

Incentives for Improving Home Energy Efficiency

Compiled by Dave Large
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Incentives for reducing home-related energy usage are offered by the federal government, Washington State, the City of Port Angeles, and the Clallam County PUD. Incentives cover many aspects of a home from simple to more complex including: insulation, windows, space heating, and appliances to photovoltaic, solar hot water and fuel cell technology and more. The federal and state level incentives have changed considerably following the passage of the Inflation Reduction Act (IRA) of 2022 and, as of the last update of this document, are not fully documented, so readers are encouraged to check the relevant websites for updated information. Not included in this document are incentives which expire at the end of 2022. Unless otherwise specified, the federal tax credits listed below will be in effect from 1/1/23 through 12/31/32.

See the Sources section at the end of this document for a listing of the Web sites from which information was gleaned and which can be accessed for updates. This report is a “best effort” document and not guaranteed to be error free. Please check the relevant websites for the latest updates and corrections before proceeding with any project.

See the Glossary section at the end of this document for an explanation of technical terms used.

For convenience, the incentives in this document are sorted by type of improvement project, so that readers can easily tell which incentive or combination of incentives might apply.

I. Upgrades to Existing Homes

Note: The Washington income-qualified rebates below are point-of-sale rebates, effectively discounting the price of the appliance or upgrade. Each qualifying household can use up to \$14,000 in such rebates. Qualification is dependent on household income relative to the Average Median Income (AMI), as defined by the Department of Urban Housing and Development (HUD). The AMI for the United States as a whole was determined to be \$70,784 in 2021 according to the Census Bureau, while the AMI for Washington State is about \$77,000. Consult with a tax preparer to determine the relevant number for determining eligibility for income-qualified rebates. The rebates will be in effect from 1/1/23 through 9/30/31

A. Insulation and Air Sealing Upgrades

Washington: Households making less than 80% of the AMI can get a rebate for 100% of the installed cost of insulation, air sealing, or ventilation upgrades up to a maximum of \$1,600.

Washington: Households making between 80% and 150% of the AMI can get a rebate equal to 50% of the installed cost of insulation, air sealing, or ventilation upgrades up to a maximum of \$1,600.

Clallam County PUD: Insulation rebates based on the area upgraded and the degree of improvement are offered and are accessed through “participating contractors” as defined by the PUD as follows:

1. **Upgrading insulation in manufactured homes:**
 - a. Upgrading existing walls whose existing insulation performance is less than R11 to R22: \$0.90 per square foot.
 - b. Upgrading existing walls whose existing insulation performance is R11 to R22: \$0.60 per square foot.
 - c. Upgrading existing ceilings whose existing insulation performance is no greater than 5 to R22: \$0.75 per square foot.
 - d. Upgrading existing ceilings whose existing insulation performance is no greater than 5 to R30: \$0.90 per square foot
 - e. Upgrading existing ceilings whose existing insulation performance is no greater than R11 to R30: \$0.45 per square foot.

2. **Upgrading insulation in conventionally constructed homes** with electric heating systems in the areas to be upgraded:
 - a. Upgrading existing floors whose insulation performance is no greater than R11 to R19: \$0.75 per square foot.
 - b. Upgrading existing floors whose insulation performance is no greater than R11 to R25 or greater: \$0.90 per square foot.
 - c. Upgrading existing floors whose insulation performance is no greater than R19 to R30 or greater: \$0.12 per square foot.
 - d. Upgrading existing attic area whose insulation performance is no greater than R5 to at least R38: \$0.90 per square foot.
 - e. Upgrading existing attic area whose insulation performance is no greater than R11 to at least R38: \$0.75 per square foot.
 - f. Upgrading existing attic area whose insulation performance is no greater than R19 to at least R38: \$0.30 per square foot.
 - g. Upgrading existing attic area whose insulation performance is no greater than R30 to at least R38: \$0.09 per square foot.
 - h. Upgrading existing attic area whose insulation performance is no greater than R30 to at least R49: \$0.12 per square foot.
 - i. Upgrading existing wall area whose insulation performance is no greater than R5 to at least R11: \$2.00 per square foot.

