installed in the museums  
Gallery of American and Regional Art
  - This gallery exhibits American art from the Northwest as well as nationally recognized 20<sup>th</sup> and 21<sup>st</sup> century artists.

# DOE GATEWAY STUDY

- This location is part of a broader museum lighting study by GATEWAY that will also incorporate results of installations at the Getty Museum in Los Angeles, and the Smithsonian American Art Museum in Washington D.C.

# PAR 38 Lamp Comparison



# Public Feedback

- Four PAR 38 lamps were used in the comparison
- CREE LRP38
- Sylvania LED
- Philips LED
- Capsylite 38 halogen

# Gateway Study

- The final report detailing energy savings, illumination comparisons, and cost-effectiveness of the LEDs is expected in summer 2011.
- Based on the Gateway Study results, the museum will be considering purchasing a LED PAR 38 lamp in the \$50.00 to \$60.00 price range for the Capsylite halogen replacement.
- EWEB's incentive for the LED PAR 38 lamp is \$30.00

# Questions

For more information, contact:

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Lighting Specialist  
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## What's a DHP and Where's Monmouth?

Dave Wildman for BPA Round Table  
May 10, 2011

# DHPs in Monmouth

## In The Beginning...

- Jeff Pratt, The Heat Pump Store
- Adam Hadley, BPA
- Dave Wildman and Shannon Medel of Monmouth Power

## Oh, and of course...

- 11 Monmouth Power customers/“guinea pigs” with the old electric heat, and
- \$2,000 of “honey” from BPA 😊

# DHPs in Monmouth: The Beginning

BPA and the City of Monmouth agreed to do a small DHP demonstration pilot to:

- Install and meter 10 single-zone DHPs in “**typical**” high-use electric resistance heat homes
- Examine costs and refine estimates for a relatively unknown technology (at least in the U.S.)

The Heat Pump Store developed and implemented low budget program elements:

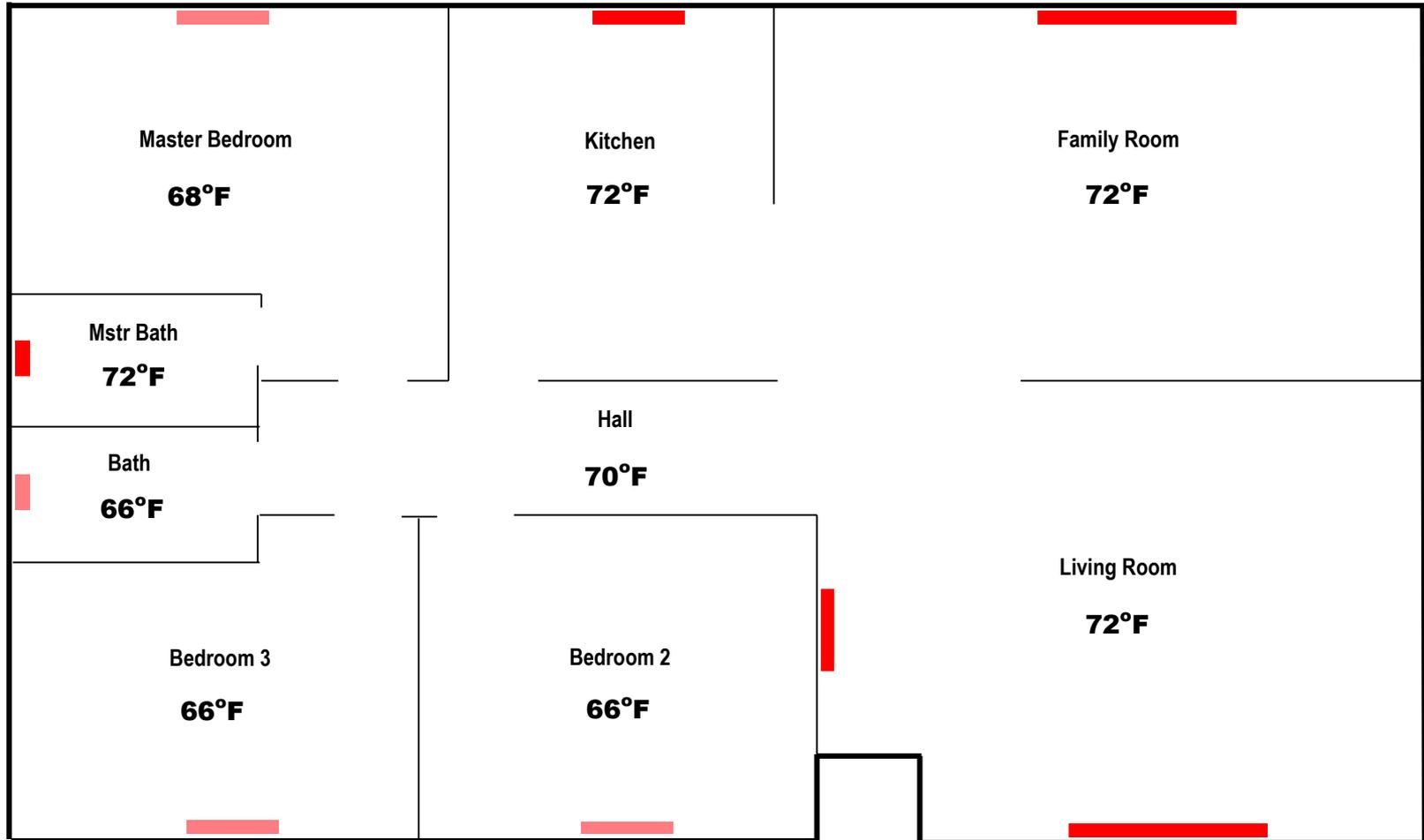
- customer outreach and screening – December, 2008
- sales, installations, and program management – January, 2009

