



High Efficiency Windows in Residential Programs



Energy Trust of Oregon

- Independent nonprofit operating since 2002
- Helping utility customers invest in saving energy and tapping renewable resources
- Funded by a charge on utility bills
- Programs for homes, businesses, industry and agriculture
- Serve OR customers of Portland General Electric, Pacific Power, NW Natural and Cascade Natural Gas
- Serve WA customers of NW Natural





Cumulative Results



Since 2002:

- Saved 222 average megawatts of electricity
 - enough power about 187,000 homes each year
- 13.1 million annual therms of natural gas
 - enough to heat 26,000 homes each year.
- Installed 99.7 average megawatts of renewables
 - enough to power another 80,000 homes
- Utility loads reduced 4.3% from what they would have been



Home Improvement Efforts

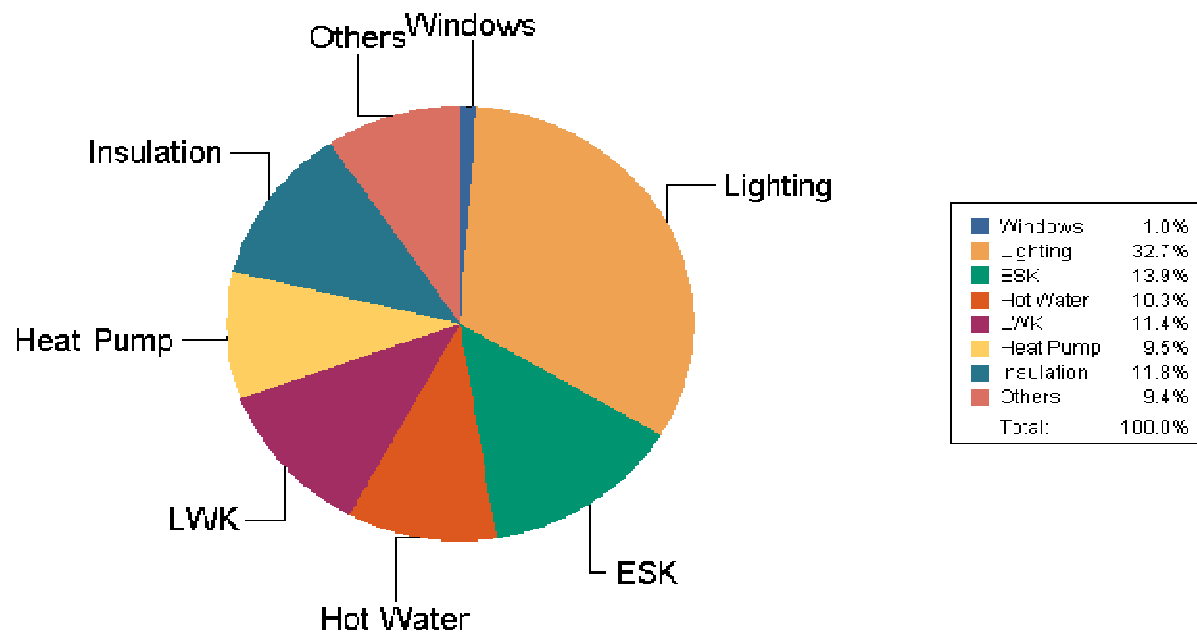


- Existing, new, manufactured, mobile; renters, property owners
- Advice, technical assistance & audits
- Contractor training, rating & referrals
- Kits
- Equipment, weatherization, solar & wind
- Appliance rebates
- Energy Performance Score



