Agenda

Conservation Advisory Council
Wednesday, June 6th, 2012 1:30 p.m. – 4:00 p.m.

New Address:
421 SW Oak St., #300
Portland, OR 97204

1:30 Welcome, introductions and short announcements

1:35 Residential Trends *(information)*
Staff will outline the trends in savings for the Existing Homes and New Home and Products programs, how 2011 compared to the past and implications for 2012.

2:05 Residential HVAC Market Study *(information)*
Staff will present the results of a recent study of residential high efficiency HVAC equipment sales for years 2009-2011 in Oregon.

2:25 Home Performance with Energy Star process evaluation *(information)*
Staff will present results of the first stand-alone process evaluation of the Home Performance with Energy Star track.

3:00 Break.

3:10 Existing Multifamily: MPower Oregon pilot *(feedback)*
Staff will present on the progress towards launch of MPower Oregon, and outline the planned scope and role of Energy Trust in the pilot.

3:35 NEEA gas market transformation *(information)*
Staff will provide an update to a 2010 study on unclaimed gas savings in the commercial and industrial sectors resulting from NEEA's work.

3:45 Public Comment

4:00 Adjourn

The next scheduled meeting of the Conservation Advisory Council will be on July 25, 2012.

Residential Sector Trends: 2011

Conservation Advisory Council

June 6, 2012

Energy Trust of Oregon

Achievements For Residential Sector

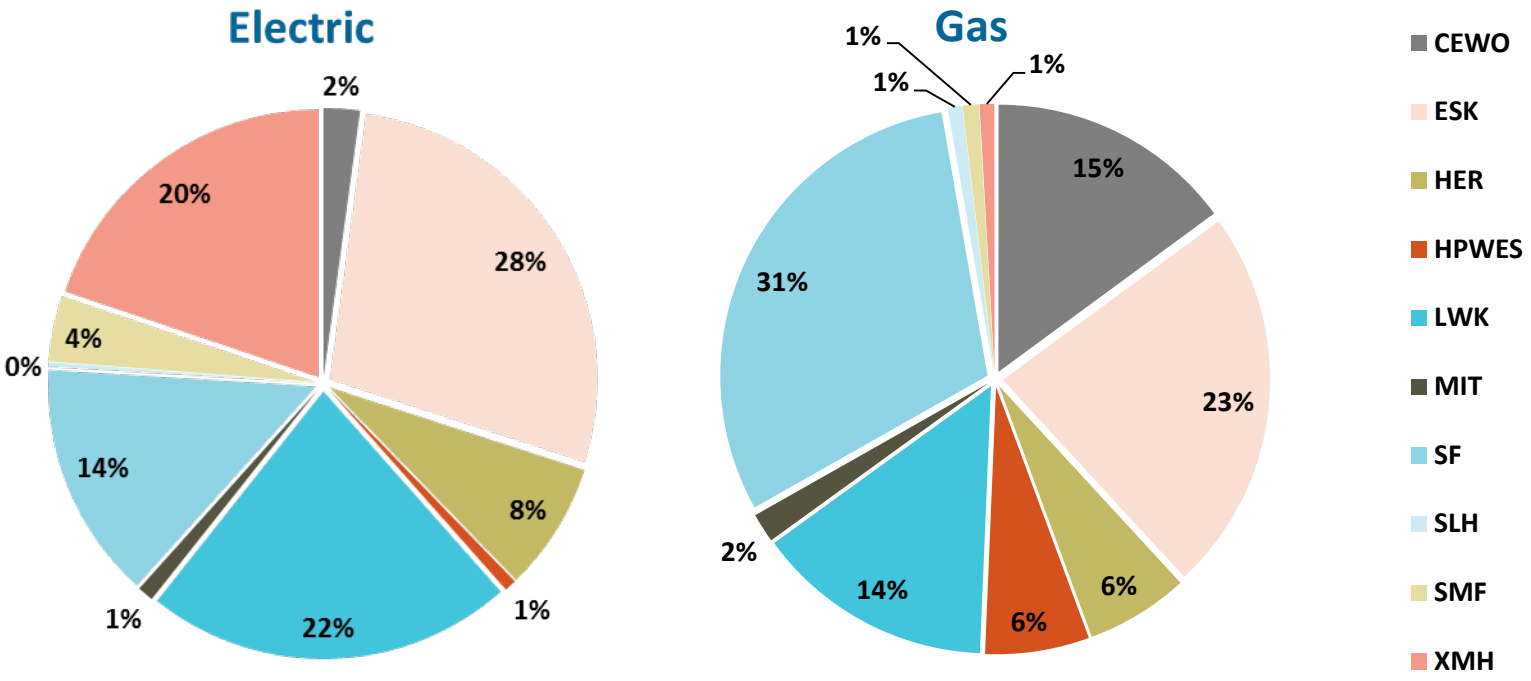
	Achieved	% Stretch Goal Achieved
Electric (kWh Million)		
New Homes and Products	56.1	106%
Existing Homes	45	112%
Residential Sector	**101.1**	**109%**
Gas (therms)		
New Homes and Products	373,909	112%
Existing Homes	1,250,950	96%
Residential Sector	**1,624,859**	**100%**

*Excludes Residential OPOWER pilot savings

EnergyTrust of Oregon

Existing Homes

Percent Savings by Track



Program Track	Track	Program Track	Track
Clean Energy Works Oregon	CEWO	Moderate Income Track	MIT
Energy Saver Kit	ESK	Single Family	SF
Home Energy Review	HER	Solar Water Heat (thermal and pools)	SLH
Home Performance with ENERGY STAR	HPWES	Small Multifamily	SMF
Living Wise Kit	LWK	Existing Homes	XMH

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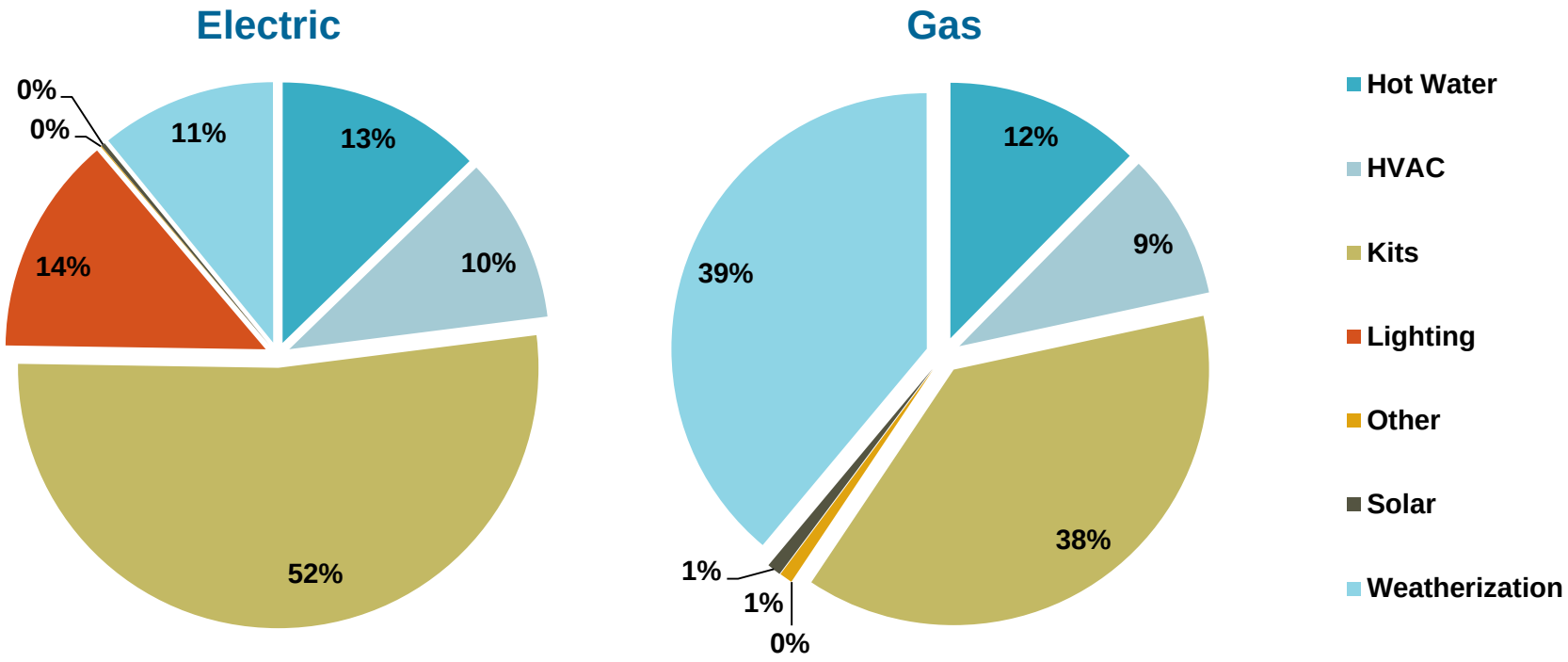
Percent Savings by Product Class



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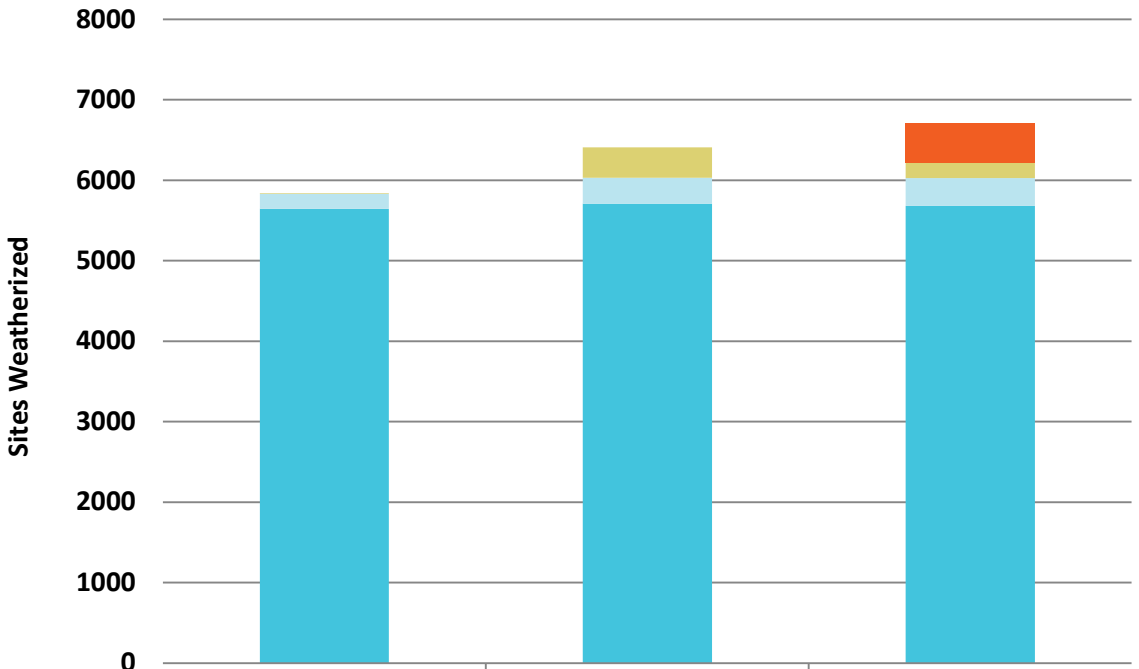
Sites Weatherized by Initiative & Year



