

DEPARTMENT OF ENERGY
DIVISION 70
TAX CREDIT ELIGIBILITY CRITERIA FOR
RESIDENTIAL ALTERNATIVE ENERGY DEVICES

330-070-0010

Purpose

- (1) The department will grant or deny tax credits in accordance with ORS 469B.100 through 469B.118 and ORS 316.116 which allow tax credits for Alternative Energy Devices (AEDs).
- (2) These rules establish the criteria and standards for issuance of tax credits for AEDs. None of these rules replace any building code requirements.
- (3) All decisions made by the department regarding AED eligibility, approval of tax-credit technician status, complaints regarding performance of tax-credit technicians, revocation of tax-credit technician status and other matters relating to the administration of this program after the effective date of these rules will be made consistent with the criteria and standards contained in these rules.
- (4) The amendments to these rules apply to AEDs purchased on or after January 1, 2015.

330-070-0013

Definitions

For the purposes of Oregon Administrative Rules, Chapter 330, Division 70 the following definitions apply unless the context requires otherwise:

- (1) “Active Solar Heating” -- A solar system that uses air or water that is moved by pumps or fans to collect, store and distribute the sun's energy to a dwelling or part of a dwelling.
- (2) “AHRI” -- Air-Conditioning, Heating, and Refrigeration Institute.
- (3) “Alternative Energy Device” (AED) -- A device or system that reduces the amount of conventional energy used by a dwelling.
- (4) “Alternative Fuel” -- Any fuel other than gasoline or diesel oil such as electricity, natural gas, ethanol, methanol, propane, and any other fuel approved by the Director.
- (5) “Alternative Fuel Device” -- A facility for mixing, storing, compressing or dispensing fuels for alternative fuel vehicles, and any other necessary and reasonable equipment. Does not include the purchase of an alternative fuel vehicle.
- (6) “Annual Fuel Utilization Efficiency” (AFUE) -- An efficiency descriptor of the ratio of annual output energy to annual input energy as developed in accordance with the requirements of the U.S. Department of Energy 10 CFR Part 430.

- (7) “Applicant” -- An individual, estate or trust subject to tax under ORS chapter 316, who applies for a residential energy tax credit under this division of rules.
- (8) “ASHRAE” -- American Society of Heating, Refrigerating and Air-Conditioning Engineers.
- (9) “Auxiliary” – For ductless heat pump installations means adding to a previously underconditioned space which has been converted to be part of the residential dwelling.
- (10) “Btu” -- British Thermal Unit. A unit of energy. One Btu is the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.
- (11) “Coefficient of Performance” (COP) -- Is the measurement of how efficiently a heating or cooling system (particularly a heat pump in its heating mode) will operate at a given outdoor temperature condition. The ratio calculated by dividing the usable output energy by the electrical input energy. Both energy values must be expressed in equivalent units.
- (12) “Consumer Disclosure” – A department approved form completed by the Tax Credit Technician and provided to the buyer of AEDs, except for energy-efficient appliances and alternative fuel devices, including estimated energy savings of the AED, required conservation items, required maintenance and freeze protection information.
- (13) “Department” – The Oregon Department of Energy.
- (14) “Direct Vent Gas Fireplace” – Direct vent sealed combustion natural gas or propane fireplace that takes combustion air directly from outside through a dedicated air inlet and vents combustion products directly outside.
- (15) “Domestic Water Heating” – Has the meaning provided in ORS 469B.100. Domestic water heating does not include space heating systems.
- (16) “Ductless Mini-split Heat Pump” -- An air-source heat pump consisting of an outdoor unit connected directly to one or more indoor units and conditioned air is delivered directly to the room or zone of a home rather than through a central furnace.
- (17) “Dwelling” -- Has the meaning provided in ORS 469B.100.
- (a) Dwelling includes, but is not limited to, a single-family residence or an individual unit within multiple unit residential housing.
- (b) Dwelling does not include a mobile home or recreational vehicle as defined in ORS 446.003.
- (18) “Energy Efficiency Ratio” (EER) -- Energy Efficiency Ratio is a measure of how efficiently a cooling system will operate when the outdoor temperature is at a specific level (usually 95°

F). EER is calculated by dividing the cooling capacity in Btu per hour (Btu/hr) by the power input in watts at any given set of rating conditions, expressed in Btu/hr per watt.

- (19) “Energy-Efficient Appliance” -- Has the meaning provided in ORS 469B.100, which includes emerging technologies that exceed code or standards as specified in ORS 469B.100 and these rules.
- (20) “Energy Factor” (EF) -- Energy Factor is a metric used to compare relative efficiencies of water heaters. The higher the EF is, the more efficient the water heater. EF is determined by the USDOE test procedure, Code of Federal Regulations, Title 10, Section 430.
- (21) “Energy Recovery Ventilator” (ERV) -- A device or system designed and installed to provide balanced fresh air ventilation for homes with the ability to transfer energy from the outgoing air stream to the incoming air stream that is also capable of at least 30 percent Latent Recovery/Moisture Transfer (LRMT) at 32 degrees F when operating at the lowest fan speed.
- (22) “EUI (H/ERV)” -- The Energy Use Index for an HRV or ERV, used to determine its electric efficiency, and calculated by dividing a model's power consumption, in watts, by the net supply air delivered, in cubic feet per minute (cfm), while the unit is operating in the lowest speed for which performance data is provided in the Home Ventilating Institute (HVI) Directory.
- (23) “Fireplace Efficiency (FE)” -- A measure of a natural gas or propane fireplace’s energy efficiency performance over an entire heating season and is expressed as a percentage. The higher the rating, the more efficient the unit. The testing method used to establish Fireplace Efficiency is CAN/CSA-P.4.1-09 (R2014).
- (24) “First Year Energy Savings” -- First year energy yield as defined in ORS 469B.100. Energy savings is calculated under average conditions by an AED in 12 consecutive months of typical operation.
- (25) “Fuel Cell Stack” -- The portion of a fuel cell system where the electrochemical reactions take place, generally consisting of an anode, an electrolyte, and a cathode and supporting systems bringing fuel to the stack and carrying away the electricity, electrochemical products and thermal energy generated.
- (26) “Fuel Cell System” -- A system for producing electricity electrochemically and non-reversibly, using a hydrogen rich fuel and oxygen, and producing an electric current, water, and thermal energy.
- (27) “Geothermal System” -- A heating and air-conditioning system, earth-coupled heat pump, geothermal heat pump or ground loop AED.

- (28) “Heat Recovery Ventilator” (HRV) -- A device or system designed and installed to provide balanced fresh air ventilation for homes with the ability to transfer energy from the outgoing air stream to the incoming air stream.
- (29) “Heating Season Performance Factor” (HSPF) -- The measurement of how efficiently a heat pump will operate in a heat mode over an entire normal heating season. HSPF is measured according to test procedures defined by AHRI in its Standard 210/240 as well as ASHRAE Standard 116 and the USDOE Test Procedure in 10 CFR; Part 430, Appendix M.
- (30) “Ineligible Costs” – Costs not allowed for determining the tax credit, including, but not limited to, finance charges, maintenance costs, service contracts, or extended warranty.
- (31) “kWh” -- Kilowatt-hour is a unit of electrical energy as a product of power used (in kilowatts) and the time (in hours); 1 kWh = 3413 Btu for purposes of department calculations.
- (32) “Latent Recovery Moisture Transfer” (LRMT) -- In an HRV or ERV, moisture recovered to the ventilation supply air stream divided by moisture being exhausted, corrected for cross leakage, if any. LRMT = 0 would indicate that no exhausting moisture is recovered for the incoming supply air stream. LRMT = 1 would indicate that all exhausting moisture is recovered for the incoming supply air stream.
- (33) “MM or M” -- Million.
- (34) “OG” -- Operating guidelines developed by the Solar Rating and Certification Corporation (SRCC) including system performance or component characteristics defined by SRCC in its directory.
- (35) “Operational Date” – The date when final inspection is completed by a local jurisdiction for an AED and the AED is fully operational.
- (36) “Owner-Built” -- An AED that is assembled and installed on an owner's property and with an owner's labor only.
- (37) “Passive” -- A solar AED that relies on heated liquid or air rising to collect, store and move heat without assistance from any mechanical devices.
- (38) “Passive Solar Space Heating” -- A system or building design that collects and stores solar energy received directly through south facing windows. The system/design is without powered moving parts and includes provisions to collect, store and distribute the sun's energy using only convection, radiation and conduction of energy.
- (39) “Pass-through Amount” -- The sum, equal to the present value of the credit, paid to an eligible AED owner in exchange for the right to claim the tax credit. The present value of the tax credit will be determined periodically by the Director.

