



For Businesses



For Homes



Renewable Energy



For Trade Allies



About Us

EnergyTrust of Oregon

Residential Gas Furnace Market Transformation: Selling at a Loss but Making it up in Volume

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Energy Trust of Oregon

- Since 2002 delivers efficiency and renewable energy programs to Oregon gas and electric rate payers of:
 - Electric: PGE and Pacific Power
 - Gas: NW Natural, Cascade Natural Gas, and some Avista markets
- In 2006 Energy Trust has delivered 220 GWh and 2.3 million therm of savings

Market Transformation & Resource Acquisition

Market Transformation:

- Sustainable change to efficient hardware selection and behavior (including design behavior) that leads to long-term market changes that do not require utility-funded support.

Resource Acquisition:

- Pay for savings one home or business site at a time.

Making a Permanent Change: Challenges

- Successful programs will increase market penetration
- High market penetration makes it more difficult to justify program
- Leaving market too early may cause it to backslide and require repeated program intervention
- Program push may be needed to make sustained market changes such as reduce incremental costs, change in stocking and sales practices

Energy Trust Programs for Residential Gas Furnaces

- NW Natural field successful program 1997-2002
 - 2001 began vendor focused program
- Oregon only state in the union that has business or residential energy tax credits. Gas furnaces with ECMs became eligible in 2002
- Energy Trust of Oregon took up NW Natural program at end of 2002 and actively markets tax credit and seasonal NW Natural/distributor incentives to new and replacement markets

Program Objectives and Progress Indicators

Objectives:

- A significant, sustainable market share achieved after several years.
- Code upgrades for furnaces considered as code follows practices

Progress indicators:

- Increased market share
- # of builders:
- # of trade allies
- Trade ally stocking practices
- Vendor sales approaches and marketing
- Adoption of state codes and national standards

2005 Oregon Residential Gas Furnace Market

- ~50,000 residential gas furnaces sold each year
- 56% replacement and 44% new construction
- 44% furnace high efficiency furnaces (>.90 AFUE)
- >70% of replacement market HE
- 11%-25% of new construction market HE

- Resource acquisition implications: High baseline will make it difficult to continue programs using traditional cost-effectiveness criteria

Incremental Costs

Replacement Furnaces:

- HE cost >\$900-\$1,000

New Construction:

- HE cost > 1,000-\$1,200

Resource acquisition implications:

HE is not cost effective for individual furnace

Issues as a Resource Acquisition Program

- Programs currently have high market penetration:
 - 25% new construction
 - 70% replacement
- Overlap with tax incentive
- BC ratio is less than one

Changes in Program Design Considered

- Reduce incentives
- Focus on new construction
- Increase efficiency to 95%+ efficient furnaces
- OR.....

.....Market Transformation

- Obtains remaining savings in market by achieving sustained market changes. 100% if code changes are adopted
- Locks those savings in through permanent decreases in incremental costs, changes in stocking and sales practices or codes and standards
- Incentives at the unit level are not cost effective in the short-run but are cost effective as market is sustained and incremental costs go down.

Gas Furnace MT Model Scenarios

- Two scenarios considered one with code adoption or national standards in 2012 and one without code but sustained change
- State Code or National Standard in 2012:
 - 100% of market share
 - Societal BC ratio 3.6
 - Utility BC 27.4
 - Assumes incremental costs go to \$400 by 2013
- No code but with sustained change:
 - Replacement 80% market share in 2012
 - New construction market share growing to 75% in 2023.
 - BC ratio 1.16
 - Utility BC =2.9
 - Assumes incremental costs go to \$400 by 2013

Oregon Weirdness and Other Things

- Having Energy Efficiency Tax Credit really helps(\$350)
- Having a Market Transformation mission written into state law helps justify marginal resource acquisition programs with MT goal.
- Energy Trust offers gas and electric programs helps market programs and keeps costs down
- Having active utility partners (NW Natural) and a long history of local EE programs helps
- Vendor driven program is successful approach and creates vocal allies that support EE programs

Market Transformation

- As market penetration of HE gas furnaces (or other ECMs) increases more and more regions and states can benefit from MT to get the final savings and lock them in or stabilize the market
- MT does not require repeated EE programs targeting same market and technology
- Federal standards most effective way of setting new baseline efficiency
- Canada and Wisconsin are moving forward, lets follow their lead.

Questions

- ???



Efficiency Opportunities for Commercial Gas Heating

Pacific Northwest Perspective

- Commercial gas heating is growing:
 - 1987 51% of all floor space was heated by gas
 - 2002 65% of all floor space was heated by gas
- Gas heating share in new construction will accelerating this trend
 - In 1998 77% of all new floor space used gas
 - Indication from current market assessment is that this is increasing
- Package heating/unitary systems are increasing their share of the market
 - 1987 package heating 50% of floor space
 - 1998 new construction gas package units represented in 60% of all floor space
 - Package heating systems also getting larger and more sophisticated
 - Indication that this share has stabilized. Most of the package heating increase came with the advent of big box replacing large retail.

National Perspective

- 2003 CBECs trend to gas less visible
- 55% of commercial floor space is heated by gas
- package/unitary system heat over 50% of the gas heating floor space
- This is probably a low estimate since Malls (15% of floor space) are not included in sample
- In 1999 Package/unitary gas systems provided heat to 75% of gas heated buildings and 40% of total floor space
- Possibly the largest commercial gas end use

Commercial Market Product Research

- Discussed with major gas utilities involved in EE programs
- Discussed with regional contractors on product availability
- Queried research organizations (NBI, ESource, Gas Technology Institute, Energy Solutions Center, National Resources Canada)
- Internet review of manufacturer offerings

Results: Not Much Available Equipment

- Reasons why:
 - Price sensitive market
 - No one is asking for efficiency features
 - Issues with condensate
 - Gas heating markets not nationwide or all buildings
 - Split incentives (e.g. lease vs. own, internal maintenance vs. capital investment)

What can be Done?

- To increase available equipment
- Create the market demand
- Design efficiency programs