	2009	2010	2011
Clean Energy Works Oregon			488
Clean Energy Works Portland	6	379	190
Home Performance w/ ENERGY STAR	189	321	348
Single Family Homes Site	5644	5709	5680

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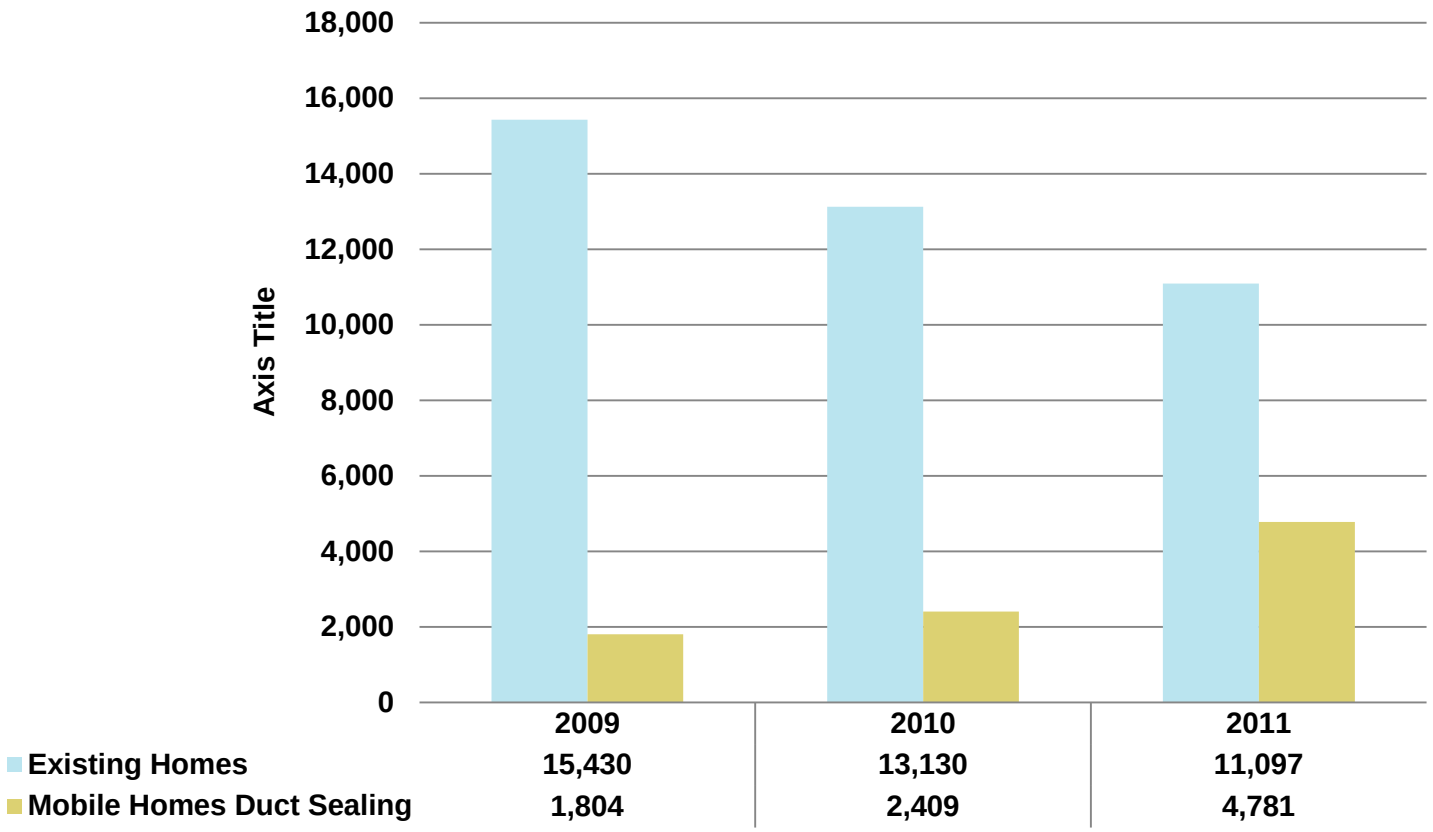
Existing & Mobile Sites Served



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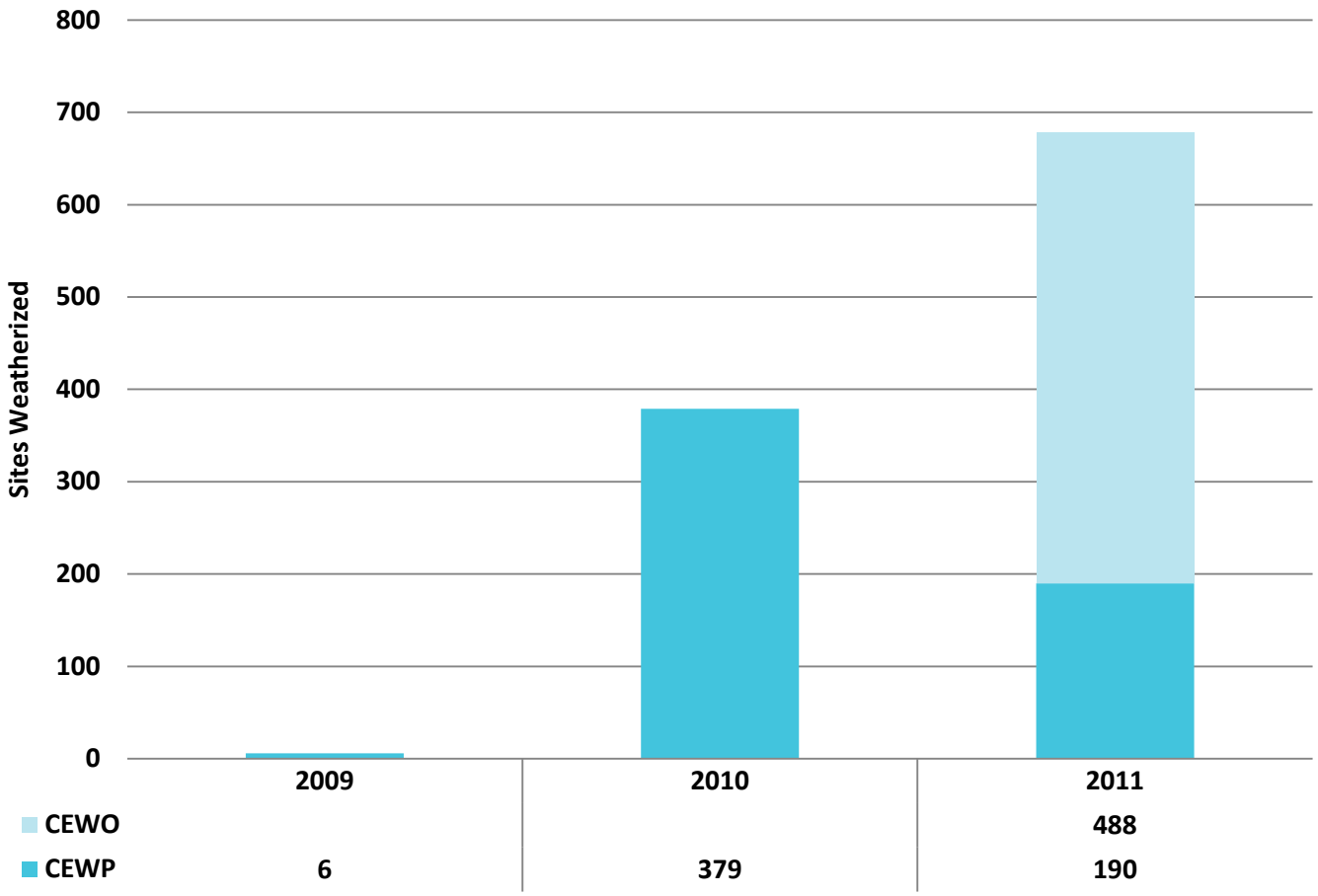
Clean Energy Works



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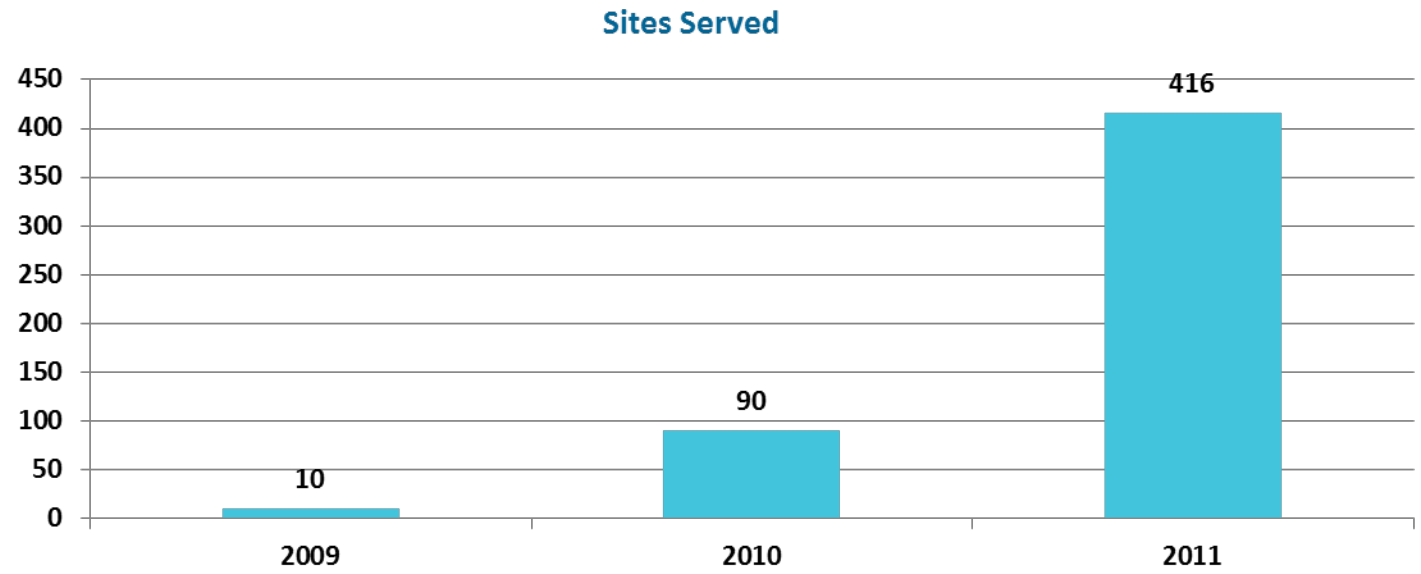
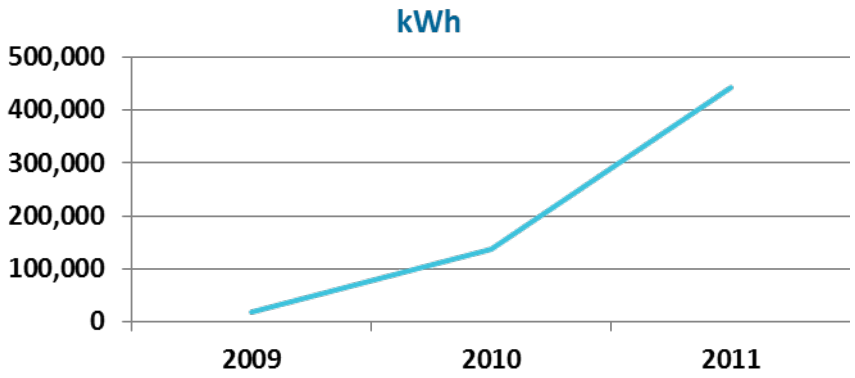
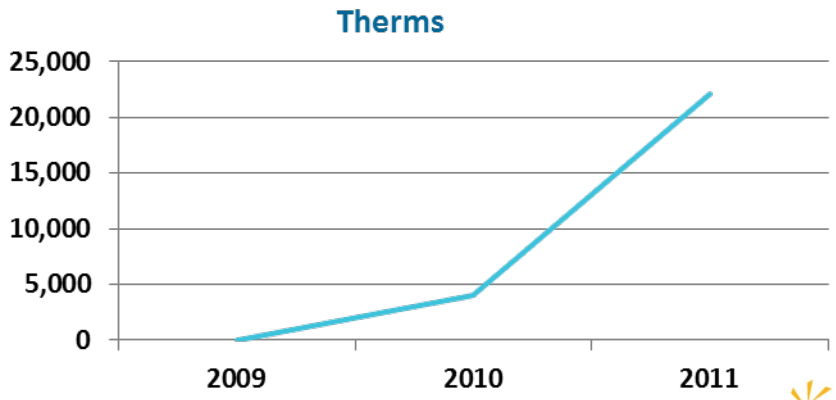
Savings Within Reach