- (40) “Pass-through Partner” -- An individual, estate or trust subject to tax under ORS chapter 316 that pays the pass-through amount to an applicant and receives the tax credit in place of the applicant.
- (41) “Pass-through Verification” – A determination based on information collected by the department that the approved pass-through amount has been provided, that the applicant has relinquished any claim to the tax credit and has assigned the credit to the pass-through partner.
- (42) “Photovoltaic System” -- A complete solar electric power system capable of delivering power to either the main or sub-panel in a dwelling. Necessary components include solar electric modules, inverter, mounting system, and disconnection equipment.
- (43) “PowerClerk” -- An online incentive application processing tool used in processing residential photovoltaic system applications.
- (44) “Premium Efficiency Biomass Combustion Device” -- Any device that burns wood, compressed wood or other non-gaseous or non-liquid solid fuels of 100 percent organic origin for aesthetic or space-heating purposes.
- (45) “Purchase Date” – The date when the first down payment is made by the applicant on a contract or invoice for an AED. The applicant must provide confirmation of the purchase date to the department.
- (46) “Sealed Duct System”-- A forced air duct system that has been repaired or constructed for premium efficiency. For purposes of the tax credit, sealed duct systems are considered energy-efficient appliances.
- (47) “Sensible Recovery Efficiency” (SRE) -- In an HRV or ERV, the measurable (sensible) energy recovered to the ventilation supply air stream minus supply fan and preheat coil energy use divided by the total sensible energy being exhausted plus exhaust fan energy. This measure of efficiency accounts for the effects of cross leakage between air streams, purchased energy for fan controls, and defrost system energy use.
- (48) “Solar Domestic Water Heating System” -- Any configuration of plumbing equipment and components to collect, convey, store and convert the sun’s energy for the purpose of heating water.
- (49) “Solar Electric AC Module” -- A solar photovoltaic module coupled with a utility interactive inverter (i.e. micro inverter). The combined system must be Underwriters Laboratory (UL) listed and meet all current Institute of Electronic and Electrical Engineers (IEEE) 929 requirements.
- (50) “Solar Labor Costs” -- Labor necessary for the installation of a solar powered AED.

- (51) “Solar Material Costs” – Includes all parts necessary for the installation of a solar powered AED.
- (52) “Solar Site Assessment Worksheet” -- A form or report issued or approved by the department, and completed, signed and dated by a tax-credit technician demonstrating the Total Solar Resource Fraction (TSRF) at the site of the solar thermal collector(s) or PV array. The worksheet must represent the point on the array with the lowest TSRF, depict whether any plant life near the array is made up of evergreen or deciduous trees and estimate the effects of 20 years future plant growth.
- (53) “SRCC” -- Solar Rating and Certification Corporation.
- (54) “Standard Test Conditions” (STC) -- As applicable to photovoltaic panels, 25 degrees Celsius cell temperature and 1000 watts per square meter (W/m²).
- (55) “Storage Gas Water Heater” – A storage type unit, which heats and stores waters within the appliance at a thermostatically controlled temperature for delivery on demand.
- (56) “System Certification” -- Certification that an AED as described in an application for tax credit meets all criteria for the tax credit.
- (57) “System Cost” –Costs allowed for determining the tax credit, include material cost, labor cost, and costs for design and acquisition.
- (58) “Tax-Credit Technician” (TCT) -- means a person who has received a “contractor system certification” as used in ORS 469B.106(5). A technician who has been approved by the department to implement the tax credit program. A tax-credit technician is responsible for assuring that AEDs are installed in accordance with the department’s rules and must verify system installation quality and performance.
- (59) “Third-party” -- means the owner, or the owner’s representative, of the alternative energy device for the duration of the third-party agreement.
- (60) “Third-party alternative energy device installation” -- has the definition given in ORS 469B.100.
- (61) “Total Solar Resource Fraction” (TSRF) -- The fraction of usable solar energy that is received by the solar panel/collector throughout the year, which accounts for impacts due to external shading, collector tilt and collector orientation.
- (62) “Uncertified Woodstove” -- A solid fuel burning device that burns wood, coal or other nongaseous or non-liquid fuels for aesthetic, space-heating or water heating purposes that has not been certified as meeting emission performance standards set by the U.S. Environmental Protection Agency.

- (63) “Used Equipment” -- Any product or any piece of equipment not under a current manufacturer’s warranty or which has been acquired by a previous owner or user.
- (64) “Wastewater Heat Recovery Device” -- A device designed to recover thermal energy from household wastewater streams for the purpose of returning a portion of this energy to the dwelling's domestic hot water system.
- (65) “Wind AED” -- A qualifying wind energy conversion system that uses wind to produce mechanical or electrical power or energy, including turbines, towers and their associated components needed to form a complete system.

330-070-0014

Pass-Through Eligibility

- (1) An individual, estate or trust subject to tax under ORS chapter 316 that pays the present value to purchase the approved tax credit from the applicant may be eligible to claim the tax credit in place of the applicant.
- (2) In accordance with ORS 469B.106(10) the department establishes the following rates for calculating the present value of the tax credit:
 - (a) For tax credits greater than \$1,500 the present value is 90 percent of the tax credit amount.
 - (b) For tax credits less than \$1,500 the present value is 95 percent of the tax credit amount.
- (3) The department will issue a credit certificate to the pass through partner when the applicant confirms receipt of an amount equal to the present value of the tax credit and relinquishes any claim to the credit.
- (4) A tax credit may be transferred or sold only once.
- (5) A tax credit may not be transferred in portions. Only the whole tax credit amount may be transferred.

330-070-0020

Eligibility

- (1) To qualify for a credit, a person must meet all of the following:
 - (a) Be subject to Oregon personal income tax.
 - (b) Purchase an AED, complete construction, install an AED in an Oregon dwelling, and obtain a certification in accordance with OAR 330-070-0010 through 330-070-0097.

- (c) Be the owner or contract buyer of an Oregon dwelling served by the AED, or be a tenant of the dwelling owner:
 - (A) Use the dwelling as a primary or secondary residence; or
 - (B) Rent or lease the dwelling to a tenant who uses the dwelling or dwellings as a primary or secondary residence.
- (2) Notwithstanding (1)(b), a residential property owner may qualify for a credit for an AED that is a third-party alternative energy device installation by meeting the following additional requirements:
 - (a) Installations must include a minimum 10-year agreement between the residential property owner and the third-party owner of the AED. The agreement must cover maintenance of the AED and either the use of the AED or the power generated by the AED for the entire length of the agreement.
 - (b) The third-party must comply with OAR 330-070-0029.
 - (c) The applicant must provide system cost information for third-party AED installations. System cost can be demonstrated by providing either a copy of an invoice for the purchase of the AED by the third-party owner, or a declaration from the third-party owner of representative market value for an AED that includes the costs of supply and installation. Such a declaration must include a list of primary system components and their pricing, itemizing material pricing separately from installation pricing.

330-070-0021
Eligible Devices

- (1) To be eligible for a tax credit, an AED must meet all of the following:
 - (a) Be a complete system that is currently operating and meets these rules.
 - (b) Be a system that is built, installed, and operated in an Oregon dwelling in accordance with ORS 469B.100 through 469B.118, the AED manufacturer's instructions and all applicable codes and standards.
 - (c) Be a system with manufacturers' warranties against defects in products and materials, including remanufactured equipment.
 - (d) Be a system that complies with general and specific standards in these rules as they apply to AED systems and listed in OAR 330-070-0059 through OAR 330-070-0097.
 - (e) Be a single system, which must be fully functional without the assistance of or component sharing with another system. Regardless of the number of components, a system must be controlled and able to distribute its result separate of any other system. Two or more units

that share controls, a ductwork distribution system or hydronic distribution system will be considered a single system. This subsection does not apply to category two alternative energy devices.

- (2) The following devices are not eligible for an AED tax credit, including those listed in ORS 469B.112:
- (a) Standard efficiency furnaces;
 - (b) Standard back-up heating systems;
 - (c) Wood stoves or wood furnaces, or any part of a heating system that burns wood except a qualifying premium efficiency biomass combustion device;
 - (d) Heat pump water heaters that are part of a geothermal heat pump space heating system;
 - (e) Structures that cover or enclose a swimming pool and are not attached to the dwelling;
 - (f) Swimming pools and hot tubs used to store heat;
 - (g) Photovoltaic systems installed on recreational vehicles;
 - (h) Additions to existing spa and hot tub systems;
 - (i) Above-ground, uninsulated swimming pools, spas and hot tubs;
 - (j) Conversions of systems from one type to another. An example is a conversion of a draindown solar hot water system to a drainback solar hot water system;
 - (k) Used equipment, not including remanufactured equipment that meets program standards;
 - (L) Repairs and maintenance of systems having received prior certification for an AED tax credit;
 - (m) Hydro systems;
 - (n) Wind systems that are used to heat or cool buildings, or to heat domestic, swimming pool or hot tub water;
 - (o) Systems or projects that received certification under the Energy Incentives Program or the Business Energy Tax Credit program;
 - (p) Air Conditioning Systems;
 - (q) Boilers;

- (r) Dishwashers;
- (s) Refrigerators and Freezers;
- (t) Clothes Washers and Dryers; and
- (u) Photovoltaic systems participating in the pilot Feed-In Tariff program under ORS 757.365.