3. **Projects to seal existing ducts** to reduce heat loss (\$200 for manufactured homes and \$250 for conventionally-built homes)

City of Port Angeles: Residents can claim a rebate for upgrading insulation levels in accordance with the chart below. These rebates are conditioned on using a city-authorized contractor and are available until August 31, 2023.

1. Single-family site-built homes
 - a. Upgrade wall insulation: \$0.66/square foot

- b. Upgrade attic insulation from R=0 to R>=38: \$0.74/square foot
 - c. Upgrade attic insulation from R>0 to R>=38: \$0.11/square foot
 - d. Upgrade floor insulation from R=0 to R>=19: \$0.34/square foot
 - e. Upgrade floor insulation from R=0 to R>=30: \$0.41/square foot
2. Manufactured Homes
- a. Upgrade attic insulation from R>0 to R>=38: \$0.75square foot
3. Multi-Family Homes
- a. Upgrade wall insulation: \$2.00/square foot
 - b. Upgrade attic insulation from R=0 to R>=49: \$1.35/square foot
 - c. Upgrade attic insulation from R=0 to R>=38: \$1.20/square foot
 - d. Upgrade attic insulation from R>0 to R>=38: \$0.30/square foot
 - e. Upgrade floor insulation from R=0 to R>=19: \$1.11/square foot
 - f. Upgrade floor insulation from R=0 to R>=30: \$1.29/square foot
 - g. Upgrade floor insulation from R>0 to R>=30: \$0.21/square foot

City of Port Angeles: Residents can claim a rebate for sealing air ducts of \$250 for single site-built homes or \$200 for manufactured homes. These rebates are conditioned on using a city-authorized contractor and are available until August 31, 2023.

B. Heat Pumps for Space Heating and Cooling

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum of credit of \$2,000 each year) for the installed cost of a heating and cooling heat pump.

Washington: Households making less than 80% of the AMI can get a rebate for 100% of the installed cost of heat pumps up to a maximum of \$8,000.

Washington: Households making between 80% and 150% of the AMI can get a rebate equal to 50% of the installed cost of heat pumps up to a maximum of \$8,000.

Clallam County PUD: Rebates based on the nature of the upgrade and the efficiency of the new heat pump are accessed through “participating contractors” as defined by the PUD as follows:

1. **Heat pumps for space heating and cooling.** All upgrades require a minimum heating efficiency rating (HSPF) of 9 and either a minimum cooling efficiency rating (SEER) of 14 (opt 1) or the use of a variable-speed compressor (opt 2). The specific incentives are:
 - a. Upgrading an existing forced air electric furnace system in a conventional or manufactured home to a heat pump meeting either option 1 or option 2: \$1400.
 - b. Upgrading from an existing forced air heat pump in a conventional or manufactured home or building a new house and using a heat pump meeting option 1: \$250.
 - c. Upgrading from an existing forced air heat pump in a conventional or manufactured home or building a new house and using a heat pump meeting option 2: \$500.

- d. Upgrading from a zoned conventional non-ducted electric heating configuration (e.g. baseboard heaters) to a heat pump meeting option 1: \$250.
- e. Upgrading from a zoned conventional non-ducted electric heating configuration: \$500.

2. **Upgrades to a ductless heat pump** for heating and cooling:

- a. \$250 for upgrading an existing site-built home from zonal electric heating or an electric furnace to a ducted or ductless mini-split heat pump.
- b. \$250 for upgrading a manufactured home from an electric furnace to a ducted or ductless mini-split heat pump.
- c. \$100 for upgrading any home from an older mini-split heat pump to a newer ducted or ducted mini-split heat pump with a HSPF of at least 11.

City of Port Angeles: Residents can claim a rebate for upgrading a conventional heat pump to one with a HSPF of 9 or greater. The rebate may vary from \$500 to \$1600 depending on the project and is available for both site-built and manufactured single-family homes. These rebates are conditioned on using a city-authorized contractor and are available until August 31, 2023.

City of Port Angeles: Residents can claim a \$800 rebate for upgrading to a ductless heat pump. The rebate is available for both site-built and manufactured single-family homes. These rebates are conditioned on using a city-authorized contractor and are available until August 31, 2023.