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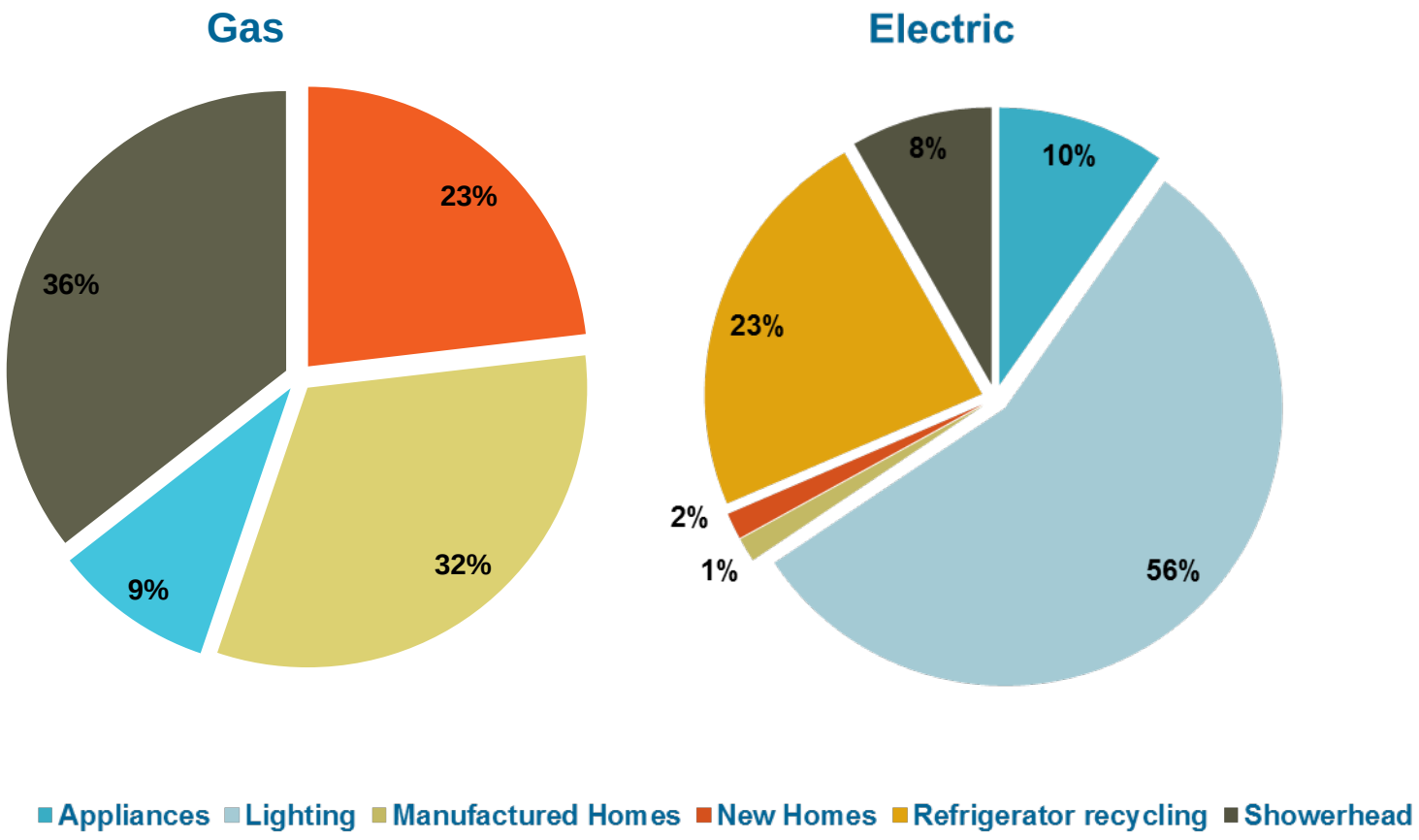
New Homes & Products

Percent Savings by Product Class



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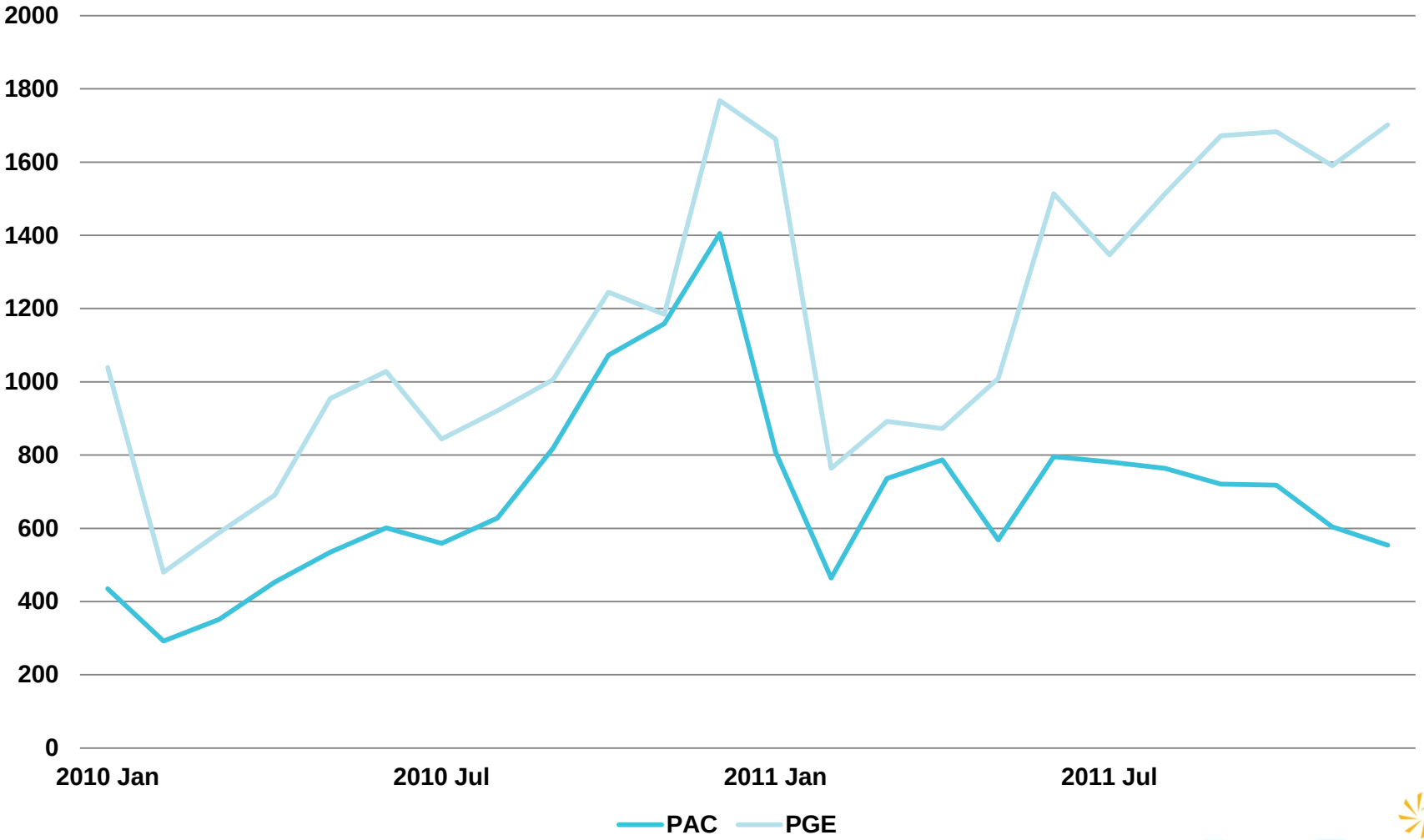
New Homes - 2011

- Issued EPS for 812 new homes in 2011
  - 100% of 2011 goal
  - 25% market share in 2011
  - A number of builders approaching a “zero”
  - Almost 40% of EPS homes had the ducts inside the conditioned space
- Issued EPS to over 2,000 new homes since 2009

Appliances and Recycling - 2011

- Rebated 23,650 clothes washers
  - 110% of goal
- Rebated 23,750 refrigerators, freezers, and dishwashers
  - 106% of goal
- Recycled over 24,000 Refrigerators and freezers
  - 110% of goal and 20% increase over 2010

