

**Excerpts from the  
Oregon Department of Energy Business Energy Tax Credit Program's  
Temporary Administrative Rules  
Effective May 27, 2010**

## **Homebuilder-Installed Renewable Energy Facility**

**OAR 330-090-0110(36)**

**(36) "Homebuilder Installed Renewable Energy Facility"** is defined in ORS 469.185(9). The amount of the tax credit for homebuilder-installed renewable energy facilities shall be capped at \$9,000 per high performance home. For purposes of this section, renewable energy resource facilities may include: photovoltaic, solar domestic water heating, active solar space heating, passive solar, and ground source heat pumps. The following requirements must be met:

- (a) **Photovoltaic:** The credit amount is based on \$3 per watt of installed capacity as determined by the Department. Eligible installations have a Total Solar Resource Fraction of at least 75 percent using the Total Solar Resource Fraction (TSRF) method as described in the Business Energy Tax Credit (BETC) application. Installations must be verified by a Tax Credit Certified Solar PV Technician. This verification must cover performance, longevity, and proper documentation of the facility design, operation and maintenance. Installers must provide a warranty covering all parts and labor for two years.
- (b) **Solar domestic water heating:** The credit amount is equal to \$0.60 per kWh saved annually. The savings are based on values published by the Solar Rating and Certification Corporation (SRCC) plus 100 kWh, which are added to represent Oregon water heating loads. Solar thermal domestic water heating installations must have a Total Solar Resource Fraction (TSRF) of at least 75 percent and be designed to provide no less than 25 percent but not more than 70 percent of the annual domestic water heating load. Installations must be OG-300 certified. Installations must be verified by a solar thermal Tax Credit Certified Technician. This verification must cover performance, longevity, and proper documentation of the facility design, operation and maintenance. Installers must provide a warranty covering all parts and labor of the facility for two years.
- (c) **Active solar space heating:** The credit amount is equal to \$0.60 per kWh saved based on a calculation procedure approved by Department staff. Active solar space heating installations must demonstrate a whole building annual energy savings of at least 15 percent to be eligible. Installations that combine space heating and domestic water heating are allowed providing that the solar storage tank is not heated by a backup heat source (e.g. gas or electric water heater). Installations must be verified by a solar thermal Tax Credit Certified Technician. This verification must cover performance, longevity, and proper documentation of the facility design, operation and maintenance. Installers must provide a warranty covering all parts and labor of the facility for two years.
- (d) **Passive solar:** The credit amount is equal to \$600 per home plus \$0.60 per square foot of heated floor space. Passive solar design strategies must demonstrate a whole building annual energy savings of at least 20 percent to be eligible. This can be achieved by either meeting the prescriptive requirements for a passive solar home under the residential energy tax credit or demonstrated with whole building energy modeling and certified by a professional engineer.
- (e) **Ground source heat pumps:** Ground source heat pumps must have a coefficient of performance (COP) of 3.5 or greater. The savings is based on the incremental savings over the energy savings provided by the ground source heat pump with a COP of 3.0. The credit amount is equal to \$0.60 per kWh saved.
- (f) **Other:** Other renewable energy resource facilities (e.g. wind turbines, fuel cells) will be evaluated on a case-by-case basis and the credit amount will be equal to \$0.60 per kWh saved. Facilities must be connected to home's main service panel and installers must provide a warranty covering all parts and labor of the facility for two years.



# High Performance Home

OAR 330-090-0110(35)

**(35) "High Performance Home"**: Meets the criteria in ORS 469.185(8) and 469.197 and is a home that is a dwelling unit constructed by a licensed builder under the Oregon Residential Specialty Code with its own space conditioning and water heating facilities and intended for sale to an end-use homebuyer. The facility must meet the following requirements:

- (a) Shall be certified through the ENERGY STAR® Homes Northwest program.
- (b) Designed and constructed to reduce net purchased energy through use of both energy efficiency and on-site renewable energy resources;
- (c) Meet the criteria established for a high-performance home under ORS 469.197
- (d) The building shell shall be constructed to at least the minimum values specified in the following prescriptive path:
  - (A) Ceilings:  $U \leq 0.030$
  - (B) Walls: above grade  $U \leq 0.050$
  - (C) Walls: below grade  $U \leq 0.060$
  - (D) Floors: above grade  $U \leq 0.025$
  - (E) Floors: on grade, [slab edge] perimeter R-15 min. 2 feet vertical or combined vertical/horizontal – heated slab also requires R-10 foam board under slab.
  - (F) Windows and glass doors:  $U \leq 0.32$  (weighted average). Exception: solar glazing that is part of a passive solar design may have a higher U-factor. Glass doors are doors that contain 50 percent or more glazing.
  - (G) Glazing area: glazing to floor area ratio  $\leq 16$  percent (including windows, skylights, and glass doors considered as glazing in the code) for homes larger than 1,500 square feet of conditioned space floor area and  $< 18$  percent for homes 1,500 square feet of conditioned space floor area and smaller.
  - (H) Shell tightness: 5.0 ACH50 Pa confirmed by blower door test
- (d) HVAC system and air ducts shall be incorporated into conditioned space, or eliminate forced-air ductwork.
- (e) Space conditioning equipment shall meet the eligibility requirements listed in (21)(c)(C).
- (f) A Renewable Energy Facility shall provide on-site energy savings or generation of not less than 1kWh/yr per square foot of conditioned floor space.
- (g) Water heating systems shall meet ENERGY STAR® Homes Northwest specifications including secondary water heating equipment that backs up solar domestic water heating facilities.
- (h) Includes at least one of the following measures:
  - (A) Obtain certification through a Green Building program recognized by the Department.
  - (B) Meet ENERGY STAR Homes Northwest Builder Option Package #2 ventilation specifications through the use of a heat or energy recovery ventilator, except that the sensible recovery efficiency shall be  $> 50$  percent at 32°F and the EUI shall be  $< 1.5$  Watts/cfm.
  - (C) Use a gas or propane water heater with a minimum EF of 0.80 for primary water heating. The water heater may not also be used for space heating or as the backup to a solar water heating facility to be considered a qualifying measure under this section.
- (I) A High performance home may meet a package of alternate shell or HVAC measures that are equivalent to these requirements. Shell measures may be increased to offset HVAC efficiency, however HVAC measures may not be used to reduce minimum shell requirements.
  - (a) Shell measures shall be a combination of assemblies that together have a total  $U \times A$  no higher than a base case home described in section (C)(c), above. Trade-offs will be evaluated according to the thermal trade-off procedure in Oregon Residential Specialty Code Chapter 11, Energy Efficiency, Table N1104.1(1).
  - (b) Mechanical facilities will be evaluated for comparable annual energy use.