# “Partners”

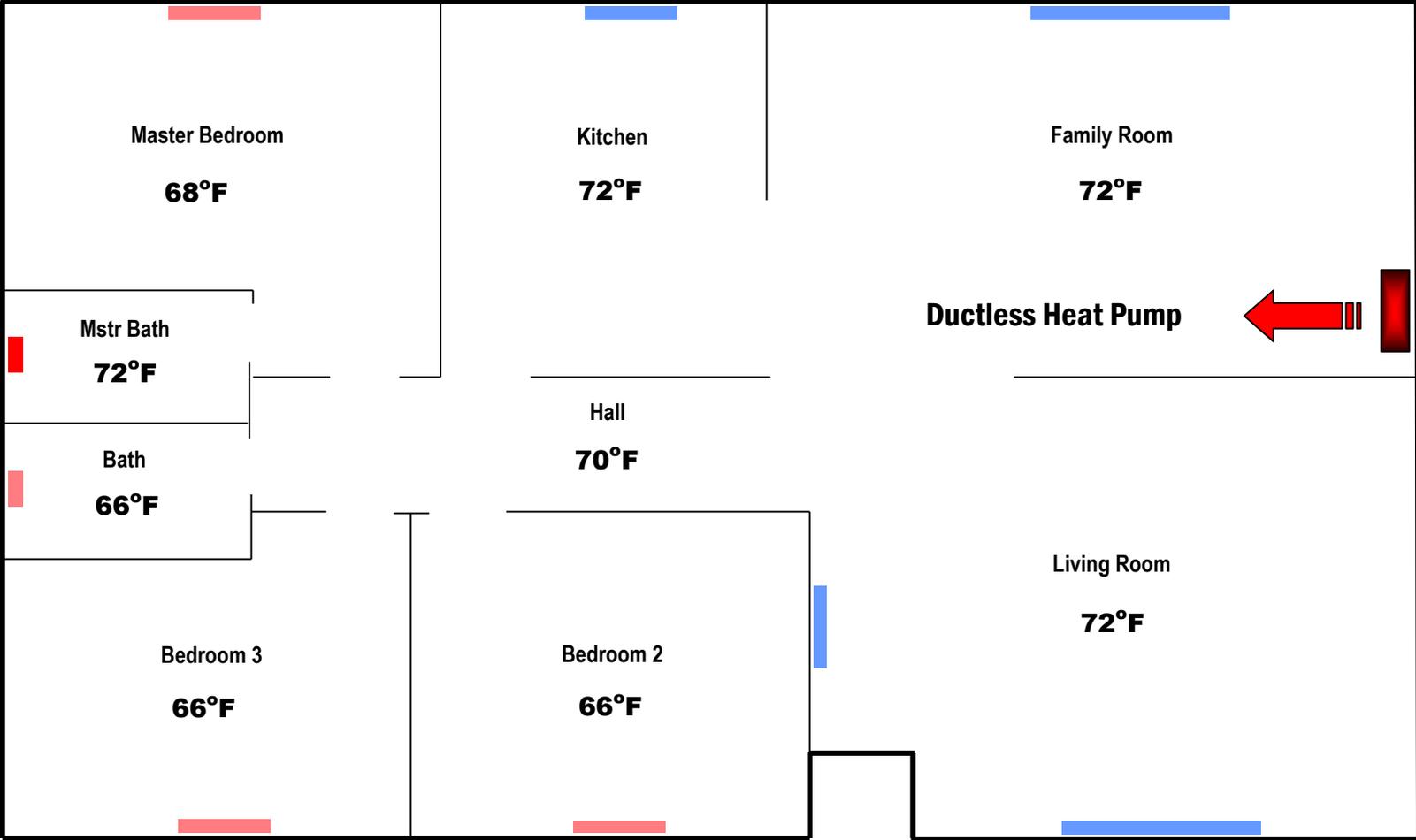


In Theory...

# The Old Electric Heat: Electric