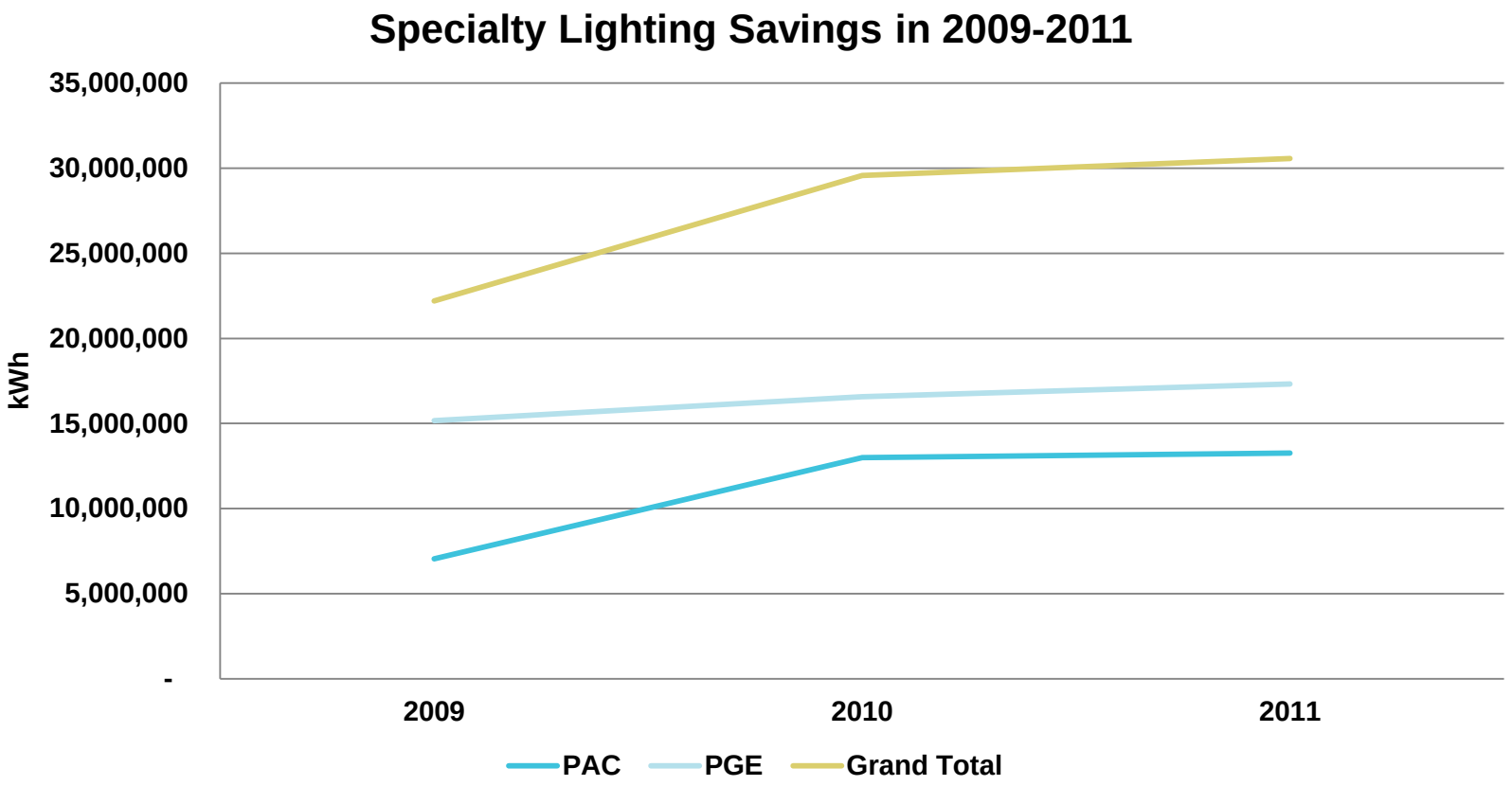
Refrigerator recycling and marketing



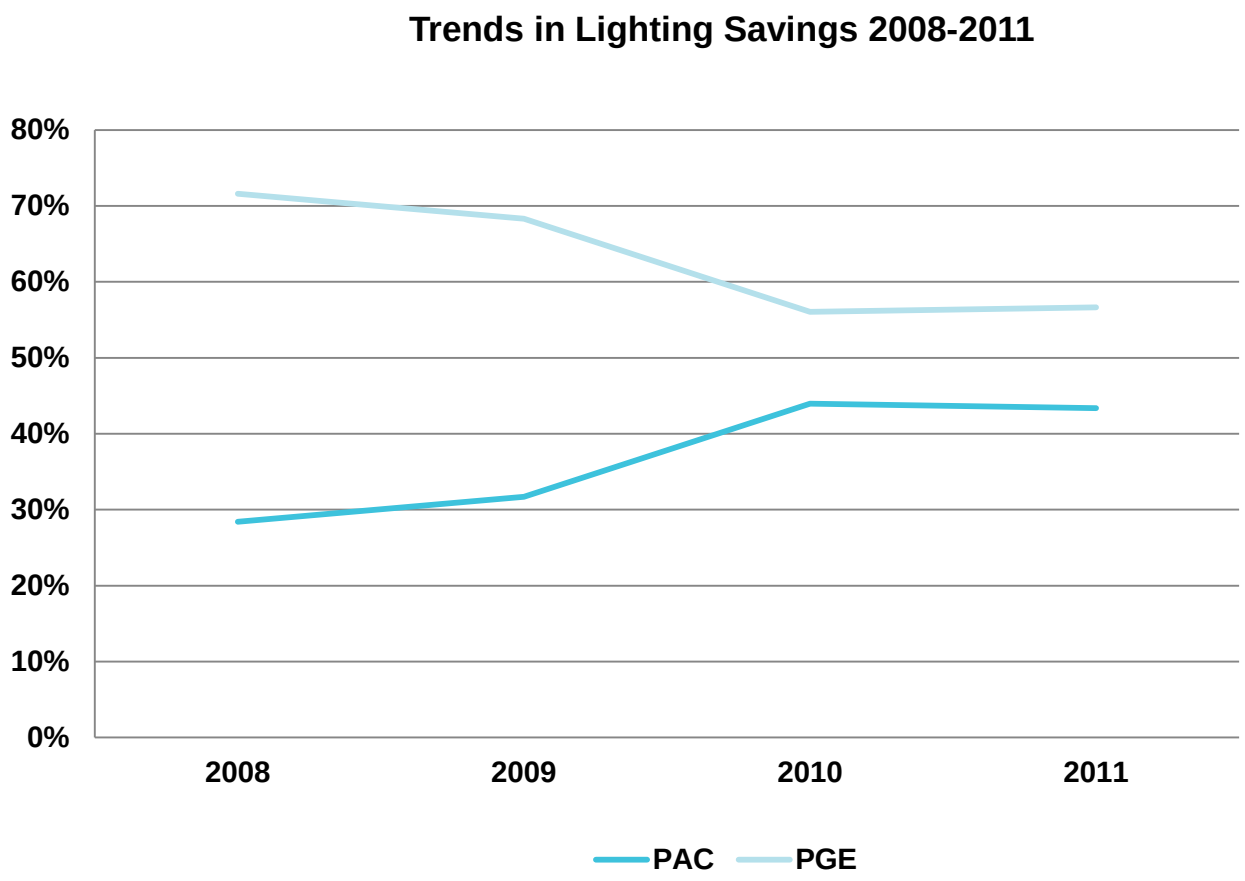
Lighting and Showerheads - 2011

- Bought down over one million specialty light bulbs at retail
  - Almost 150% of goal
  - Added a limited number of LED down light fixtures
- Bought down over 28,000 showerheads at retail
  - Expected to grow over time

Trends in Specialty Lighting–2010-11



Specialty Lighting – PGE & PAC



Residential HVAC Market Study

Conservation Advisory Committee

June 6th 2012

EnergyTrust of Oregon

Residential HVAC Market Study Update

- The update covers three residential HVAC technologies:
  1) gas furnaces
  2) air-source, ducted, split-system heat pumps
  3) ductless heat pumps

- Main objective: determine the penetration of efficient equipment for these technologies within the **existing residential** market.

- The study follows previous work completed in 2009 and covers the time period from 2009 – 2011.

Residential HVAC Market Study Update

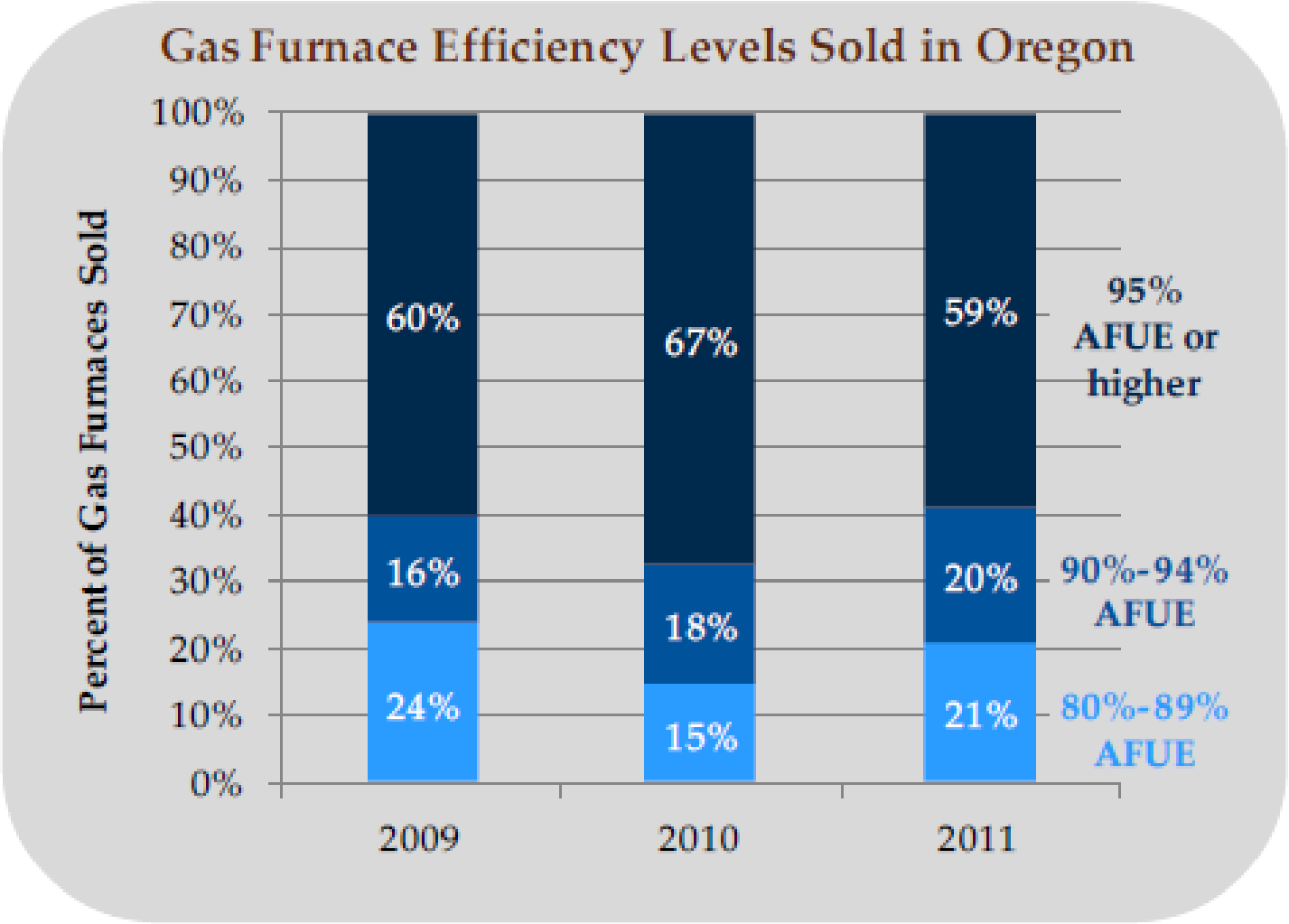
Why interview distributors?