330-070-0022

Amount of Tax Credit

- (1) The amount of the AED tax credit is based on the first-year energy savings of an eligible AED. The department has determined first-year energy savings estimates for eligible AEDs and associated tax credit amounts, which are listed in the RETC Rate Chart. The energy savings basis for a solar tax credit may be adjusted by the department to account for less than optimal solar access.
- (2) The amount of the AED tax credit must not exceed the lesser of:
 - (a) For AEDs used for space heating, cooling, electrical energy or domestic water heating, \$1,500 or the first-year energy savings of the AED in kWh multiplied by 60 cents. The amount of the credit may not exceed 100 percent of the cost of the system components and their installation. Only one tax credit for ground source heat pump systems will be issued per year per residence.
 - (b) For AEDs used for swimming pool, spa or hot tub heating, the first-year energy savings of the AED in kWh multiplied by 15 cents, up to 50 percent of the eligible cost of the AED or \$1,500.
 - (c) For each alternative fuel device, 25 percent of the eligible cost of the alternative fuel device or \$750.
 - (d) For fuel cell systems, \$3.00 per watt of the installed capacity or \$6,000, and not to exceed 50 percent of the cost of the system. One tax credit may be issued per year, per residence, and the maximum credit claimed per year will not exceed \$1,500.
 - (e) For wind AEDs, the first-year energy savings of the AED in kWh multiplied by \$2.00, not to exceed the lesser of \$6,000 or 50 percent of the cost of the system. One tax credit may be issued per year, per residence, and the maximum credit claimed per year will not exceed \$1,500, over a four year period.
 - (f) For premium efficiency biomass combustion devices, the average heating need times the stove efficiency improvement times 60 cents, up to \$1,500. The department will use the EPA default efficiency as of January 1, 2015 when calculating the stove efficiency improvement for:

- (A) Wood or pellet stoves without full efficiency testing listed on the EPA list of EPA Certified Wood Heaters,
 - (B) Wood or pellet stoves without full efficiency testing with the testing data submitted and approved by EPA, or
 - (C) Pellet stoves on the List of EPA Exempt Wood Heating Appliances that submitted testing certificates to the department.
- (3) For photovoltaic systems:
- (a) On or after January 1, 2012 and before January 1, 2014, the credit allowed under this section is equal to \$2.10 per watt of the installed capacity measured in watts of direct current at industry standard test conditions; the tax credit is claimed according to OAR 330-070-0024.
 - (b) On or after January 1, 2014 and before January 1, 2015, the credit allowed under this section is equal to \$1.90 per watt of the installed capacity measured in watts of direct current at industry standard test conditions; the tax credit is claimed according to OAR 330-070-0024.
 - (c) On or after January 1, 2015, the credit allowed under this section is equal to \$1.70 per watt of the installed capacity measured in watts of direct current at industry standard test conditions; the tax credit is claimed according to OAR 330-070-0024.
 - (d) A maximum of one credit valued at \$6,000 is allowed per residence, per AED. The maximum amount of credit allowed per year, beginning in the year in which the AED was installed, is \$1,500 per year over a four-year period. The total credit may not exceed 50 percent of the cost of the system as defined in OAR 330-070-0022(4). All photovoltaic systems installed at a dwelling within a 5 year period will be considered a single device.
- (4) The amount of the tax credit may not exceed the system cost of the AED to the applicant. The sum of any rebates or cash payments, including public purpose organization or federal grants or credits and the residential energy tax credit may not exceed system costs.
- (5) For purposes of the tax credit, the cost of the AED must:
- (a) Comply with OAR 330-070-0060 through 330-070-0097, as those rules apply;
 - (b) Be the system cost of acquiring the system.
 - (A) AEDs using an alternative energy source for only a part of their energy output or savings will have system cost prorated. System cost must be based on that part of the AED's energy output or savings that is due to the alternative source;

- (B) The department may find an AED to be too large for a dwelling. In such case the system cost must be prorated. System cost must be based on the largest useful size of an AED for the dwelling. The department will determine largest useful size based on the energy needs of the building; and
 - (C) The amount of credit for the original system and any addition may not exceed \$1,500 per year.
- (6) For purposes of the tax credit, the eligible system cost of the AED is only those costs necessary for the system to yield energy savings or produce renewable energy such as:
- (a) The cost to purchase the AED.
 - (b) The cost of materials directly associated with installation or construction of the AED.
 - (c) For solar thermal systems, the cost of solar collectors; thermal storage devices; monitors, meters and controls; photovoltaic devices used to supply electricity to parts of the system; installation charges; fees paid for design or building; and ductwork, piping, fans, pumps and controls that move heat from solar collectors to storage and to heat buildings.
 - (d) For solar photovoltaic systems, solar labor costs and solar material costs including photovoltaic modules; inverters; storage systems and regulators; monitors, meters, and controls; wiring and framing materials; trackers; mounting or racking structures only, no structures beyond those needed for mounting or racking purposes; shipping; and for owner-built system inspections by a tax-credit technician, up to \$400; permits and fees.
 - (e) For wind systems, the cost of wind turbine generators; DC/AC converters, inverters and synchronous inverters; energy storage (batteries or other methods); tower, foundation and guys; electric transformers and lines and supports; safety equipment; up to \$500 of wind permitting cost; windmills; pumps, linkage, pump heads, and vacuum chambers; and obtaining a project site specific computer model wind speed estimate from a nationally recognized service as approved by the department, not to exceed \$100.
- (7) Eligible system cost do not include:
- (a) Unpaid labor (including the applicant's labor);
 - (b) Operating and maintenance costs;
 - (c) Land costs;
 - (d) Legal and court costs;
 - (e) Patent search fees;

- (f) Fees for use permits or variances;
- (g) Loan interest;
- (h) Vendor rebates, discounts and refunds;
- (i) Service contracts;
- (j) Cost of moving a used AED from one site to another;
- (k) Cost of repair or resale of a system;
- (L) Any part of the purchase price which is optional, such as an extended warranty; or
- (m) Support structures beyond the mounting or racking hardware necessary for securing equipment.

[Publications: Publications referenced are available from the agency.]

330-070-0024
Year Credit Claimed

- (1) The tax credit must be claimed pursuant to ORS 316.116 (or ORS 317.115, if applicable).
- (2) The tax credit allowed in any one year may not exceed a person's tax liability for that year. Unused credit may be carried forward for a maximum of 5 years as allowed under ORS 316.116.
- (3) The tax year for which the tax credit may be claimed is determined by the operational date of the AED:
 - (a) If the operational date of the AED is before April 1 of the tax year following the year it was purchased, then the tax credit must be claimed for the tax year in which the AED was purchased. Proof of purchase is established using the "Purchase Date" as defined in OAR 330-070-0013.
 - (b) Otherwise, the tax credit must be claimed for the tax year in which the AED became operational. Proof of operation is established using the "Operational Date" as defined in OAR 330-070-0013.

330-070-0025
Application for System Certification

- (1) Applicants for a tax credit must obtain a system certification from the department.
- (2) All applications for a system certification must meet all of the following:

- (a) Provide all requested information and include a statement that the system and technician or owner-builder will meet all federal, state and local requirements.
 - (b) Include the applicant's social security number for use as an identification number in maintaining internal records. The applicant's social security number may be shared with the Department of Revenue to establish the identity of an individual in order to administer state tax law.
 - (c) State:
 - (A) The system cost of the AED;
 - (B) The location of the AED; and
 - (C) That the applicant has received an operating manual for the AED, except that no operating manual is required for sunspaces or direct gain space heating systems.
 - (d) Include an agreement by the tax-credit technician to make any changes required by the department for the system to comply with ORS 469B.100 through 469B.118 and 316.116.
 - (e) Be signed by the applicant and tax-credit technician, if any. Alternatively, a form of electronic signature acceptable to the department may be provided.
 - (f) Include no false or misleading information about an AED.
 - (g) For third-party installations, include a valid reference number as issued to the third-party by the department under OAR 330-070-0029.
 - (h) The contractor's certification that the AED was installed in accordance with manufacturer's installation specifications and all applicable codes and standards.
- (3) System certification applications for solar water heating AEDs must contain:
- (a) All the data required in section (2);
 - (b) The number of collectors;
 - (c) The manufacturer and/or supplier;
 - (d) The collector dimensions and/or the net area of the collectors;
 - (e) The amount of heat storage;
 - (f) The system type;