Existing Homes : Historical Electric Savings

kWh by Measure type

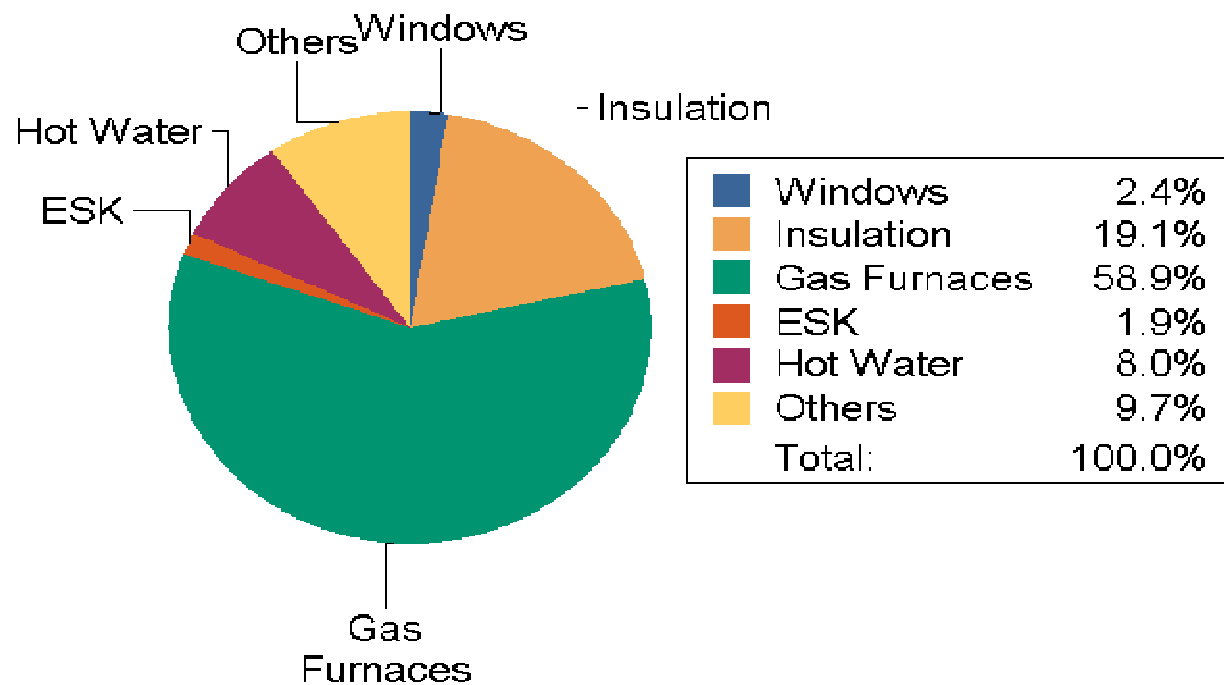


Sum of ACTION_RECOGNIZED_SAVINGS.Reportable_KWHANNUAL



Existing Homes : Historical Gas Savings

Therms by Measure Type





Windows : 2003 – to date

- 151 specialized contractors
- 3,742 window project incented
 - 535/year
 - 845 in 2009
 - 11 windows/ job average
 - 5.6% energy reduction per home
 - reductions from baseline replacement window (0.35)
 - Net savings:
 - 0.29 therms/square foot
 - 3.76 kWh/square foot
- By 2008 75% of market was Energy Star qualified



Windows Incentives: Standard

- \$2.25 per square foot of windows installed
 - U-Value 0.23 – 0.30
 - No SHGC requirement (high or low)
- Windows must be installed with a second energy-saving improvement.
 - Measure stands alone, but used as inducement
 - [Attic/ceiling insulation](#)
 - [Wall insulation](#)
 - [Floor insulation](#)
 - [Air sealing](#)
 - [Duct sealing](#)
 - [Gas tank water heater](#)
 - [Tankless water heater](#)
 - [Heat pump](#)
 - [Boiler](#)
 - [Gas furnace \(for NW Natural customers in Washington only\)](#)



Windows Incentives: Expanded

- U-Value 0.22 – 0.30
 - Unchanged incentive and requirements
- U-Value < 0.22
 - \$3.50 per square foot of windows installed
 - No SHGC requirement (high or low)
 - Net saving compared to baseline:
 - 0.55 therms/square foot
 - 7.10 kWh/square foot
 - Savings per job of 10.7% per average job
 - B/C ratio utility test:
 - 2.17 gas
 - 3.28 electric
 - Must be installed with a second energy-saving improvement



Outreach and Goals

Outreach

- Educate current Trade Allies
 - Use as vehicle to promote quality installations for windows
- Work with manufacturers/suppliers of <math><0.22</math> windows to support contractors
- Promote US DOE volume purchase program

Goals

- Sponsor a measure with more significant savings
- Provide a transition as Energy Star standards increase
- Support market transformation



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