- No other source of data that lists sales by **efficiency** levels
- Trade Ally survey is biased in that, well, they're our trade allies
- A small number cover a large portion of the market

Distributor interviews:

- Surveys included both quantitative and qualitative information
- 6 total distributors
- One distributor only sells ductless heat pumps
- All 6 provided sales data to our contractor (!)
- Estimated that these distributors cover at least 75% of total sales

Residential HVAC Market Study Update



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Residential HVAC Market Study Update

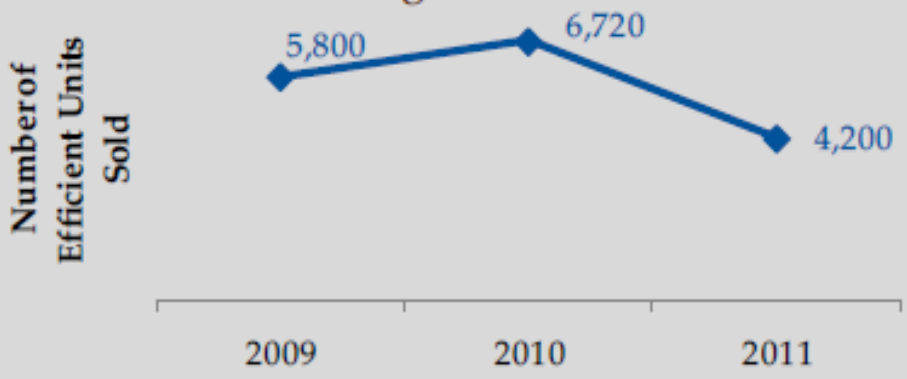
Gas Furnace Sales

Year	National (# of units)	Oregon † (# of units)
2009	2,175,000	7,630
2010	2,453,000	7,900
2011	2,216,000	5,320

Oregon residential sales comprise about 0.4% of national sales.

†Values for at least 75% of the market. Focused on sales to single-family existing homes.

Number of Efficient (90% AFUE +) Units Sold in Oregon (Est.)



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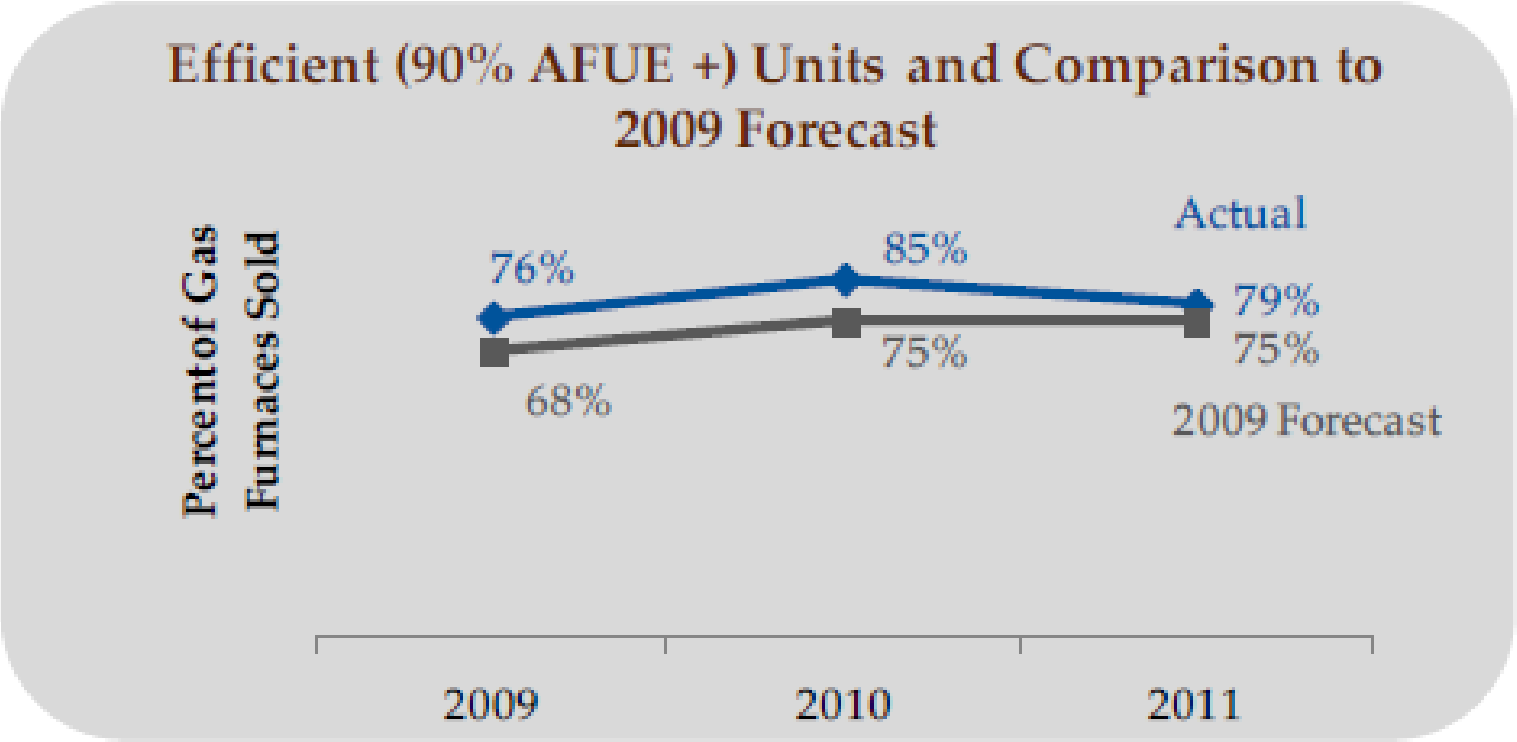
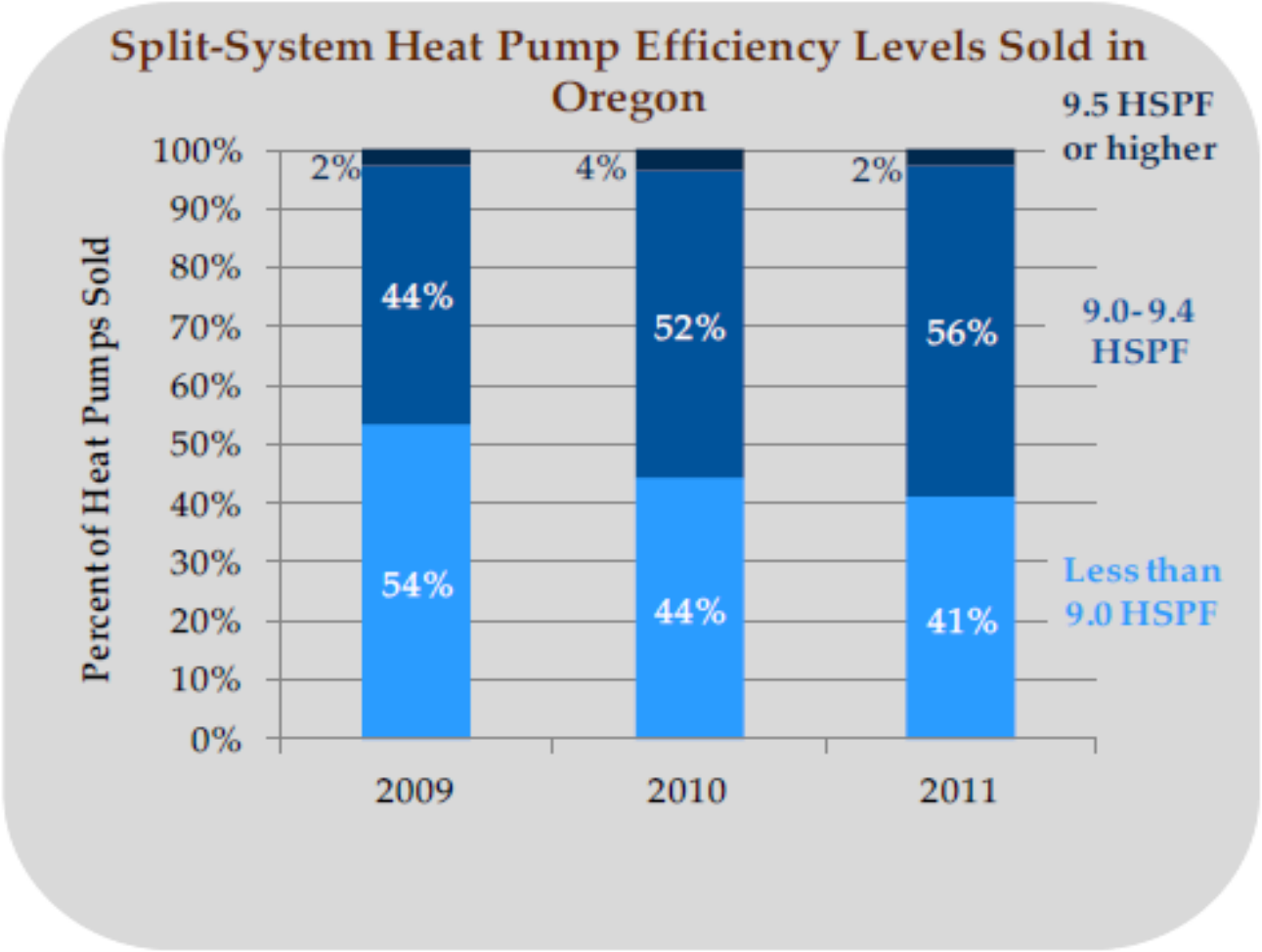
Residential HVAC Market Study Update



Residential HVAC Market Study Update



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Residential HVAC Market Study Update

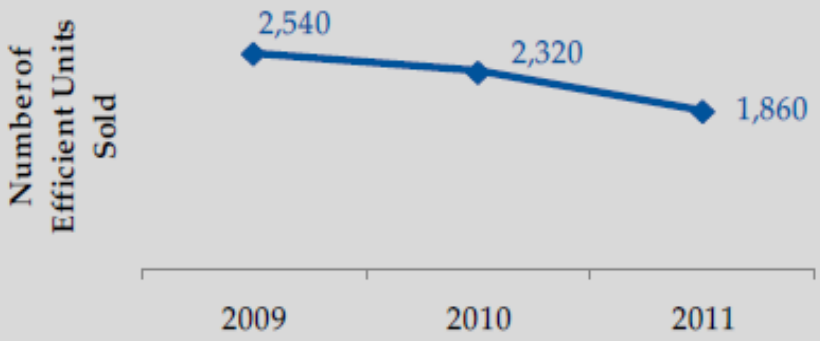
Split-System Heat Pump Sales

Year	National (# of units)	Oregon† (# of units)
2009	1,642,000	5,520
2010	1,748,000	4,150
2011	1,765,000	3,200

Oregon residential sales comprise about 0.4% of national sales.