- (g) A declaration of SRCC Standard 300 certification status or equivalence, as determined by the department;
 - (h) The system model;
 - (i) A description of the orientation and tilt of the collector;
 - (j) A solar site assessment worksheet for the collector location;
 - (k) A Consumer Disclosure signed by the applicant and technician or supplier, if any; and
 - (L) Other data the department requires to determine eligibility.
- (4) System certification applications for active solar space heating AEDs must contain:
- (a) All the data required in sections (2) and (3) of this rule;
 - (b) A heat loss estimate for the home;
 - (c) The type and amount of thermal storage;
 - (d) A solar site assessment worksheet for the collector location; and
 - (e) Other data the department requires to determine eligibility.
- (5) System certification applications for passive solar space heating AEDs must contain:
- (a) All the data required in section (2) above;
 - (b) A copy of the building permit plans;
 - (c) A copy of the window specifications used;
 - (d) The type and amount of thermal storage;
 - (e) A solar site assessment worksheet taken at the center of the solar glazing; and
 - (f) Other data the department requires to determine eligibility.
- (6) System certification applications for photovoltaic AEDs must contain:
- (a) The data required in section (2);
 - (b) Retail customer pricing information for:

- (A) Total project labor, and
 - (B) Total project materials;
 - (c) The number of modules;
 - (d) The brand name of the module(s);
 - (e) The rated DC output in watts of the module(s) under Standard Test Conditions (STC);
 - (f) A description of the storage provided if storage is a part of the system;
 - (g) Storage brand and model;
 - (h) Storage capacity in kWh;
 - (i) The brand name of the inverter if an inverter is part of the system;
 - (j) The capacity of the inverter;
 - (k) The Total Solar Resource Fraction (TSRF);
 - (L) Other data the department requires to determine eligibility;
 - (m) The permit number and date of final inspection from the applicant's local jurisdiction;
and
 - (n) All applications submitted by a tax-credit technician (TCT) after June 1, 2015, must be submitted through PowerClerk.
- (7) System certification applications for geothermal systems must contain:
- (a) All the data required in section (2) of this rule;
 - (b) For all systems connected to a well, data on the well including:
 - (A) Depth;
 - (B) Diameter (cased);
 - (C) Temperature;
 - (D) Static water level below grade;
 - (E) A copy of the well driller's log, if available; and

- (F) Other data the department requires to determine eligibility.
- (c) For systems connected to a heat pump:
- (A) Brand name and model number of the heat pump;
 - (B) Rated output at the entering water temperature;
 - (C) Estimated system COP rated by AHRI under ANSI/AHRI/ASHRAE/ISO Standard 13256-1, at an entering water temperature of 50 degrees Fahrenheit; and
 - (D) Any other data the department requires to determine eligibility.
- (d) For geothermal systems:
- (A) All the information in subsection (7)(b) of this rule;
 - (B) Brand name, rated output, estimated COP;
 - (C) Length and depth of the loop;
 - (D) Materials and spacing used;
 - (E) Type of heat transfer fluid; and
 - (F) Other data the department requires to determine eligibility.
- (8) System certification applications for energy-efficient appliances must contain:
- (a) All the data required in section (2) of this rule;
 - (b) The brand name, make, model number, capacity and/or size of the appliance;
 - (c) A signed copy of the sales agreement, which must include all of the following:
 - (A) Verification of applicant's name and address;
 - (B) Verification of model of appliance; and
 - (C) Verification of actual price paid for appliance.
 - (d) Certification of new equipment warranty
 - (e) For air source ducted heat pumps systems and furnace systems a description of the distribution system; and

(f) Other data the department requires to determine eligibility.

(9) System certification applications for alternative fuel devices must contain:

- (a) Taxpayer's name;
- (b) Taxpayer identification or social security number;
- (c) Installation location by street address;
- (d) The name of the licensed and bonded company employing the technician;
- (e) The employing company's business location;
- (f) The brand name, make, model number, or component list of the alternative fuel device;
- (g) A signed copy of the sales agreement, which will include all of the following:
 - (A) Verification of applicant's name and address;
 - (B) Verification of model of, or components used for alternative fuel device; and
 - (C) Verification of actual price paid for the alternative fuel device.
- (h) Certification of new equipment warranty; and
- (i) Other data the department requires to determine eligibility.

(10) System certification applications for fuel cells must contain:

- (a) All of the data required in section (2) of this rule;
- (b) The rated fuel cell stack peak capacity, in kW;
- (c) The rated fuel cell system peak capacity, in kW (this rating includes peak capacity enhancing devices such as batteries and other storage devices or systems);
- (d) Whether or not the system is grid connected;
- (e) The fuel used by the system;
- (f) The type of fuel stack (PEM, PAFC, SOFC, etc.);
- (g) An estimate of the average load, in kW, expected to be placed on the system;

- (h) The thermal energy production rate, in Btu/hour, at peak capacity and at the average load specified in (10)(f) above;
 - (i) Whether or not the system has provisions for thermal heat recovery, and if so, where the thermal energy is designed to be used (domestic hot water, space heating, etc.); and
 - (j) Other data the department requires to determine eligibility.
- (11) System certification applications for premium efficiency biomass combustion devices must contain:
- (a) The manufacturer, model, capacity, serial number of the device;
 - (b) The device characteristics, defined as catalytic, non-catalytic, or pellet stove or boiler;
 - (c) Vendor name and address;
 - (d) Price paid for the device, any parts or installation;
 - (e) Efficiency information, as described in OAR 330-070-0073;
 - (f) For replacement of uncertified woodstoves, the applicant must additionally provide:
 - (A) A signed certification from the applicant verifying that the wood burning device being replaced has been rendered unusable, can no longer be used as a heating device, and will be retired permanently from service; and
 - (B) Documentation, in the form of a disposal receipt from a metal recycler, landfill or licensed contractor, verifying that the wood burning device being replaced is an uncertified woodstove and has been rendered unusable; and
 - (g) Other data the department requires to determine eligibility.
- (12) A system certification may be transferred by an applicant who does not qualify for tax relief to the first eligible buyer of the dwelling.
- (13) For a third-party financed system, the application must provide copies of an energy purchase or lease agreement and full service maintenance agreement.

330-070-0026
Tax-Credit Technician

- (1) Technicians may apply for the department's tax-credit technician (TCT) status for a technology listed in section (2) of this section. Tax-credit technician status is intended to assist consumers with the state tax credit program, ensure that the systems are installed

according to department rules, and verify system installation quality and performance. Technician status is valid for two years and must be renewed to remain in effect.

- (2) A tax-credit technician status applies only to the following products:
 - (a) Solar water heating systems;
 - (b) Geothermal systems; and
 - (c) Photovoltaic systems.
- (3) The tax-credit technician's status is based on the following:
 - (a) Knowledge and understanding of the tax credit program requirements and expectations;
 - (b) Ability to provide systems that are designed and installed consistent with the manufacturer's warranty; and
 - (c) Employment by a company with a Construction Contractors Board (CCB) license.
- (4) Those who do not maintain the competencies in section (3) are subject to revocation of the status.
- (5) Tax-credit technician status entitles a technician to:
 - (a) Inform the AED system owner that he or she has attended the department's online training and is familiar with the rules and requirements of the Residential Energy Tax Credit Program.
 - (b) Verify that installation of tax-credit qualified equipment and systems meets department standards for performance and longevity.
- (6) Tax-credit technician status requires that the technicians must follow department requirements including:
 - (a) Solar technicians must show at least one of the following, a valid and current:
 - (A) North American Board of Certified Energy Practitioners (NABCEP) certification,
 - (B) Limited Renewable Energy Technician (LRT) license for solar electric,
 - (C) Solar Thermal License (STL) for solar thermal,
 - (D) Successful passage of the NABCEP Entry-Level Exam for the appropriate AED, or

- (E) Other certification approved by the Director to maintain their tax-credit solar technician status with the department.
- (b) First-time geothermal technician applicants must show proof of successful completion of International Ground Source Heat Pump Association training (IGSHPA) or IGSHPA certified manufacturer's installer training program or other training approved by the Director.
- (c) Solar and geothermal tax-credit technician applicants must complete the department's online training at least once every three years unless otherwise specified in department rule.
- (d) Technicians must verify the AED owner has a user manual for the equipment/system.
- (e) Technicians must provide the AED owner with a completed application and a copy of the final, itemized and dated invoice for the system that is marked "inspected and paid for," And they must verify the owner has a written full warranty for the system that lasts no less than 24 months after the system is installed.
- (f) Technicians must maintain tax-credit technician status by completing the following technology-specific requirements during the period between awarding initial status and the renewal period or between renewal periods:
 - (A) For solar technology:
 - (i) Technicians must:
 - (I) Submit and have approved two (2) Residential or Energy Incentives Program applications for systems in a technology in which the tax-credit technician is listed and complete four (4) hours of related technical continuing education;
 - (II) Submit and have approved one (1) Residential or Energy Incentives Program application for a system in a technology in which the tax-credit technician is listed and complete six (6) hours of related technical continuing education; or
 - (III) Complete eight (8) hours of related technical education.
 - (ii) Technicians must provide information on the number of job hours directly associated with the installation of RETC qualified photovoltaic systems within the prior two years. Job estimates should be submitted in hours.
 - (iii) Technicians are subject to the renewal period on the second year from the year of initial status or renewal year.

