

OREGON ENERGY EFFICIENCY PROGRAMS

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ODOE Residential Programs

- ◆ Residential Energy Tax Credit (RETC)
- ◆ Business Energy Tax Credit (BETC) for Multi-Family
- ◆ Residential Code
- ◆ Energy Star Homes (w/ Energy Trust & NW Alliance)
- ◆ High-Performance Homes
- ◆ Manufactured Homes
- ◆ State Home Oil Weatherization (SHOW)
- ◆ Housing and Community Services

ODOE Commercial Programs

- ◆ Business Energy Tax Credit (BETC)
- ◆ Non-Residential Code
- ◆ State Energy Efficient Design (SEED)
- ◆ 1.5% Solar in Public Buildings
- ◆ 20% Savings in Existing State Buildings
- ◆ Public Purpose Schools
- ◆ High Performance Schools
- ◆ Industrial Self-Direction

Business Energy Tax Credit

- ◆ 35% of eligible costs for efficiency, recycling, transport
- ◆ 50% of costs for renewables & RR manufacturing
- ◆ \$/sqft for LEED
- ◆ \$9K for Builder-installed renewables + \$3K for High-Performance Home
- ◆ Taken over 5 years; Pass-through option
- ◆ 10% energy savings for efficiency project, 25% energy for lighting projects
- ◆ 1-15 yr payback
- ◆ 12,000 projects since 1980; 1,200 in 2007

Residential Energy Tax Credit

- ◆ Premium efficient appliances – dishwashers, clothes washers, refrigerators, water heaters
- ◆ Duct testing and sealing
- ◆ Heat pumps, air conditioning systems and diagnostics
- ◆ Furnaces, boilers and air handlers
- ◆ Solar, geothermal, wind
- ◆ Hybrid and alternative fuel vehicles
- ◆ >200,000 credits to date; 40,000/yr
 - 32,000+/yr – appliances
 - 6,000+/yr – furnaces, heat pumps, ducts

Oregon Residential Energy Code

- ◆ 2008 code best in nation
- ◆ 15% better than previous code

MEASURE	NEW CODE	CURRENT CODE
Underfloor	R-30	R-25
Slab Edge Perimeter	R-15	R-15
Heated Slab Interior	R-10	N/A
Flat Ceilings	R-38	R-38
Vaulted Ceilings $\leq 50\%$ htd space floor area	R-38	R-30
Vaulted Ceilings $> 50\%$ htd space floor are	U-0.031	U-0.031
Above-Grade Walls	R-21	R-21
Below-Grade Walls	R-15	R-15
Forced Air Duct Insulation	R-8	R-8

- ◆ Plus choice among 9 efficiency options

Heating system, ducts, envelope, lighting, water heating, solar

Oregon Non-Residential Energy Code

- ◆ Approximately equivalent to ASHRAE 90.1-2004
- ◆ Recognized by LEED as 10-15% better than ASHRAE 90.1-1999, eligible for LEED certification
- ◆ Next review cycle begins soon

Public Buildings

- ◆ State Energy Efficient Design (SEED) – new state buildings 20% more efficient than code.
- ◆ Existing state buildings reduce 20% by 2015
- ◆ New public buildings – 1.5% of construction contract for dedicated to solar
- ◆ Public Purpose Funds for school energy projects
- ◆ \$50K grants for High-Performance Schools
- ◆ ODOE maintains list of pre-qualified firms for ESPC, building commissioning, modelling, and other energy management services.

Energy Loan Program

- ◆ Loan to all types of applicants: public, private, tribes, non-profits
- ◆ Loans for efficiency, renewables, recycling projects, and alternative fuels
- ◆ 606 loans for \$315 million
- ◆ No cost to taxpayers. Fees and interest spread pay program costs. Loss rate: .4% of total dollars loaned.
- ◆ 5-20 year terms
- ◆ Approval within 2 weeks if less than \$100,000
- ◆ Advisory Committee review if more than \$100,000

State Home Oil Weatherization (SHOW)

- ◆ About 100,000 Oregon homes are heated with oil or
- ◆ Program paid for by heating oil industry
- ◆ Rebates up to \$500 for insulation, window replacement, efficient furnace, etc.
- ◆ CFLs provided by Energy Trust

Energy-Efficient Manufactured Homes

- ◆ ODOE works with manufactured home industry
- ◆ Standard = Oregon Residential Code
- ◆ Co-branded with ENERGY STAR Program
- ◆ 62% of homes sited in Oregon are certified