C. Central Air Conditioners

Federal. An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum credit of \$600 each year) for the installed cost of a central air conditioning system.

D. Heat Pump Water Heaters

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum credit of \$2,000 each year) for the installed cost of a heat pump water heater.

Washington: Households making less than 80% of the AMI can get a rebate for 100% of the installed cost of heat pump water heater up to a maximum of \$1,750.

Washington: Households making between 80% and 150% of the AMI can get a rebate equal to 50% of the installed cost of heat pump water heater up to a maximum of \$1,750.

Clallam County PUD: Rebates based on upgrading from a standard to heat pump type depending on the type of new heat pump water heater are accessed through “participating contractors” as defined by the PUD as follows:

- a. \$600 or \$700 (depending on efficiency and noise level) for an all-in-one model.
- b. \$800 for upgrading to split model with the heat pump outside the house and the water tank inside the house.

Unlike most other PUD rebates, homeowners can choose to undertake this task themselves rather than use a PUD-listed contractor.

City of Port Angeles: Residents can claim a \$600 rebate for upgrading to a heat pump water heater. The rebate is available for both site-built and manufactured single-family homes. These rebates are conditioned on using a city-authorized contractor and are available until August 31, 2023.

E. Upgrading Windows and Doors

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum credit of \$250 for one door, or \$500 for all doors each year) for the installed cost of exterior door replacement.

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum credit of \$600 each year) for the installed cost of replacement windows.

Clallam County PUD: A rebate of \$3.00 per square foot of window and/or glass sliding door area that is upgraded to new windows or glass doors whose thermal conductance (U-value) is no greater than 0.3. As with most PUD rebates, they are accessed through use of “participating contractors.”

City of Port Angeles: Residents can claim a rebate for upgrading windows. The rebate may vary from \$3.00 to \$6.00 per square foot of upgraded window area depending on the project and is available for both site-built and manufactured single-family homes. For multi-family homes the rebate can vary from \$6.00 to 16.00 per square foot. These rebates are conditioned on using a city-authorized contractor and are available until August 31, 2023.

City of Port Angeles: Residents can claim a rebate of \$40 for upgrading to an insulated exterior door. The rebate is available for both site-built and manufactured single-family homes. These rebates are conditioned on using a city-authorized contractor and are available until August 31, 2023.

F. Other Heating Upgrades

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum credit of \$600 each year) for the installed cost of natural gas, propane, or oil water heaters or furnaces. While not yet specified, you should expect performance conditions on this credit.

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum credit of \$2,000 each year) for the installed cost of biomass stoves or boilers.

Clallam County PUD: A rebate of \$100 is offered for upgrading from a conventional to a “smart” thermostat. A homeowner can choose to perform this upgrade without use of a contractor.

G. Electrical Wiring

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the installed cost (up to a maximum credit of \$600 each year) for new or modified electrical panels and related equipment.

Washington: Households making less than 80% of the AMI can get a rebate for 100% of the cost of upgrading an electrical panel up to a maximum of \$4,000.

Washington: Households making between 80% and 150% of the AMI can get a rebate equal to 50% of the cost of an electrical panel up to a maximum of \$4,000.

Washington: Households making less than 80% of the AMI can get a rebate for 100% of the cost of upgrading home wiring up to a maximum of \$2,500.

Washington: Households making between 80% and 150% of the AMI can get a rebate equal to 50% of the cost of upgrading home wiring up to a maximum of \$2,500.

H. Home Energy Audit

Federal: An Energy Efficiency Tax Credit can be claimed for 30% of the cost (up to a maximum credit of \$150 each year) for the cost of a home energy audit.

II. Appliance Upgrades

Washington: Households making less than 80% of the AMI can get a rebate for 100% of the cost of purchasing a new electric stove, cooktop, or oven up to a maximum of \$840.

Washington: Households making between 80% and 150% of the AMI can get a rebate equal to 50% of the cost of purchasing a new electric stove, cooktop, or oven up to a maximum of \$840.

Washington: Households making less than 80% of the AMI can get a rebate for 100% of the cost of purchasing a new heat pump clothes dryer up to a maximum of \$840.

Washington: Households making between 80% and 150% of the AMI can get a rebate equal to 50% of the cost of purchasing a new heat pump clothes dryer up to a maximum of \$2,500.