- (iv) The two month renewal period begins every year on June 1st and ends prior to August 1st.
 - (v) Proof of related technical continuing education must be provided during the renewal period.
 - (vi) Failure to complete requalification during the renewal period will result in the revocation of TCT status for one year. TCT status may be reinstated during the following year's renewal period.
- (B) For geothermal systems, technicians must submit and have approved a minimum of one (1) tax credit application or provide proof of having completed at least two hours of relevant installer training, community college HVAC course, or other training approved by the Director.
- (7) Tax credits for installation of geothermal systems, solar electric and solar thermal systems must be verified by a tax-credit technician.
 - (8) A tax-credit technician must notify the department within 30 days if changes are made in any of the information in the TCT application.
 - (9) Tax-credit technicians inspect owner-built systems to verify that the system appears to be installed in a workman-like manner. As part of an owner-built inspection, a tax-credit technician is not required to provide a warranty or guarantee of the owner-built system.

330-070-0027

Application Review Process

- (1) The department must review applications for AED tax credit approval. AEDs must comply with OAR 330-070-0010 through 330-070-0097. Specific rules for each type of AED are provided in OAR 330-070-0059 through 330-070-0097.
- (2) The department will return applications that are not complete and will identify the additional information needed.
- (3) The department may require more details to complete its review of an application.
 - (a) If the department requests additional data and does not receive it within 30 days, the department may deny the application.
 - (b) During review, the department may ask for proof that the AED complies the rules. The department may also suggest changes to allow the AED and application to comply with these rules.

- (4) To obtain the information needed to evaluate an application or to verify eligibility and first year energy savings, the department may, with the owner's consent, inspect an installed AED:
 - (a) The department may deny a system certification or request Department of Revenue (DOR) to initiate proceedings for the forfeiture of a tax credit if an owner refuses to allow the department to inspect the AED;
 - (b) The department may require corrections necessary to bring the AED or tax credit application into compliance with the rules to be made within 30 days;
 - (c) If such changes are not made within this time limit, the department may reject the application; and
 - (d) The department may use the results of utility, Energy Trust of Oregon or jurisdictional inspections in lieu of its own inspection.
- (5) The department may reject any application if the AED does not comply with ORS 469B.100 through 469B.118, ORS 316.116 and OAR 330-070-0010 through 330-070-0097. The department will provide an explanation for all rejected applications in writing. Approved requests for lesser cost than claimed by the applicant will also include a written explanation of the basis for the determination.
- (6) If the department rejects an application for system certification or approves a certification for lesser cost than claimed by the applicant, an applicant may appeal the rejection. The appeal must be filed within 60 days of the mailing of the rejection notice by the department, in accordance with ORS 183.310 through 183.500.

330-070-0029

Third-party alternative energy device installations

- (1) A third-party who intends to complete a third-party alternative energy device installation must obtain a reservation before commencing installation.
- (2) The third-party must apply to reserve potential tax credits by submitting a completed reservation request to the department. A reservation request may only be submitted after the owner of the residential property has entered into a contract for a third-party alternative energy device installation. The reservation request must contain the information required by the department on its form or within PowerClerk.
- (3) The department may require the third-party to provide a copy of the signed contract at any time after the submission of a reservation request. Failure to provide requested documents within 30 calendar days may result in the loss of reservations made by the third-party.
- (4) A third-party may reserve no more than 25 potential tax credits in each reservation request application. The following limits on reservation requests also apply:

- (a) A third-party may request the reservation of up to 50 potential tax credits each week.
 - (b) A third-party may request no more than 900 reservations between January 1 and September 30 and may request no more than 1,300 total reservations in a calendar year.
 - (c) The department will not accept reservation request applications once the annual limit in Oregon Laws 2011, chapter 730, section 75 has been reached.
- (5) The department will reserve the requested potential tax credits from the amount allowed by Oregon Laws 2011, chapter 730, section 75 and will provide the third-party with a reference number for each potential tax credit. The owner of the residential property at which the alternative energy device is installed must include the reference number on their tax credit application.
 - (6) A third-party may release a reservation by submitting a written request or notification within PowerClerk, including the reference number, to the department. If reservations are released in the same tax year they are reserved the department will re-allocate the potential tax credits to new reservation requests in the order the requests are received. Reservations of potential tax credits may not be transferred, except to a purchaser or owner of the residential site address where the AED is located.
 - (7) The department will continually monitor the rate of allocation of tax credits to ensure that the total amount of tax credits do not exceed the amounts specified in Oregon Laws 2011, chapter 730, section 75. The department will allocate potential tax credits according to these rules and in the order in which requests are received. The department will return any excess reservation requests. A third-party may not commence installation until a reservation reference number is issued by the department.
 - (8) The department will issue tax credits based on the year the potential tax credit is reserved if the installation is completed, as verified by an approved final inspection issued by the local jurisdiction, before April 1 of the following tax year. Tax credits for installations completed after April 1 of the tax year following reservation will be issued for the tax year in which the installation is completed.
 - (9) Reservation of potential tax credits does not guarantee approval of tax credit applications.

330-070-0040

Other Rules and Regulations

- (1) AEDs must comply with all state, federal and local laws and rules that apply.
- (2) The policy of the department is:
 - (a) To accept the findings of local, state and federal agencies which license or permit projects to be built or run;

- (b) To avoid influencing any of those agencies to approve or deny a license or a permit; and
 - (c) To provide facts from tax credit files to such agencies when asked.
- (3) Each applicant must:
- (a) Obtain each local, state, and federal permit and license that applies to a project;
 - (b) Agree to comply with the express terms and conditions of each permit and license; and
 - (c) Agree to comply with all state rules and laws that apply to the project.
- (4) System certification and tax-credit technician status are based on the applicant's promise that each needed local, state and federal license and permit has been or will be obtained. Failure to obtain those approvals will cause the department certification or status approval to be revoked.
- (5) If any license or permit named in these rules does not apply to the project, the licensing or permitting agency must certify that the license or permit is not required. This does not apply to residential DHW, pool, spa and hot tub systems.
- (6) AED technicians must install all systems in compliance with the system manufacturer's published specifications.
- (7) The department will assign an energy savings for all solar domestic water heating systems. For systems approved by the department that are not SRCC certified, the department will assign an energy savings based on requirements determined comparable to SRCC ratings.

330-070-0045
Enforcement

- (1) Actions that are cause for revocation of a residential alternate energy tax credit:
- (a) A system certification may be revoked pursuant to ORS 469B.118 if the Director finds any of the following:
 - (A) The applicant obtained the system certification as a result of misrepresentation.
 - (B) The AED has not been installed or operated in substantial compliance with the plans, specifications or procedures specified in the application or certificate, such as:
 - (i) Failure to follow applicable standards;
 - (ii) Failure to comply with required codes or obtain required permits or inspections;

- (iii) Return of the AED to the seller or installer for a refund; or
 - (iv) Sale or removal of the device so that it no longer operates on the property of the applicant.
- (C) The applicant refuses to allow the department to inspect the AED after a reasonable written request by the department. A reasonable request must allow applicant to choose a day within three weeks of the request from the department.
- (b) Following revocation, the applicant will forfeit the tax credit, and the Oregon Department of Revenue will proceed to collect any taxes not paid by the taxpayer because of this credit.
- (2) A technician's tax credit status may be revoked pursuant to ORS 469B.118 if the Director finds that:
- (a) The system or tax-credit technician status was obtained by fraud or misrepresentation by the technician. The Director may find that fraud or misrepresentation occurred if false statements were made regarding the technician's licenses held, products or warranties carried by the tax-credit technician's employing company, the company's range of product cost, personnel employed in the business, or any other item in the application for technician tax credit status as defined in OAR 330-070-0026.
 - (b) The technician's performance regarding sales or installation of the alternative energy device for which the technician is issued a tax credit certificate under ORS 469B.106 does not meet industry standards. The Director may find that the technician's performance does not meet industry standards under any one or more of the following conditions:
 - (A) The technician or employing company is not registered with the Construction Contractors Board or does not carry the required level of insurance, licensure or bonding.
 - (B) The technician or employing company fails to obtain the required state, federal or local permits required to install the AED as defined in OAR 330-070-0040.
 - (C) The technician fails to install the AED system in compliance with standards adopted under OAR 330-070-0060 through 330-070-0097.
 - (D) The technician fails to install the AED system to comply with manufacturers' published specifications.
 - (E) The technician or employing company fail to honor contract provisions when there is no legitimate excuse for nonperformance of the obligation.
 - (F) The technician or employing company fail to honor a warranty that they are contractually obligated to perform.