† Values for at least 75% of the market. Focused on sales to single-family existing homes.

Number of Efficient (9.0 HSPF+) Units Sold in Oregon (Est.)



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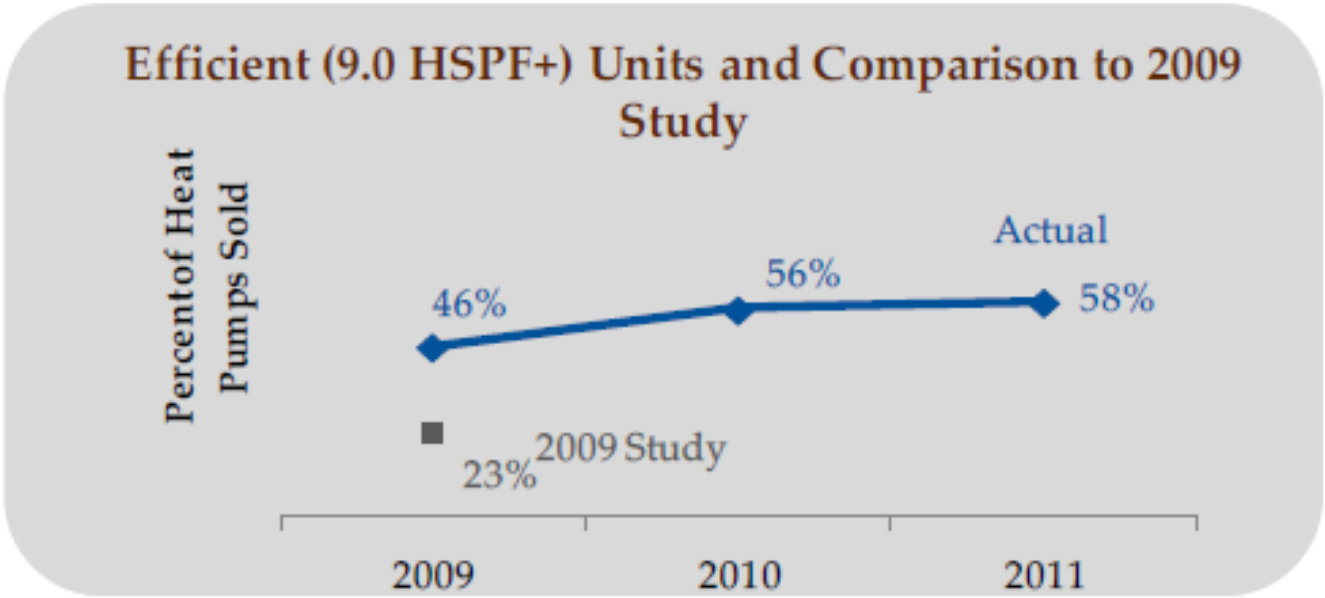
Residential HVAC Market Study Update



EnergyTrust of Oregon

Residential HVAC Market Study Update

Residential Ductless Heat Pump Sales

Year	Oregon† (# of units)
2009	3,470
2010	4,060
2011	4,620

The Oregon ductless heat pump market has grown 17% from 2009 to 2010 and 14% from 2010 to 2011.

† Values for at least 75% of the market. Focused on sales to single-family existing homes.

Residential HVAC Market Study Update

Indoor Air Handling Units

Of all the ductless heat pumps sold in 2009, 2010 and 2011, about 69% had only one indoor air handling unit. Comments revealed that the market's understanding of the incentive programs have had an impact on the high percentage of ductless heat pumps with only one indoor head.

Projections for the number of units with only one indoor air handling unit in 2012 varied. Some distributors noted that it will probably be the same as last year, while others expected to sell more multi-heads because ductless heat pumps are going toward a more whole-home solution application. For one distributor, over 80% of ductless heat pumps with multiple indoor units have two indoor heads.

Residential HVAC Market Study Update

Report Recommendations:

1. Report recommends conducting similar research in the future
2. On an annual basis, send the forms to the distributors in Q1
3. Energy Trust should continue to clearly advertise the ductless heat pump program requirements to reduce market confusion

Residential HVAC Market Study Update

Next Steps:

1. No expanded support for continued furnace rebates
2. Examine heat pump market for signs of market transformation
3. Examine next tier of efficient heat pumps for cost-effectiveness
4. Continue efforts to emphasize single head DHPs

Process Evaluation of the Home Performance Track

Conservation Advisory Council
June 6, 2012

Energy Trust of Oregon

Evaluation Background

- First stand-alone process evaluation of Home Performance (HP) track
  - Existing Homes process evaluations never gave enough focus to HP
- Johnson Consulting (July – Dec. 2011)
- Methodology:
  - Staff interviews (4)
  - Document and database review
  - Participant/nonparticipant phone surveys (30, 15)
  - Trade ally phone interviews (15)

Evaluation objectives

- Assess the effectiveness of program operations
- Determine customer and trade ally satisfaction and key drivers
- Document the inter-relationship between HP and other offerings
- Describe customer decision-making process
- Recommend areas for improvement
- Note: Clean Energy Works Oregon (CEWO) not part of this evaluation

Database and Document Review

Database and document review

Year	Assessments	Projects with energy savings	Measures with energy savings	Average measures per project	kWh Savings	Therm savings	Incentives
2010	333	316	989	3.1	49,608	16,856	$284,811
2011 through June	249	197	630	3.2	41,292	8,969	$181,577
Total	**582**	**513**	**1,619**	**3.2**	**90,900**	**25,826**	**$466,387**

Note: Does not include CEWO projects.

Measures and homes

- Most common measures:
  - Blower door test, air sealing and ceiling/attic insulation
- Least common measures:
  - Heat pumps/commissioning, water heaters
- 80% of homes were gas heated, 20% electric
- Mostly Portland Metro

Staff Interviews

Staff interview findings

- Focus has shifted from recruiting trade allies to maintenance
- Less Energy Trust marketing of HP
  - More encouragement of contractor marketing
  - Encouraging a self-sustaining HP market
- CEWO represents a majority of Home Performance projects right now; some tension between contractors involved in CEWO or not

Staff interview findings – marketing

- Bill inserts viewed as effective
- Community outreach at events, especially for non-Metro areas
- Enhanced co-op marketing assistance available for HP ($12K vs. $8K)

Trade Ally Interview

Trade ally interview respondents (15)

- Includes most and least active HP trade allies (TAs)
- All committed to energy efficiency and whole house approach
  - Three quarters of their business from energy efficiency projects/measures
  - Average years in business: 7.7 years
- Most specialize in weatherization (insulation, air sealing) and subcontract HVAC, water heating work

TA interview findings

- Contractors report customers most motivated by energy savings; comfort, other factors important for some
- Most contractors said customers would not get the assessment, measures without incentives
- Some contractors felt the star rating system was unfair to small firms
- Most effective marketing is one-on-one
- Many belong to HP Contractor's Guild

More TA interview findings

- Many also serve Saving Within Reach; most also participating with CEWO
  - Benefits and drawbacks to CEWO
  - Not sure of long-term effects of CEWO
- Negative feedback on new HP software
  - Interviews conducted during initial roll-out; some kinks have been worked out since
- Contractors often provide own reports rather than the program template
- 80% of contractors satisfied with the program overall (4 or 5 out of 5)
  - They like staff (80%), but not applications (33%)

Customer Surveys

Customer surveys

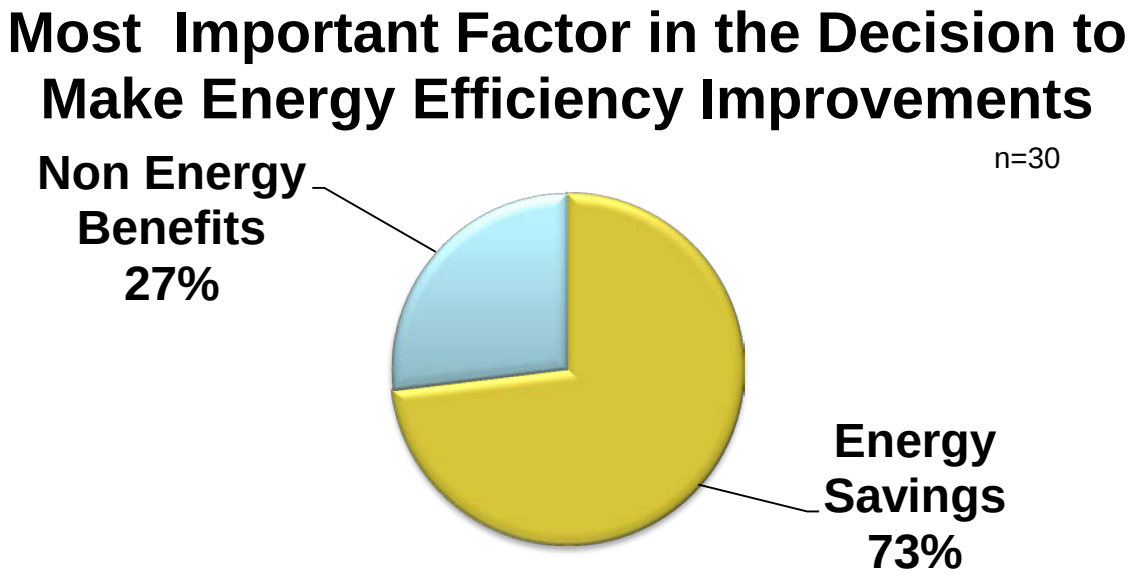
- 30 participants
- 15 customers with an assessment, but no HP project (nonparticipants)
- Variety of sources of awareness of HP; more than half visited website or saw brochure before scheduling assessment
- All nonparticipants reported installing some energy saving measures after assessment