Resistance (Zonal)

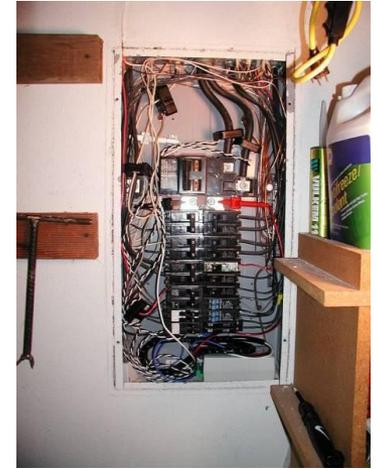
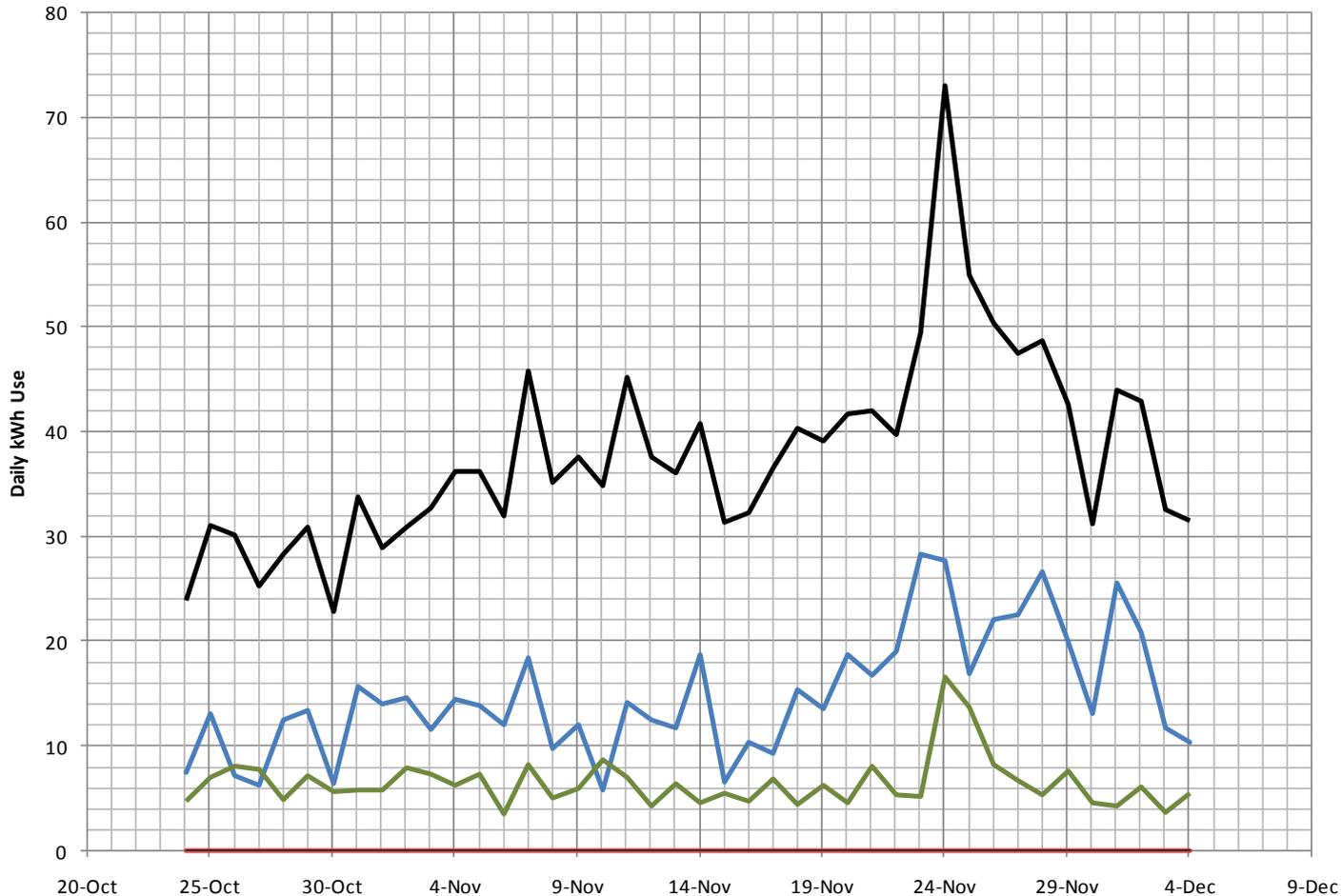