- (G) The technician or employing company fail to make corrections to remedy failure to comply with paragraphs (A) through (F) of this subsection, as requested by the department, within 30 days of written notification from the department of the problem, unless a time extension is granted by the department.
 - (H) A tax credit for an AED sold or installed under the tax-credit technician status is ordered revoked under subsection (2)(a) of this rule.
 - (I) Information indicates that the AEDs installed under the tax-credit technician status or the employing company do not meet eligibility requirements.
- (c) The technician or employing company has misrepresented to the customer either the tax credit program or the nature or quality of the alternative energy device. The Director may find that the technician or employing company has misrepresented the tax credit program or the AED under any of the following conditions:
- (A) The technician or employing company has provided false or misleading information to the customer regarding the availability of the tax credit, amount and nature of the tax credit, procedures for tax credit application, eligibility standards for credit, or any other misleading information about the program implemented under ORS 469B.100 through 469B.118.
 - (B) The technician or employing company has misrepresented the nature of the performance of the AED or claimed savings in excess of those on an energy savings chart without providing accurate calculations to the customer and to the department to substantiate the energy savings. For geothermal systems, the technician or employing company has claimed savings higher than other units of similar efficiency.
 - (C) The technician or employing company has misrepresented the cost of a system. For example, the technician or employing company omits costs in the contract for features necessary for basic installation and/or operation of the system and/or costs to comply with the AED eligibility under ORS 469B.100 through 469B.118.
 - (D) The technician or employing company has misrepresented a competitor's product or service.
 - (E) The technician or employing company fails to make corrections requested in writing to the department to remedy violations of (A)-(D) of this subsection within 30 days, unless more time is allowed by the department.
 - (F) The technician or employing company fails to remedy the construction and/or warranty claim as directed by order of the Construction Contractors Board.

330-070-0048

Administrative Process for Review and Revocation of the Tax-Credit Technician Status

- (1) If the department receives a complaint, the tax-credit technician and employing company must be notified and given an opportunity to respond.
 - (a) If the complaint relates to issues that the Construction Contractors Board (CCB) has authority to resolve, the complaint must be referred to the CCB for resolution. The CCB generally has authority to address construction, warranty claims or complaints involving dishonest or fraudulent conduct. Failure to comply with the order of the CCB must be grounds for revocation of tax-credit technician status.
 - (b) In all other cases, the department must evaluate the technician's or employing company's response and determine whether a violation occurred. The department must notify the technician and employing company of its determination and, if appropriate, the necessary remedy. The department must give the technician and employing company 30 days to remedy a violation. The department may grant the technician and employing company additional time where appropriate.
- (2) If the technician and employing company do not take appropriate action within the time specified, the department may begin enforcement proceedings. An enforcement proceeding may be brought to revoke the tax-credit technician status, remove the company name from the department listing and to collect tax credit amounts.
- (3) The department may commence an enforcement proceeding by sending the technician and employing company a notice of violation. The notice must describe the violation(s) and notify the technician and employing company of the proposed penalty (revocation or collection of tax credit amounts).
- (4) Before the Director imposes a penalty, the technician and employing company must be given 21 days in which to request a hearing pursuant to ORS 183.310-183.550 and the applicable Attorney General's Uniform and Model Rules of Procedure. The hearing will be to contest the revocation of a system or technician tax credit status based on actions listed under OAR 330-070-0045.
- (5) Re-application: To reapply after the revocation of a technician tax credit status, the technician and employing company must prove to the satisfaction of the department that the problem causing revocation has been corrected. Revocation must be in effect for at least one year before that technician or employing company or any other firm with any of the same shareholders may reapply for status.

330-070-0055

Consumer Information

- (1) A tax-credit technician must inform the owner in simple terms:
 - (a) How to tell if the device is running correctly, and who to call if it is not;

- (b) How to tell if the freeze protection is in effect, and who to call if it is not;
 - (c) What maintenance is needed, annually and long term;
 - (d) Who will honor warranties; and
 - (e) The conditions of the warranties including, but not limited to, how to start and keep warranties in force.
- (2) A tax-credit technician or employing company must provide all AED purchasers with a copy of materials listed in section (1) of this rule prior to sale of the system.

330-070-0059

Solar Pool and Spa AEDs

- (1) Installations must be installed according to manufacturer's instructions; and comply with all applicable state, county, or local codes and regulations.
- (2) Consumers who purchase a solar pool or spa heating system must receive written operating and maintenance instructions. These instructions must at a minimum include:
- (a) Clear instructions on how to monitor the system performance;
 - (b) Description and recommended frequency of homeowner maintenance;
 - (c) Diagram of the system noting location of valves and monitoring devices; and
 - (d) What to do and who to call in an emergency and when the system needs professional maintenance and repairs.
- (3) Pool heating system designs and installations must comply with the following additional requirements:
- (a) Collectors and piping must be securely mounted to withstand local wind loads.
 - (b) Piping and pump sizing must consider collector area, total flow rates, pressure drop across collectors, length of run from collectors to pump, and maximum allowable pressure drop for the system.
 - (c) Any building insulation disturbed due to the system installation must be restored to previous condition.
 - (d) Pool collectors must come with a minimum 10-year manufacturer's full warranty (to ensure that equipment designed for temporary installation is not used).

- (e) System must have a method to show that it is operating correctly. This equipment must be a permanent part of the system, not require any special tools, and be in an easily accessible location.
 - (f) Collectors must be mounted in a manner to enable seasonal drainage by gravity for proper freeze protection.
 - (g) The system must have a minimum total solar resource fraction (TSRF) of 75 percent.
 - (h) Pool collectors must be certified by the SRCC, Florida Solar Energy Center (FSEC) or other certification body approved by the Department.
- (4) Spa heating system designs and installations must comply with the following additional requirements:
- (a) System design must be approved by the department. Approval is based on complete system design documentation and calculation of annual energy savings.
 - (b) Controls must be capable of maintaining safe spa temperatures.
 - (c) The system must have a minimum total solar resource fraction (TSRF) of 75 percent.
- (5) The addition of more energy producing capacity to an existing solar pool heating system may be eligible for an AED tax credit if:
- (a) The system addition increases first year energy savings; and
 - (b) The system addition is built, installed and operated in accord with OAR 330-070-0010 through 330-070-0097.
- (6) The department will calculate first year energy savings of a system addition by subtracting the estimated savings of the original AED from the increased first year energy savings with the addition.
- (a) The department will not recalculate the original AED's estimated energy savings, even if the AED produces less than estimated.
 - (b) Any AED that received an AED tax credit in a prior year will be assumed to remain in place, for purposes of calculating a tax credit for a system addition.

330-070-0060
Solar Domestic Water Heating AEDs

- (1) Installations of solar domestic water heating systems must comply with all applicable state, county or local codes and regulations and be verified by a tax-credit technician.

- (2) Consumers who purchase a solar water heating system must receive written operating and maintenance instructions. These instructions must at a minimum include:
 - (a) Clear instructions on how to determine if the system is functioning properly; and
 - (b) How to protect the system from overheating due to stagnation during periods when the system is not in use.
- (3) System designs and installations must comply with the following additional requirements:
 - (a) Collectors and piping must be securely mounted to withstand local wind loads.
 - (b) Piping and pump sizing must consider collector area, total flow rates, pressure drop across collectors, length of run from collectors to pump, and maximum allowable pressure drop for the system.
 - (c) Pipe insulation must be installed on all solar pipe runs and protected against damage from exposure in outdoor conditions and be rated for design condition temperatures.
 - (d) Any building insulation disturbed due to the system installation must be restored to previous condition.
 - (e) For systems using pressurized anti-freeze fluids, a pressure gauge must be installed to indicate pressure in the system.
 - (f) Piping containing pressurized water in attics 24 hours a day must be of the appropriate material allowed by applicable Oregon plumbing codes.
- (4) Systems using tanks, piping, pumps and other components containing water in unheated spaces must be adequately protected from freezing.
- (5) Drain-down or manual drain systems are not acceptable freeze protection methods for solar domestic water heating systems.
- (6) A method to show that the system is operating correctly must be provided.
 - (a) For passive systems this must be a thermometer in line between solar storage and backup tank.
 - (b) For an active system this must be a flow meter in the supply line to the collectors and a thermometer on the outlet port of the solar storage tank.
- (7) Annual energy savings will be based on the annual performance simulations provided by the Solar Rating and Certification Corporation (SRCC) modified for conditions required under state law.