Premium Efficiency Ducts

- ◆ Piloted Premium Efficiency Duct program
- ◆ Residential Tax Credits for Premium Efficiency Ducts
- ◆ Research with Regional Technical Forum
- ◆ Handing off Premium Efficiency Ducts to PTCS

Industrial Self-direction

- ◆ Industrial customers may direct some public purpose charges to on-site energy projects
- ◆ Must be large energy user (over 1 aMW)

State-Regulated Appliance Standards

Non-federally regulated appliances & equipment

- ◆ Automatic commercial ice cube machines
- ◆ Bottle-type water dispensers
- ◆ Commercial hot food holding cabinets
- ◆ Commercial refrigerators and freezers
- ◆ Compact audio products
- ◆ Digital versatile disc players and recorders
- ◆ Portable electric spas
- ◆ Single-voltage external AC-to-DC power supplies
- ◆ Unit heaters
- ◆ 8 other products have been pre-empted by federal standards

Northwest Energy Efficiency Alliance

Market Transformation (serving OR, WA, ID, MT)

- ◆ Energy Star Homes
- ◆ Energy Star Consumer Products
- ◆ Building O&M
- ◆ Building Design & Construction
- ◆ Grocery Market
- ◆ Hospital Health Care

Energy Trust of Oregon

Incentives for customers of PGE, Pacifcorp, NW Natural

- ◆ Energy Star Homes
- ◆ Energy Star Consumer Products
- ◆ Insulation, windows, solar
- ◆ New commercial buildings
- ◆ Existing buildings
- ◆ Industrial, water and wastewater

Bonneville Power Administration

- ◆ Conservation Rate Credits
- ◆ Conservation Acquisition Agreements
- ◆ Post-2011 – Tiered Rates

Northwest Power Council

- ◆ RD&D – Regional Technical Forum

Residential Energy Code

High-Efficiency Lighting

- ◆ 40 lumens per watt or more
- ◆ Compact or linear fluorescent is acceptable
- ◆ Screw-in CFL is acceptable to meet code
- ◆ 50% permanently installed fixtures to have high-efficiency lamps. Some options require 75% of fixtures have high-efficiency lamps.



Residential Energy Code

Additional Measures (Options) Required from Table N1101.1(2) Must Select “One” of Following

1. High Efficiency HVAC System

- ◆ Min. 90% AFUE Gas Furnace or Boiler, **or**
- ◆ Min. 8.5 HSPF Heat Pump, **or**
- ◆ Ground Source Heat Pump w/min. 3.0 COP

OR

2. High Efficiency Duct Sealing

- ◆ Certified Performance Tested Ducts, **or**
- ◆ All Ducts & Air Handler Interior



Residential Energy Code

Additional Measures (Options) Cont.

3. High Efficiency Building Envelope

- ◆ U-0.047 (R-19+R-5 cont.) Exterior Walls, **and** R-30A/U-0.033 Vaulted Ceilings, **and** R-49/U-0.025 Flat Ceilings, **and** U-0.32 Windows



OR

4. Zonal Electric, Ductless Furnace, Ductless Heat Pump

- ◆ 75% Permanent Lighting Fixtures are Energy Efficient, **or**



- ◆ U-0.32 Windows, **or**
- ◆ R-49/U-0.025 Flat Ceilings, **or**
- ◆ R-24/U-0.047 Exterior Walls

Residential Energy Code

Additional Measures (Options) *Cont.*

5. High Efficiency Ceiling, Windows & Lighting

- ◆ R-30A/U-0.033 Vaulted Ceilings, **and** R-49/U-0.025 Flat Ceilings, **and** U-0.32 Windows , **and** 75% Permanent Fixtures are Energy Efficient

OR

6. High Efficiency Ceiling, Windows & Water Heating

- ◆ R-30A/U-0.033 Vaulted Ceilings, **and** R-49/U-0.025 Flat Ceilings, **and** U-0.32 Windows, **and** 0.80 EF min. Gas or Propane Demand Water Heating

Residential Energy Code

Additional Measures (Options) *Cont.*

7. High Efficiency Water Heating & Lighting

- ◆ 0.80 EF min. Gas or Propane Demand Water Heating, **and** 75% Permanent Fixtures are Energy Efficient