III. New Home Tax Credits

Federal: An Energy Efficiency Tax Credit of \$2,500 can be claimed for new site-built single-family homes built between 1/1/23 and 12/31/224 which meets EnergyStar Single-Family New Home National Version 3.1 (or the regional program requirements applicable to the home) requirements. For homes built between 1/1/25 and 12/31/32, the home must meet EnergyStar Single-Family New Homes National Version 3.2 (or the regional program requirements applicable to the home).

Federal: An Energy Efficiency Tax Credit of \$2,500 can be claimed for new manufactured single-family homes meeting the most recent EnergyStar Single-Family Manufactured New Homes program requirements (currently Version 2, with Version 2.1 currently proposed to be implemented in May, 2023).

IV. Renewable Energy Tax Credits

A. Geothermal Heat Pumps

Federal: A tax credit can be claimed for the installed cost of new geothermal heat pump systems. The available credit is 30% through 2033, dropping to 26% in 2034 and 22% in 2035. This program will end as of 12/31/35.

Candidate systems must meet EnergyStar requirements at the time of installation. The Tax Credit is available for existing and new homes and both primary residences and second homes, but not rental homes.

Specific Requirements depend on the configuration:

- a) Water-to-air, closed loop: EER \geq 17.1; COP \geq 3.6
- b) Water-to-air, open loop: EER \geq 21.1; COP \geq 4.1
- c) Water-to-water, closed loop: EER \geq 16.1; COP \geq 3.1
- d) Water-to-water, open loop: EER \geq 20.1; COP \geq 3.5
- e) Direct expansion: EER \geq 16; COP \geq 3.6

B. Small Wind Turbines (Residential)

Federal: A tax credit can be claimed for the installed cost of small wind turbines generating no more than 100 kW. The available credit is 30% through 2033, dropping to 26% in 2034 and 22% in 2035. The home served does not have to be the applicant's primary residence. This program will end as of 12/31/35.

C. Solar Hot Water Systems

Federal: A tax credit can be claimed for the installed cost of solar-thermal water heater systems. The available credit is 30% for systems installed through 2033, dropping to 26% in 2034 and 22% in 2035. The program ends 12/31/2035. The home served does not have to be the applicant's primary residence. Additional requirements include:

- At least half of the energy generated by the "qualifying property" must come from the sun. The system must be certified by the Solar Rating and Certification Corporation (SRCC) or a comparable entity endorsed by the government of the state in which the property is installed.
- Note: The credit is not available for expenses for swimming pools or hot tubs. The water must be used in the dwelling.

- Photovoltaic systems must provide electricity for the residence, and must meet applicable fire and electrical code requirements

All EnergyStar qualified systems qualify for this incentive.

D. Solar Electric Systems

Federal: A tax credit can be claimed for the installed cost of photovoltaic systems, including inverters, wiring, fees, and labor. Battery storage devices with a capacity of at least 3 kWh are also eligible if installed after 1/1/23. Other requirements include:

- The Photovoltaic system must provide electricity for the residence, and must meet applicable fire and electrical code requirements.
- The home served by the system does not have to be the taxpayer's principal residence.
- Both new homes and existing homes qualify.

The available credit is 30% for systems installed between 1/1/23 and 12/31/32, dropping to 26% for systems installed in 2033 and 22% for systems installed in 2034. The credit expires 12/31/2034.

E. Fuel Cells

Federal: A tax credit can be claimed for the installed cost of a fuel cell up to a maximum credit of \$500 per half-kilowatt. The available credit is 30% for systems installed through 2033, dropping to 26% in 2034 and 22% in 2035. This program will end as of 12/31/35.

The fuel cell must have a nameplate capacity of at least 0.5 kW of electricity using an electrochemical process and an electricity-only generation efficiency greater than 30%.

The home served by the system **MUST** be the taxpayer's principal residence.

In case of joint occupancy, the maximum qualifying costs that can be taken into account by all occupants for figuring the credit is \$1,667 per 0.5 kW. This does not apply to married individuals filing a joint return. The credit that may be claimed by each individual is proportional to the costs he/she paid.