# The New Electric Heat™: Hybrid Zonal



# More Than A Theory – Early Results

Monmouth, OR - 1,600 sq.ft. Ranch house with ceiling heat



- Heat Pump
- Resistance
- H2O
- Whole House



# More Than A Theory – Early Results

## “Evaluation” from Ecotope:

- ~ 4,000 kWh average annual heating savings; modest cooling impacts

## Feedback from Monmouth customers:

- Customer loved their DHPs (“more comfortable for less money”)

# DHPs in Monmouth 2: BPA's Program

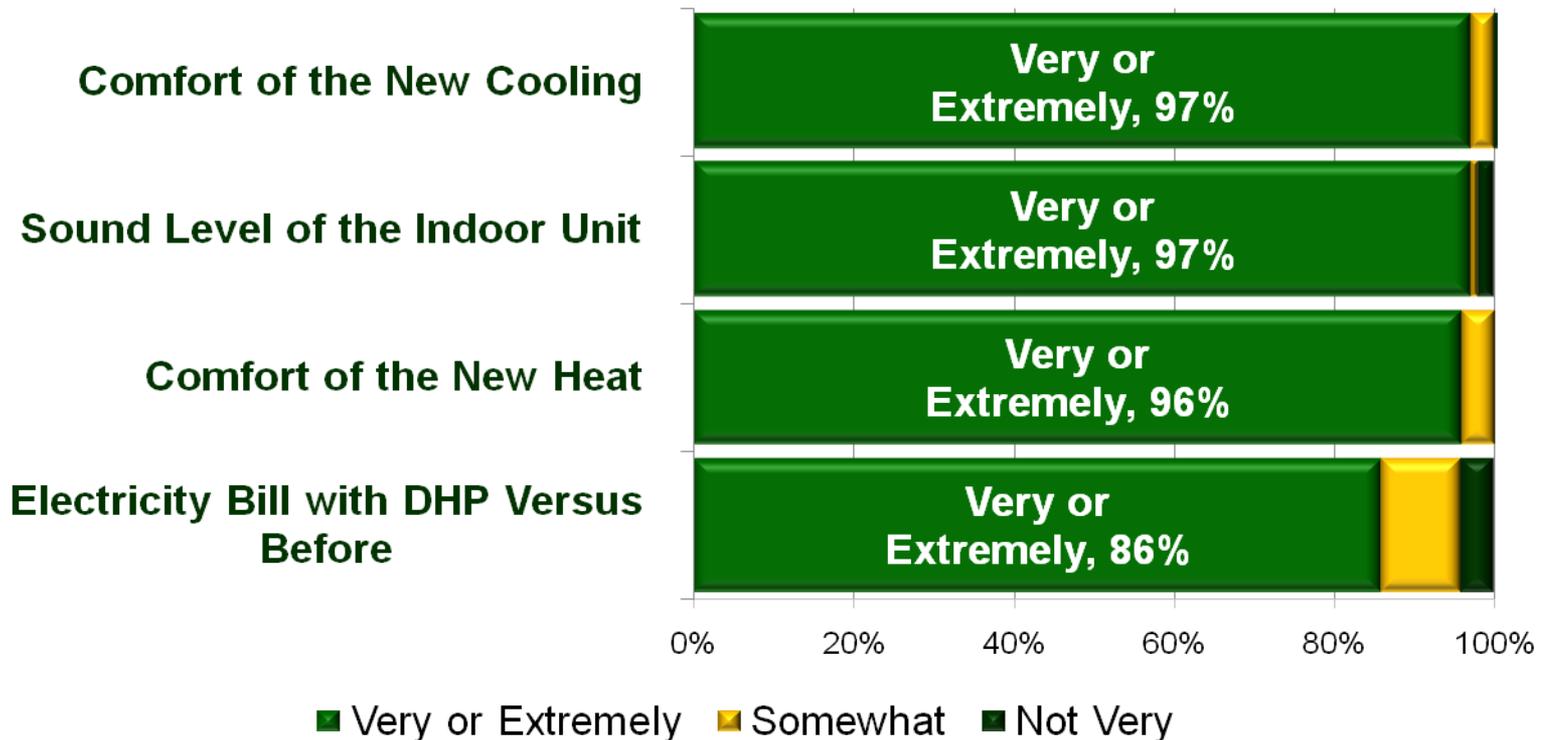
- DHP potential became evident and BPA rolled out a regional demonstration project
- Monmouth had a running start and we committed early
- The Heat Pump Store became the Top DHP Installation Contractor in Oregon (2009 working mostly in Monmouth)

# NW DHP Project

- Regionally, over 10,000 DHPs installed to date
- Happy customers everywhere (not just Monmouth)

# Customer Satisfaction with DHP Technology

## How satisfied were you with. . . ?



Source: 2010 DHP Consumer Acceptance Survey for the Northwest Energy Efficiency Alliance and Bonneville Power Administration

# DHPs in Monmouth 3: NOW!

- We like the savings
- Customers like the comfort and savings
- We have developed and launched a new community-based initiative called **Monmouth Energy NOW!** to...

*“Leverage the direct installation of efficient lighting to promote weatherization and ductless heat pumps.”*

Got the old electric heat?

You need...