OR

8. Solar Photovoltaic

- ◆ Min. of $1\text{w}/\text{ft}^2$ of conditioned space floor area

OR

9. Solar Water Heating

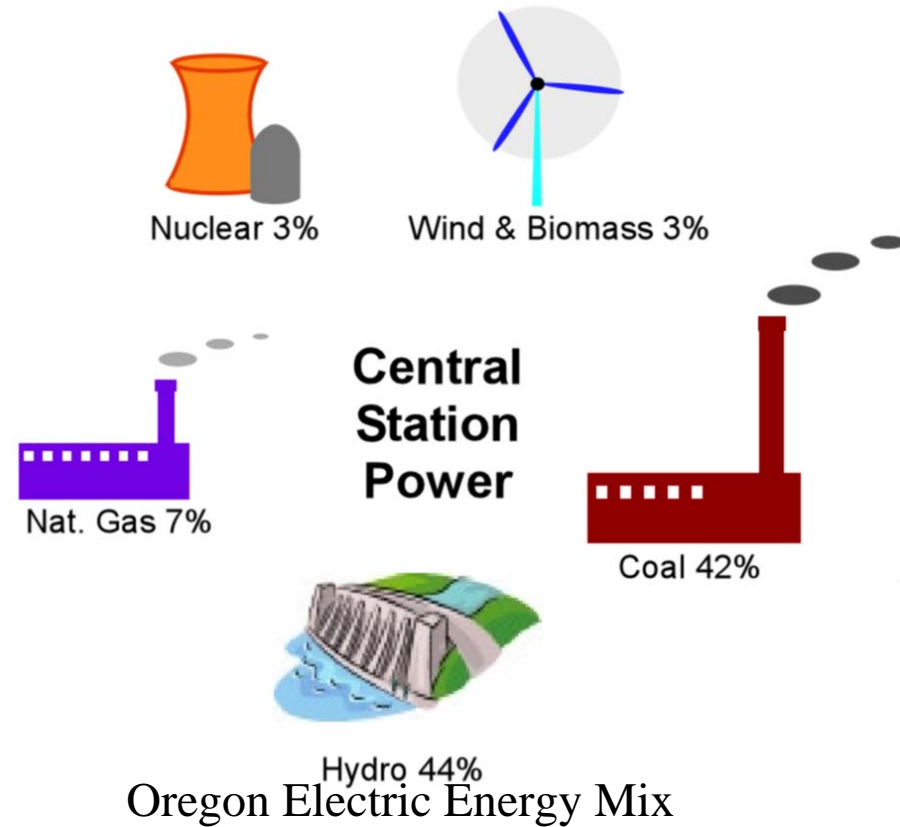
- ◆ 40 ft^2 min. of gross collector area





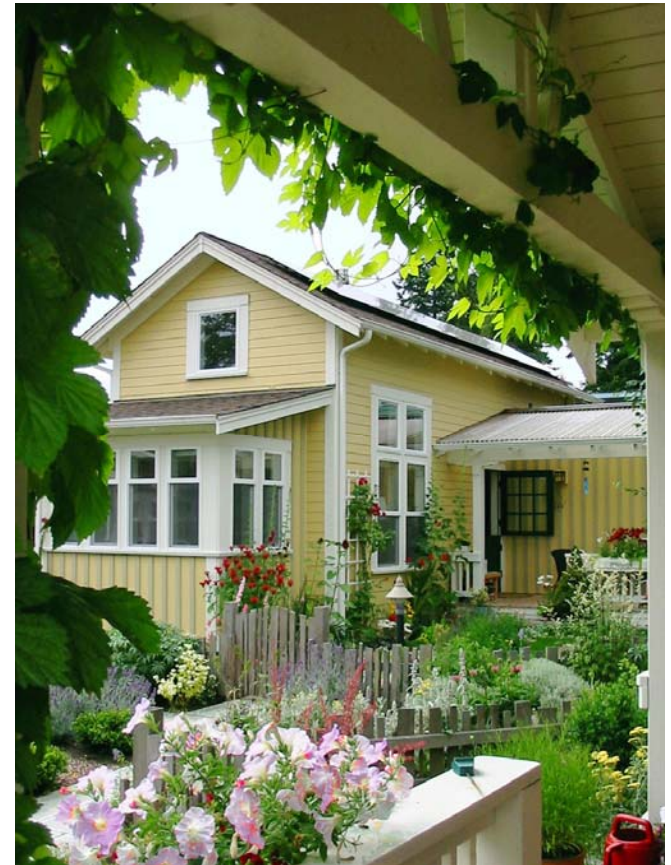
Oregon Energy Use

In 2008
Oregonians will
spend over \$10
Billion on energy



Oregon High Performance Home

- Energy Efficiency
 - Exceed Fed Tax Credit Requirements (w/gas)
 - Improved Shell Insulation
 - Energy Star Certified
 - Ducts Inside, or no Ducts
- Renewable Energy (1kWh/yr/ft²)
 - Passive Solar and Daylighting
 - Solar Water Heating
 - Solar Electric
 - Geothermal
 - Wind