Motivations for hiring HP contractor

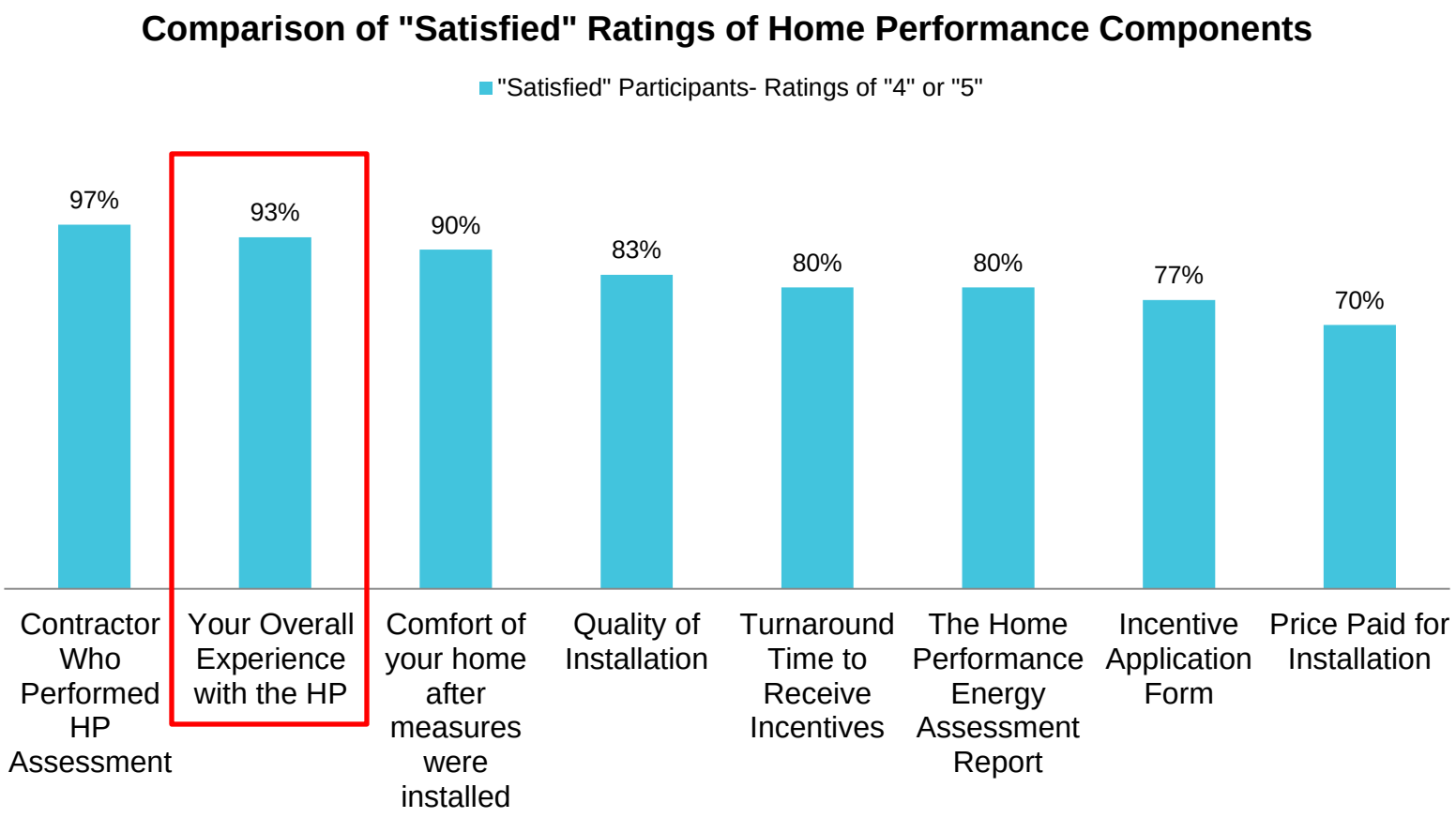
Reasons for Hiring a Home Performance Contractor*	Participants (%)	Nonparticipants (%)
Improve/increase energy efficiency/reduce energy use	33%	73%
Save Money/Reduce bill	30%	33%
Make my home more comfortable to live in	13%	0%
Needed insulate/weatherize my home	13%	0%
Rebate/Government incentives available	13%	0%
To find the issues with my house	10%	0%
Help the environment	7%	20%
Needed to replace equipment/upgrade	7%	17%
It was recommended	7%	0%

Non-energy vs. energy benefits

- Most respondents expected non-energy benefits like comfort and did experience them when the project was complete



Satisfaction



Reasons for not participating

Reasons for Not Going Forward with a Comprehensive Home Performance project	Number Mentioning (n=15)	Percent of Total
Couldn't Afford It	6	40%
I did it myself	4	27%
I didn't agree with them	2	13%
Other	1	7%
Don't Know/Refused	3	20%

Recommendations and Energy Trust Take

Evaluation recommendations

- Maintain contractor support (through account representatives)
- Provide an online application
- Consider paying incentives to contractors rather than customers
- Consider altering the trade ally rating system
- Improve HP assessment software
- Encourage low/no cost measures as part of the HP assessment
- Promote financing, including non-CEWO financing

Energy Trust take

- Good satisfaction among trade allies and customers
- HP track has taken off with expansion of CEWO and is coming to terms with its identity
- Assessment software has improved since its launch in mid 2011 (not reflected in these findings); Energy Trust should continue to make modeling requirements as minimal as possible
- HP is expensive (both measures themselves and administration); rather than putting more resources into HP, Energy Trust should let HP contractors take the lead in marketing the program

Questions?

Sarah Castor

Evaluation Sr. Project Manager

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MPower Oregon Pilot
Existing Multifamily

EnergyTrust of Oregon

- Overview of Target Market
- Historic Barriers To Market Penetration
- Pilot Design Related to Barriers
- Pilot Overview
- Feedback

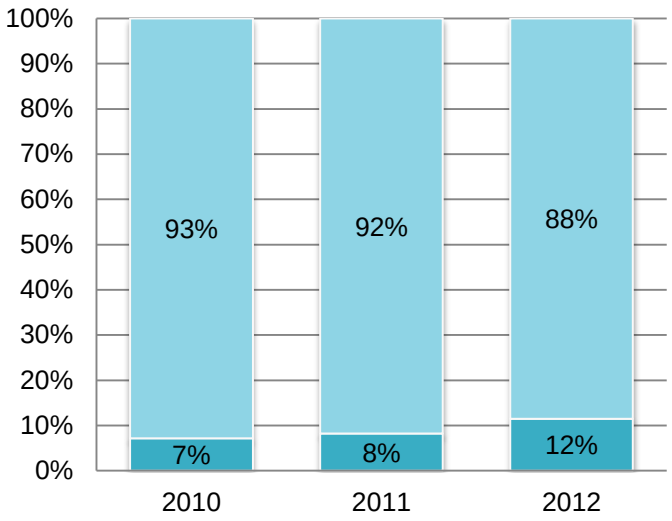
EnergyTrust of Oregon

Target Market and Importance

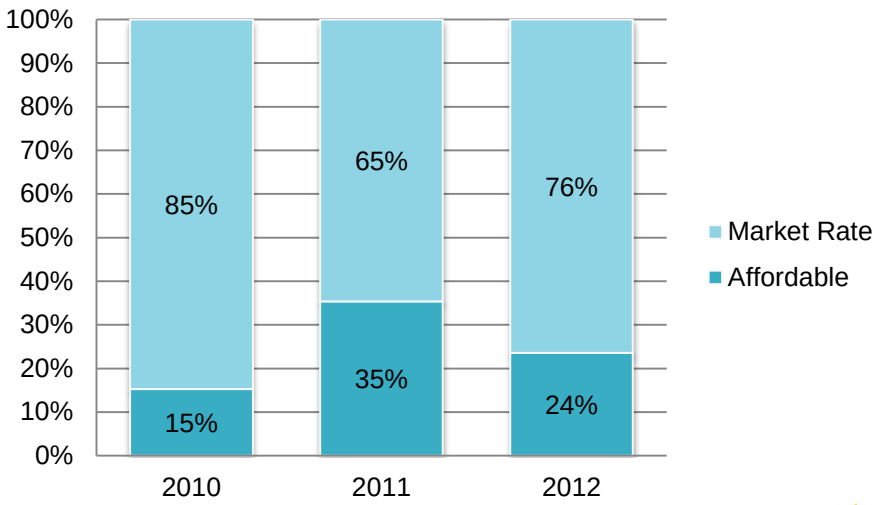
- Serving Affordable and Low Income Multifamily
  - Housing Authorities
  - Community Development Corporations
  - Non-profit
  - For Profit
- Importance of Affordable Housing
  - Low-income families
  - Older Adults
  - People with Disabilities
  - Transitional Housing

Historic Affordable Housing Savings

kWh Savings Over Time



Therm Savings Over Time



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Barriers to Market Penetration

- Limited capital budgets in affordable/public housing
- Older building stock and antiquated systems
- Misalignment of costs and benefits between building owners and residents (“Split Incentive”)
- Strict funding source limitations that exclude leveraging debt to make capital improvements.
- Inability to absorb the costs of health & safety code improvements to outdated facilities
- Inability to temporarily displace tenants in properties slated for capital improvements

MPower Related to Historic Barriers

MPower Designed to Overcome Barriers

- Planned On-Utility-Bill Repayment
- No Up Front Capital Cost
- One-Stop-Shop Coordination of Energy Efficiency Project
- Light Touch on Residents

MPower Overview

Key MPower Partners

- Network for Oregon Affordable Housing
- Blue Tree Strategies
- Green For All
- Energy Trust of Oregon
- Enterprise Community Partners
- Walsh Construction
- Craft3 (formerly Enterprise Cascadia)
- Investor Owned Utilities