- (a) The SRCC annual energy savings must be adjusted for site specific conditions as documented by a Solar Site Assessment Worksheet.
 - (b) The system must have a minimum total solar resource fraction (TSRF) of 75 percent.
- (8) All systems must meet the standards established by the SRCC Standard-300 system certification in effect at the time the rules are adopted, or equivalent requirements as determined by the Director.

[Publications: Publications referenced are available from the agency.]

330-070-0062

Passive Solar Space Heating AEDs

- (1) Installations of passive solar space heating systems must comply with all applicable state, county or local codes and regulations.
- (2) The estimated first year energy savings for the system must be the net usable energy produced under average environmental conditions in one year.
- (3) Passive solar space heating systems must produce energy savings equal to not less than 20 percent of the annual energy used for space heating in the dwelling to be eligible for a tax credit. Such systems must:
 - (a) Have sufficient solar access not jeopardized by future buildings or tree growth;
 - (b) Provide usable heat for the heated space;
 - (c) Provide adequate thermal storage for solar heat gained;
 - (d) Prevent overheating of the heated space that requires mechanical space cooling; and
 - (e) In addition, sunspaces must:
 - (A) Have no backup heating device; and
 - (B) Be able to be isolated from the heated space.
- (4) Determination of annual performance must be based on one of the following approved methods:
 - (a) Using the department's prescriptive passive solar heating path to achieve 20 percent savings.
 - (b) Annual hourly simulation using an approved energy modeling software (e.g. Energy-10).

(c) Monitored data from system before and after installation of AED.

(5) Costs eligible for passive solar space heating systems include:

- (a) The cost for thermal storage;
- (b) The cost of movable window insulation that is part of a passive system. It must tightly seal on all sides of the window. It must also have an R- value of at least three;
- (c) The cost of south-facing windows, if the requirements of section (4) of this rule are met; and
- (d) The cost of passive heat distribution components.

(6) The department will use data supplied by the applicant to determine if the requirements of OAR 330-070-0022 are met.

[Publications: Publications referenced are available from the agency.]

330-070-0063

Combined Active Solar Space and Domestic Water Heating AEDs

- (1) Installations of active solar space and domestic water heating systems must comply with all applicable state, county and local codes and regulations, and be verified by a tax-credit technician.
- (2) The estimated first-year energy savings must be based on the following:
 - (a) The house design prior to installation of the solar energy equipment, not a base code design or reference design.
 - (b) An annual solar utilization calculation method approved by the Director that accounts for the operating temperature of the energy storage and collector system and gives no credit for any insulation measures not directly associated with the solar AED.
 - (c) Typical residential occupancy setpoints and operating behavior. Savings will not be granted for consumer behavior options.
- (3) Applicant must provide the following information:
 - (a) Complete system design documentation with component list and controls sequence;
 - (b) Documentation showing that the system has a minimum total solar resource fraction (TSRF) of 75 percent;
 - (c) Annual estimated savings calculations; and

(d) Solar equipment specifications and performance test data.

(4) The department will use data supplied by the applicant to determine if the requirements of OAR 330-070-0022 are met.

[Publications: Publications referenced are available from the agency.]

330-070-0064
Photovoltaic AEDs

- (1) Installations of photovoltaic systems must be installed according to manufacturer's instructions, comply with all applicable Oregon codes and be verified by a tax-credit technician.
- (2) System size will be determined by the sum of all the photovoltaic module DC wattage ratings under standard test conditions (STC). The minimum system size must be 200 Watts DC output under STC.
- (3) All modules must have a minimum total solar resource fraction (TSRF) of 75 percent over the entire module. Solar electric AC modules with a TSRF of less than 75 percent will not be counted in the system size.
- (4) The department may verify that the modules and inverters are listed on the California Energy Commission (CEC) eligible list as of the date of the application.

[Publications: Publications referenced are available from the agency.]

330-070-0070
Geothermal Systems

- (1) Geothermal systems must comply with OAR 330-070-0025 and 330-070-0040. Installations must be verified by a tax-credit technician.
- (2) System parts must have adequate:
 - (a) Structural strength;
 - (b) Resistance to weather and fire;
 - (c) Ease of upkeep; and
 - (d) Durability.
- (3) Systems must fully protect drinking water as specified in the Oregon Plumbing Specialty Code and be designed for the least impact on ground water.

- (4) Direct use geothermal systems must include a summary report from Oregon Institute of Technology or other source approved by the Director which describes the system and indicates that it will deliver sufficient heat and the design meets current good practice guidelines. These systems will be reviewed on a case-by-case basis.
- (5) The system COP must be at least 3.3 for all systems including energy used by pumps, except 3.5 for direct expansion (DX) systems including energy used by pumps. COP will be determined by the following methods:
 - (a) For water source heat pumps, the COP must be determined in accordance with ANSI/AHRI/ASHRAE/ISO Standard 13256-1, at an entering water temperature of 50 degrees F.
 - (b) For solar assisted heat pumps, the COP must be the measured ratio of the heating season energy output divided by the heating season energy input. Both energy values must be expressed in the same units.
- (6) All other types of ground source heat pumps must be reviewed on their COP.
- (7) Geothermal upgrade systems must comply with the following requirements:
 - (a) All units must be installed on systems that comply with these rules.
 - (b) All units must be installed on systems that use an operational closed-loop ground coupled heat exchanger.
 - (c) The compressor upgrade unit must be sized within 15 percent of the unit it is replacing, based on rated cooling capacity in Btus. The department may grant an exception to this limit for an upgrade that is accompanied by a written justification including measured data and appropriate engineering calculations.
 - (d) All units must be manufactured by a company appearing in the Air-Conditioning, Heating and Refrigeration Institute (AHRI) Unitary Directory.
 - (e) Post-upgrade system COP must be at least 3.3 for closed loop systems and 3.5 for direct expansion (DX) systems, including energy used by pumps. COP must be determined by the following methods:
 - (A) For water source heat pumps, the COP must be determined in accordance with ANSI/AHRI/ASHRAE/ISO Standard 13256-1, at an entering water temperature of 50 degrees F.
 - (B) For water source or ground loop heat pumps using ambient surface water as an energy source and for solar assisted heat pumps, the COP must be the measured ratio

of the heating season energy output divided by the heating season energy input. Both energy values must be expressed in the same units.

330-070-0073

Energy-Efficient Appliances

- (1) Energy-efficient appliances must meet or exceed the United States Department of Energy (USDOE) energy efficiency standards, as applicable, the department will designate a nationally recognized test procedure that will apply where USDOE standards do not exist.
- (2) **Water Heating Appliances.**
 - (a) High-efficiency heat pump water heaters (HPWH) for domestic hot water must meet the “Northern Climate” specifications by the Northwest Energy Efficiency Alliance (NEEA).
 - (b) Natural gas, propane, or oil-fired residential storage type water heaters, as defined by Title 10, Code of Federal Regulations, Chapter 11, Part 430, Subpart B, Appendix E, must have an Energy Factor of 0.70 or greater as tested with natural gas fuel.
 - (c) Whole-home gas fired instantaneous water heaters, as defined by Title 10, Code of Federal Regulations, Chapter 11, Part 430, Subpart B, Appendix E, must have an Energy Factor of at least 0.82 or greater if installed on or after January 1, 2011.
 - (d) Equipment efficiency requirements are based on either the listing by ENERGY STAR®, the directory of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI), or other third-party certified list approved by the Director.
- (3) **Wastewater Heat Recovery**, field performance data submitted to and approved by the department will be the basis for tax credit qualification. The following rules also apply:
 - (a) The system must meet all plumbing code requirements for vented double-wall heat exchangers;
 - (b) The system must not interfere with the proper operation of the dwelling’s wastewater system; and
 - (c) Energy recovered must be re-introduced into the dwelling’s hot water supply system.
- (4) **Sealed Duct Systems** must meet the following requirements:
 - (a) Have all work must done by technician with a current or valid certification with Performance Tested Comfort System (PTCS), ACCA Quality Installation or approved by the department as equivalent.
 - (b) To apply for a sealed duct tax credit, the following information must be submitted on the department approved application form:

(A) Certification that Bonneville Power Association's Prescriptive Duct Sealing Specifications have been completed; and

(B) Itemized invoice identifying costs.

(5) Energy Recovery Ventilators (ERVs) must:

(a) Be tested, rated and certified through the Home Ventilating Institute (HVI) Division of the Air Movement and Control Association (AMCA) International, Inc., and listed in the HVI directory;

(b) Be capable of at least 30 percent Latent Recovery/Moisture Transfer (LRMT) at 32°F when operating on the lowest fan speed;

(c) Have a maximum EUI of 1.10 watts/cfm at the lowest fan speed for which performance data is published in the HVI directory; and

(d) Have a minimum Sensible Recovery Efficiency (SRE) of:

(A) 75 percent at 32°F/0°C when operating at the lowest fan speed; and

(B) 67 percent at 32°F/0°C when operating at the highest fan speed.