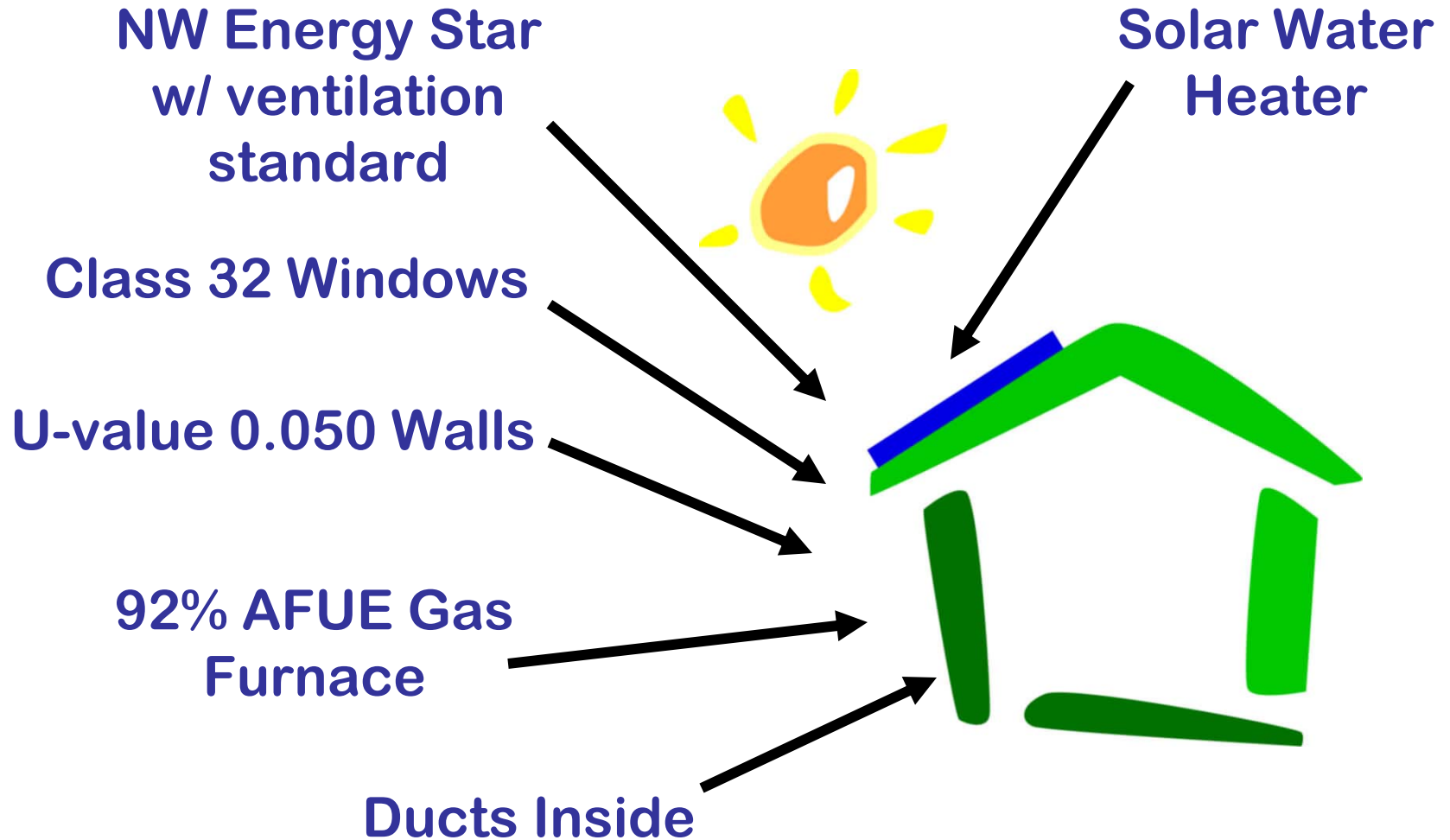


Oregon HPH Builder Tax Credits

- Shell and HVAC **\$3,000**
- Up to **\$9,000** for renewables



Example HPH – Key Features



HPH Requirements – Key measures

- Full Tech Requirements on ODOE web page
- Energy Efficiency
 - Glazing limit 16%
 - Improved Insulation (walls, windows, floor, roof)
 - Ducts Inside, or no Ducts
- Renewable Energy (1kWh/yr/ft²) from:
 - Passive Solar and Daylighting
 - Solar Water Heating
 - Solar Electric
 - Geothermal
 - Wind

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