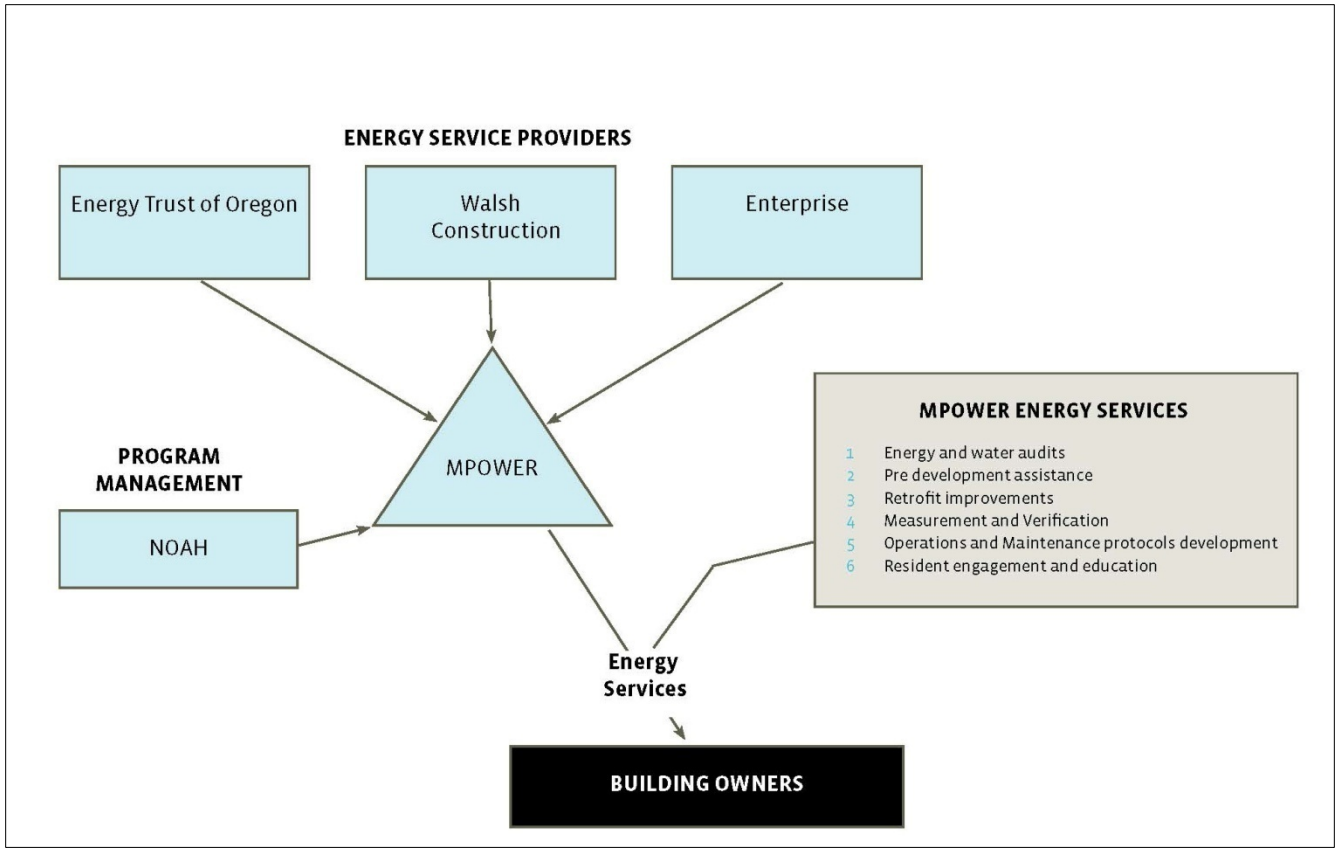
Pilot Snapshot

- 30+ Buildings Over Three Phases
  - Phase 1 (Launch): 6-8 Master Metered Buildings
  - Phase 2 (Scale Up): Continued Master Metered Buildings
  - Phase 3 (Commercialization): Tenant Metered Buildings
- Total Unit Goal: 2,700+ Units
- Total Unit Investment Goal: Average $3,000
- Timeframe: July 2012 – July 2014
- Total Investment of $8.1M in Projects
  - $3M HUD Energy Innovation Fund Grant
  - Up to $2.5M in ETO cash incentives, and $200k in technical analysis studies

Energy Trust of Oregon's Commitment

- Normal Incentive levels During Pilot
  - Prescriptive/Lighting
  - Custom ($0.25/kWh and $1.00/Therm)
  - Direct Install (ISMs)
- Cash Incentives Capped at $2.5M
- Audits for 30+ Buildings Estimated at $238k
- Development of Tenant Behavior Pilot
- Pilot Evaluation Services
- Delivery and Technical Assistance in Support of Projects
- Assignment of Incentive to MPower Oregon

MPower Partner Approach



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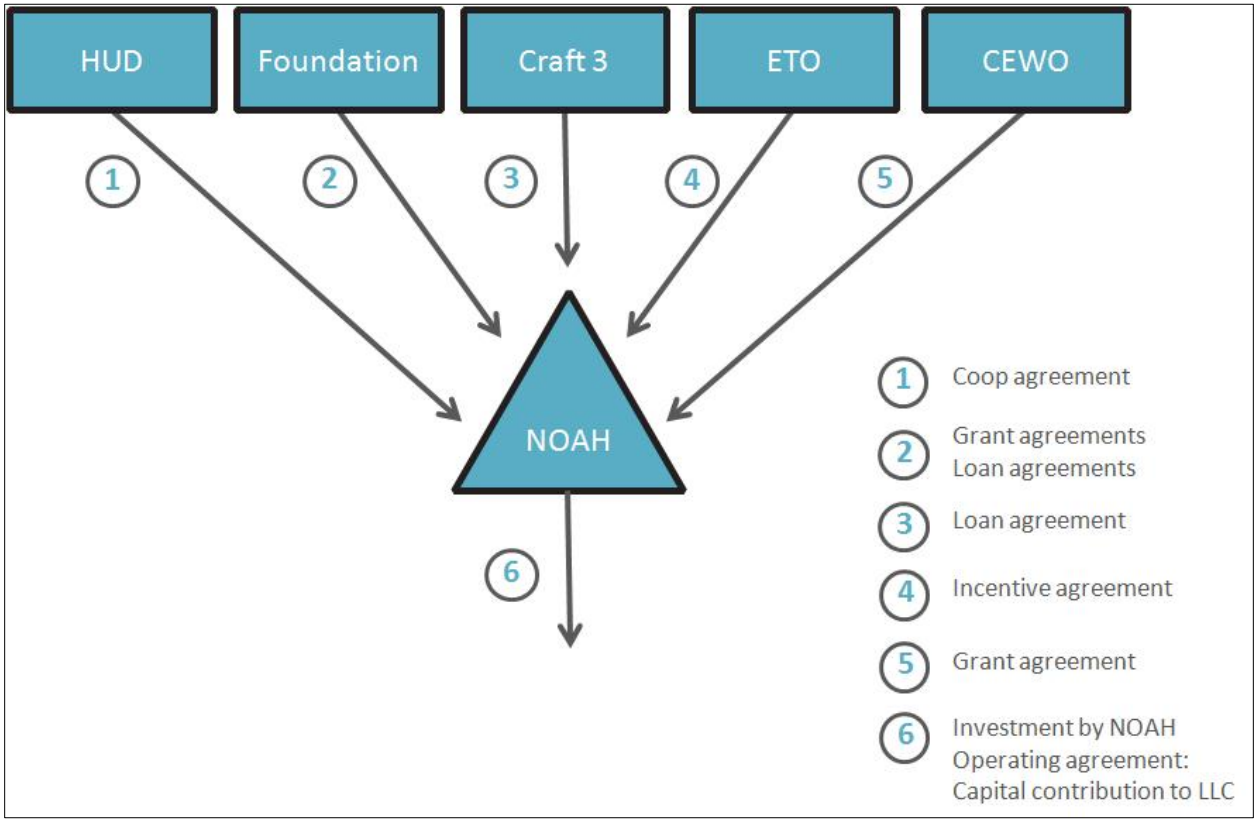
Capital Aggregation



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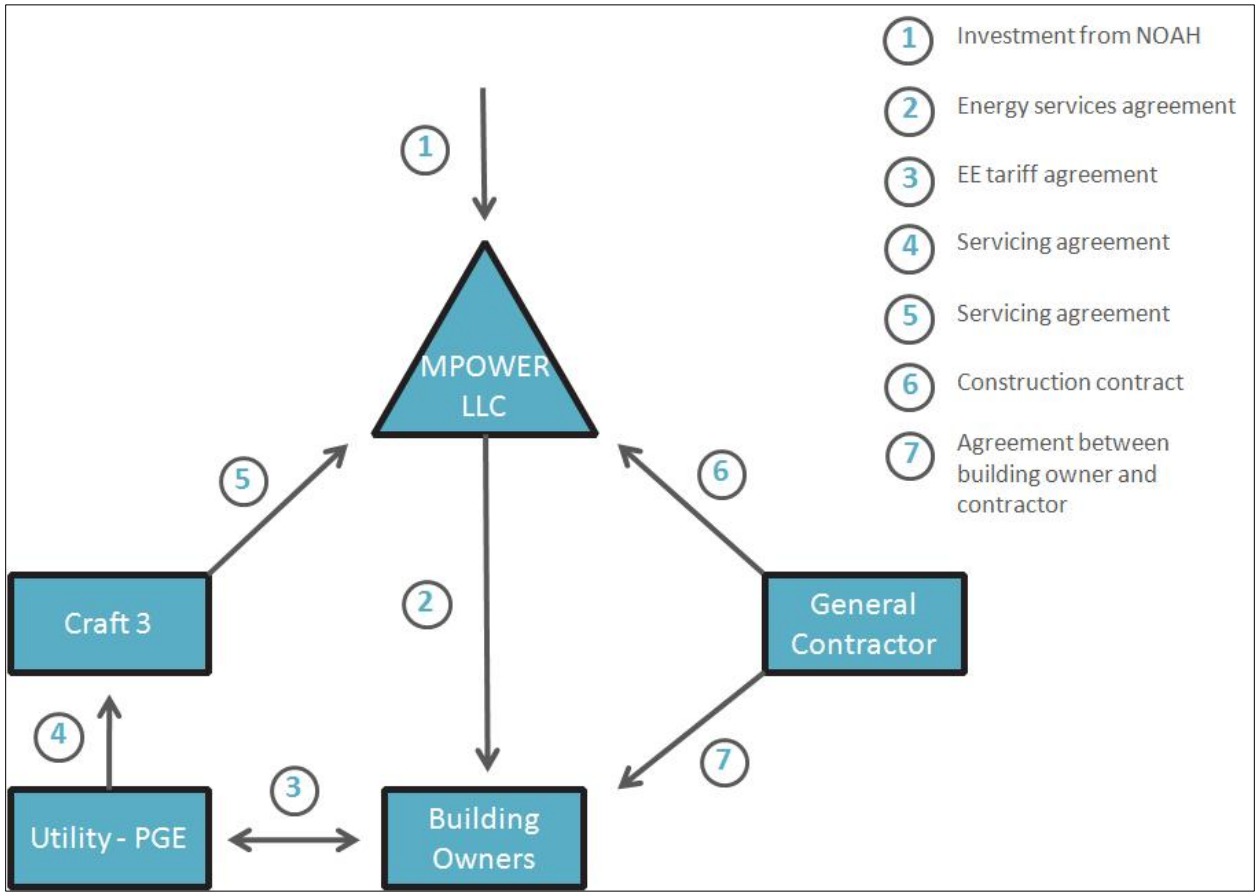
Project Completion and Financing



Feedback?

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NEEA Gas Market Transformation

Background: NEEA and Gas

- NEEA is funded by Energy Trust, BPA and other NW utilities to achieve regional market transformation & electric savings

- Some NEEA initiatives for electric create gas savings coincidentally. Examples:
  - Residential Windows
  - Industrial Strategic Energy Management

Background

- 2010: Fluid Market Strategies hired by Energy Trust to quantify unclaimed gas savings resulting from NEEA's work in Energy Trust territory

- Results of Fluid study
  - presented to CAC Jan. 2011
  - included savings Energy Trust proposed to claim from some NEEA residential initiatives

Background

- Report also identified non-residential savings caused by NEEA programs
  - 434,000 therms at commercial sites
  - 878,500 therms at industrial sites
- Further work required to analyze these sites
  - Intent to claim savings at sites which were not transport gas customers

Update

- Fluid Market Strategies re-hired for phase 2 analysis

- To be eligible to be claimed, the savings must
  - Have occurred at a site in Energy Trust territory
  - Occurred at a time when there was a program to serve that type of customer

Results

- Industrial savings: all excluded due to being Transport accounts

- Commercial:
  - 356,871 therms were identified
  - Nearly all of these savings have already been claimed through Energy Trust's New Buildings program

Conclusion

- Only a trivial amount of savings are left that could be claimed
- Energy Trust will not claim these savings
- Information was shared with NEEA on data tracking