(6) Heat Recovery Ventilators must:

(a) Be tested, rated and certified through the Home Ventilating Institute (HVI) Division of the Air Movement and Control Association (AMCA) International, Inc., and listed in the HVI directory;

(b) Have a maximum EUI of 1.10 watts/cfm at the lowest fan speed for which performance data is published in the HVI directory; and

(c) Have a minimum Sensible Recovery Efficiency (SRE) of:

(A) 75 percent at 32°F/0°C when operating at the lowest fan speed; and

(B) 67 percent at 32°F/0°C when operating at the highest fan speed.

(7) High Efficiency Air Source Ducted Heat Pump Systems must:

(a) Have all work done by technician with a current or valid certification with Performance Tested Comfort System (PTCS), Proctor Engineering CheckMe!, ACCA Quality Installation or approved by the department as equivalent;

- (b) Be tested and rated in accordance with the USDOE Appendix M test procedure in effect at the time these rules are adopted, and be certified by, and be listed in the directory of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) that is in effect at the time these rules are adopted;
- (c) Consist of a matched outdoor unit and indoor unit (air handler and coil or furnace and coil), as tested, rated and listed in the AHRI directory;
- (d) Have a minimum USDOE Region IV HSPF rating of 9.0 or greater; and
- (e) Systems must be installed and attested to the protocols of tested and serviced as needed to confirm correct refrigerant charge and air flow by a technician authorized by the department and by an approved Performance Tested Comfort System (PTCS), Proctor Engineering CheckMe!, ACCA Quality Installation or approved by the department as equivalent.

(8) High Efficiency Furnace Systems must:

- (a) Be rated by and listed in the directory of the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) in effect at the time these rules are adopted;
- (b) Have a minimum AFUE rating of 0.95 (95 percent);
- (c) Use direct ducted outdoor air for combustion; and
- (d) Must be listed in the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) directory of Certified Energy Rating in effect at the time these rules are adopted as an “e” “electrically efficient” furnace.

(9) High Efficiency Ductless Air Source Heat Pump Systems must:

- (a) Include an inverter-driven variable speed compressor;
- (b) Be listed in the Air-Conditioning, Heating and Refrigeration Institute (AHRI) Directory of Certified Products;
- (c) Deliver at least 50 percent of its AHRI-certified rated heating capacity at 17°F outside temperature;
- (d) Have a minimum USDOE Region IV HSPF rating of 9.0 or greater;
- (e) Include no integrated electric resistance backup heat;
- (f) Be sized and installed per manufacturer specifications; and
- (g) Be installed by a technician trained by the equipment manufacturer.

(10) **High Efficiency Direct Vent Gas Fireplace Devices** that use natural gas or propane must:

- (a) Meet CAN/CSA-P.4.1-09 (R2014) Fireplace Efficiency (FE) of 70 percent or greater.
- (b) Be direct vented to the outside with sealed combustion.
- (c) Have an electronic ignition that is either an intermittent or Pilot on Demand system meeting American National Standards Institute (ANSI) Z21.20-2014.

(11) Any other standards adopted by the department for energy-efficient appliances and alternative fuel devices, their components, or systems as determined by the Director.

[ED. NOTE: Appendices referenced are available from the agency.]

330-070-0076

Premium Efficiency Biomass Combustion Alternative Energy Devices

(1) To qualify for a tax credit, a premium efficiency biomass combustion device must be:

- (a) Less than <250,000 Btus per hour heat output.
- (b) Installed with a dedicated outside combustion air intake within five feet of the device, which may be a duct, barometric damper or grill.
- (c) Efficiency tested, as evidenced by:
 - (A) A listing in the United States Department Environmental Protection Agency (EPA) List of EPA Certified Wood Stoves with emissions of 3.5 grams of particulate per hour or less designated in that list as a non-catalytic wood stove;
 - (B) A listing in the List of EPA Certified Wood Stoves with emissions of 2.5 grams of particulate per hour or less if it is designated in that list as a catalytic wood or pellet stove;
 - (C) Having a certificate of performance for the specific manufacturer and model of wood burning device from a current US EPA certified woodstove testing laboratory, tested in accordance with CSA B415.1 and submitted and approved by EPA. The certificate must show emissions of 3.5 grams of particulate per hour or less designated as a non-catalytic wood stove purchased or emissions of 2.5 grams of particulate per hour or less if it is designated as a catalytic wood or pellet stove; or
 - (D) A certificate of performance including the grams of smoke per hour, for pellet stoves on the List of EPA Exempt Wood Heating Appliances, for the specific manufacturer and model from a currently US EPA certified stove testing laboratory, tested in accordance with CSA B415.1. The certificate must be submitted to the department.

The department will use the EPA default efficiency for pellet stoves as the device efficiency beginning on January 1, 2014.

(2) To qualify for a tax credit when installing a premium efficiency biomass combustion device, the dwelling must have an approved carbon monoxide detector alarm device in compliance with the Regional Technical Forum Residential Weatherization Specifications as of August 30, 2011.

(3) Any other standards adopted by the department for premium efficiency biomass combustion devices as determined by the Director.

330-070-0078

Alternative Fuel Devices

(1) To qualify for a tax credit, an alternative fuel device must be permanently installed to meet all state and local safety codes.

(2) Electric charging stations must be a Level 2, 240 volt AC or similar.

(3) Non-electric alternative fuel fueling stations must be capable of re-fueling an alternative fuel vehicle within 14 hours.

(4) Other standards adopted by the department for alternative fuel devices as determined by the Director.

330-070-0085

Fuel Cell Systems

To be eligible for a tax credit under these rules, fuel cell systems must have a minimum rated stack capacity of 0.5 kW and a maximum rated system capacity of 10 kW.

330-070-0089

Wind Alternative Energy Devices

(1) To qualify for a tax credit:

(a) A minimum annual average wind speed of 10 miles per hour at hub height or lower must be demonstrated at the wind AED site.

(b) A wind AED system manufacturer must make available estimated monthly or annual energy production data (kWh) at various annual average wind speeds for each model or system they produce.

(c) The wind AED system model must meet industry standards as approved by the department.

- (d) A wind AED system application must include the nominal rated electric capacity, the power curve and energy production data as a function of the average annual wind speed.
 - (e) A wind system must have a minimum five-year manufacturer's warranty.
- (2) The department reserves the right to deny eligibility for any wind AED for reasons including, but not limited to, poor generator performance, concerns about wind generation system design, the quality of data presented, lack of manufacturing support for maintenance or warranties.
- (3) Systems must be designed and located to reduce the potential for hazards and unpleasant living conditions. Systems must be designed and located taking into account:
- (a) The proximity of the system to buildings, power lines, antennae or other similar hazards;
 - (b) The effect of high winds on the system and on any building connected to the system by guy wires;
 - (c) Whether the system blocks fire lanes, obstructs dwelling access, or otherwise increases fire danger;
 - (d) Whether the operation of the system significantly increases background noise; and
 - (e) Whether connecting the system to other buildings by guy wires creates vibration and tension in other buildings.
- (4) Materials used will assure that the wind AED has adequate:
- (a) Strength;
 - (b) Resistance to ice, moisture, corrosion and fire;
 - (c) Durability; and
 - (d) Low maintenance cost.
- (5) No part of a wind AED project may result in toxic substances entering into the environment in amounts that will cause disease or harmful physical effects to humans, animals or plants.
- (6) **Maximum Design Wind Speed:** All parts of a Wind AED project must withstand the highest wind speed expected at its location. All parts must withstand this wind without damage. To meet this requirement, wind AEDs may be shut down during highest expected winds.

- (7) **Shutdown:** All wind AEDs must have a way to stop the rotor from turning. This method must work safely during high winds and routine service.
- (8) **Overspeed Control:** Rotor overspeeds must be prevented by the wind AED's design.
- (9) **Tower Safety:** All parts of a wind AED project must meet accepted engineering standards. Tower design must include consideration of:
 - (a) Gravity load; and
 - (b) Peak thrust on the rotor, nacelle, tail and tower over the full wind speed operating range.
- (10) **Tower Height:** A minimum tower height of 70 feet is required. All portions of the rotor disc of the wind AED must be at least 30 feet above any object within a 400 foot radius of the wind AED's base. Future growth of trees for the next 20 years must be taken into consideration.
- (11) **Electric:** All wind AED electrical parts must adhere to all standards and codes in force at the time they are installed.

330-070-0097

Electricity Producing AEDs

Generating AEDs linked with an electric utility must be installed in accordance with local utility interconnect guidelines and be installed per the state electrical code.