V. Sources

The information for this summary report was gathered from the following sources:

www.Energystar.gov/about/federal_tax_credits/non_business_energy_property_tax_credits

www.energystar.gov/rebate-finder

www.Solar.com/learn/home-energy-efficiency-rebates-and-tax-credits

www.smallplanetssupply.com/small-planet-blog/tax-credits-and-incentives-in-the-inflation-reduction-act-for-homeowners-and-consumers

www.programs.dsireusa.org/system/program/detail/1235/residential-renewable-energy-tax-credit

Rebate information sheets from Clallam County PUD

Rebate information sheet from City of Port Angeles

VI. Glossary

AFUE (Annual Fuel Utilization Efficiency) is a rating that denotes the efficiency of gas heating equipment. It is the amount of heating your equipment delivers for every dollar spent on fuel. A higher rating indicates more efficient equipment.

CoP (Coefficient of Performance) of a heat pump is the ratio of the change in heat at the "output" (the heat reservoir of interest) to the supplied work.

EER (Energy Efficiency Ratio) The higher the EER rating, the more energy efficient the equipment is. This can result in lower energy costs.

Energy Factor is the measure of overall efficiency for a variety of appliances. For water heaters, the energy factor is based on three factors: 1) the recovery efficiency, or how efficiently the heat from the energy source is transferred to the water; 2) stand-by losses, or the percentage of heat lost per hour from the stored water compared to the content of the water; and 3) cycling losses. For dishwashers, the energy factor is defined as the number of cycles per kWh of input power. For clothes washers, the energy factor is defined as the cubic foot capacity per kWh of input power per cycle. For clothes dryers, the energy factor is defined as the number of pounds of clothes dried per kWh of power consumed.

HSPF (Heating Seasonal Performance Factor) rates the efficiency of the heating portion of a heat pump. As the HSPF increases, the unit functions at a more efficient level. New units in the US have HSPF ratings from 7.0 to 9.4.

kW (kilowatts) is a measure of power, that is the rate at which energy is flowing. For example electricity will flow through a typical portable bathroom heater at a rate of about 1 kW, while the flow through a typical LED light bulb will be only 0.013 kW.

kWh (kilowatt hours) is a measure of energy. For example, if a bathroom heater draws 1 kW of power and you let it run 3 hours, it will have consumed a total of 3 kWh of energy.

R-Factor (or simply R) measures how well a structural element (such as a wall) resists the flow of heat. The higher the number the better the resistance. Mathematically, R-factor=1/ U-factor.

SEER (Seasonal Energy Efficiency Ratio) Rates the efficiency of the cooling portion of a heat pump. The higher the SEER rating, the more energy efficient the equipment is.

SHGC (Solar Heat Gain Coefficient) measures how well a window blocks heat from sunlight. The lower the SHGC, the lower the heat gain through a window. SHGC ranges from 0 to 1.

Split System & Package System A central air conditioner (or heat pump) is either a split-system unit or a packaged unit. The majority of consumers have split systems in their homes. A split-system central air conditioner has 3 components:

- an outdoor metal cabinet that contains the condenser and compressor
- an indoor cabinet that contains the evaporator coil
- an air handler, that in most cases is part of the furnace or heat pump, that sends the cool air through the duct system.

If your home already has a furnace but no air conditioner, a split-system is the most economical central air conditioner to install.

A packaged central air conditioner has the evaporator coil, condenser, and compressor all located in one cabinet, which usually is placed on a roof or on a concrete slab next to the house's foundation. This type of air conditioner also is used in small commercial buildings. Air supply and return ducts come from indoors through the home's exterior wall or roof to connect with the packaged air conditioner, which is usually located outdoors. Packaged air conditioners often include electric heating coils or a natural gas furnace. This combination of air conditioner and central heater eliminates the need for a separate furnace indoors.

UEF (Uniform Energy Factor) The newest measure of water heater overall efficiency. The higher the UEF value is, the more efficient the water heater.

U-Factor (or simply U) measures how well a window, door, or skylight permits heat to flow through it. The lower the number, the more efficient the window. Ratings usually range from 0.15 to 1.20. Mathematically the value of U is the inverse of the value of R, that is U-factor = 1/R-factor.