# ENERGYGUIDE

Heat Pump  
Cooling and Heating  
Split System

FUJITSU GENERAL AMERICA, INC.  
Model AOU12RLS



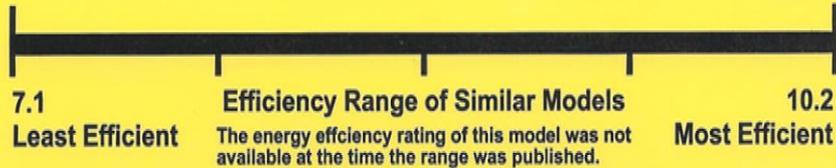
## Seasonal Energy Efficiency Ratio

# 25.0



## Heating Seasonal Performance Factor

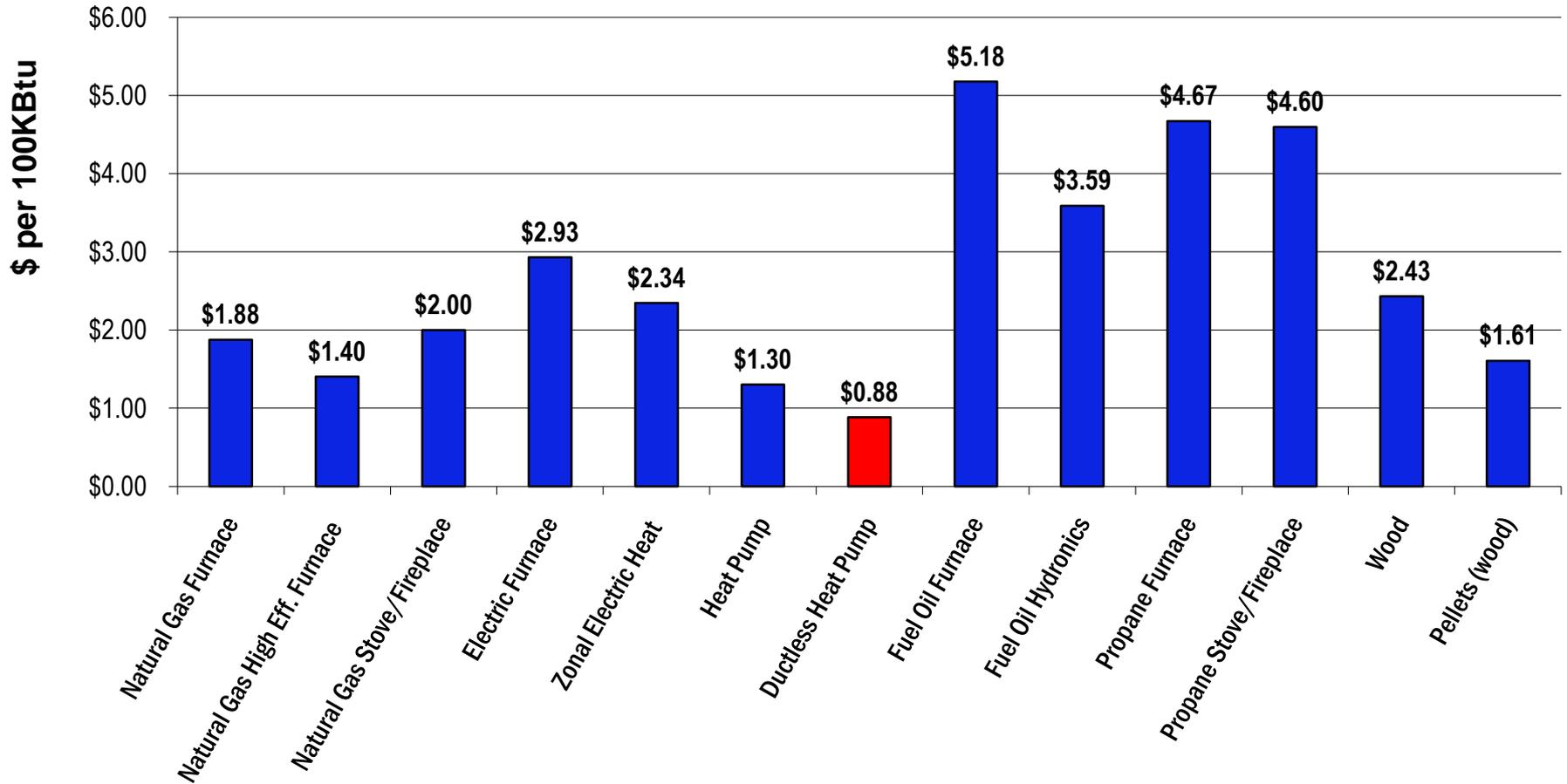
# 12.0



- Efficiency range based only on split system units.
- This energy efficiency rating is based on U.S. Government standard tests of this condenser model combined with the most common coil. The rating will vary slightly with different coils and in different geographic regions.
- For more information, visit [www.ftc.gov/appliances](http://www.ftc.gov/appliances).

# Cost of Heating: 100,000 BTUs

(@ \$0.08/kWh and \$1.20/therm)



# Monmouth Energy NOW!

## Why NOW?

1. Discounted pricing from The Heat Pump Store
2. \$1,500 rebate from Monmouth Power
3. State and federal tax credits
4. Green Streets financing from Umpqua Bank
5. Enter to win your ductless heat pump

**Eligibility and participation rules and restrictions apply to everything! ;-)**







**THE HEAT PUMP STORE**

606.9165

[www.TheHeatPumpStore.com](http://www.TheHeatPumpStore.com)





































SCHRADER FIREPLACE

History Museum of America, Inc. April 25 - June 12, 2012  
ALBERTO CIROSI















# “Partners”

