



## Energy Tax Credits

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### Furnaces, Boilers and Air Conditioners

**MANY HOME ENERGY EFFICIENCY INVESTMENTS** are eligible for a 30 percent federal tax credit, up to \$1,500 per taxpayer. And the state of Montana credit is 25 percent, up to \$500 per taxpayer. Look for other Fact Sheets in this series that focus on investments in conservation and renewable energy. Now we turn our attention to the utility room: home furnaces and boilers and air conditioning units. Many products are eligible. And some utilities offer rebates on these appliances that can make the decision even easier.

As all Montanans know, there's lots of ways to heat a room. But most homes in the state are heated with natural gas. Federal and state tax credits are available for investments in furnaces and boilers fueled by natural gas, but also propane or fuel oil.

But restrictions apply and they relate largely to threshold energy efficiency of the home heating unit to capture both the federal and state credits. The requirements are high and Energy Star-labeled products may not necessarily meet the standards to claim these tax credits.

Energy Star was once a reliable guide to claim Montana's more relaxed state credit. But a recent ruling by the Department of Revenue brought the Montana standards up to those required of the federal credits. The general guideline for the state credit is that a new system be more energy efficient than the one it replaces, and that still holds for installations made prior to July 1, 2010. However, installations after July 1, 2010 must meet the higher efficiency standards.

The Department of Energy (DOE) recognizes several classes of home heating units. In general, they can be divided into those that heat water or other fluids — boilers. Home heating units that heat and distribute air are classified as furnaces. A third class embraces air-source heat pumps that provide space heating and in some instances cooling as well.

#### Furnaces

For natural gas or propane furnaces, the federal tax credit is up to 30 percent of the cost of an installed system that meets Annual Fuel Utilization Efficiency (AFUE) rating of 95 percent or higher. An oil-burning furnace can feature a slightly lower AFUE rating of 90 percent or higher. The credit caps-out at \$1,500 per taxpayer and the replacement unit must be installed during the tax year that the credit is claimed — 2009 or 2010.

A furnace investment can also meet the general criteria of the credit if an "advanced" main air circulating fan is incorporated into the unit, regardless of the AFUE rating. The fan itself must offer high efficiency. The electricity consumption of the fan must be no more than 2 percent of the total energy use of the furnace (annual estimates).

A listing of qualified furnace products meeting the federal criteria as of May 2009 is available at the Air-Conditioning, Refrigeration, and Heating Institute (ARHI) website: [www.ahrinet.org/ARI/util/showdoc.aspx?doc=1332](http://www.ahrinet.org/ARI/util/showdoc.aspx?doc=1332).

The Montana credit for a furnace is 25 percent of the investment, inclusive of installation costs, up to \$500 per taxpayer. The furnace must be a central system and, if installed prior to July 1, 2010, be more efficient than the unit it replaces. The unit may be installed in a second home or other building. Units installed after July 1, 2010 must meet the federal standards as outlined above. After this date, the home must be “habitually occupied as a residence in order to claim the credit.” Portable heaters or space heaters are ineligible. Use state form ENRG-C to claim the credit.

### **Boilers**

As previously mentioned, boilers heat fluids. The fluid (or in some instances steam) is then distributed through a network of piping to radiators that heat spaces. Boilers that burn natural gas, propane or oil must offer an AFUE rating of 90 percent or higher to capture the federal 30 percent credit, which is also capped at \$1,500. A listing of qualified boiler products meeting the federal criteria as of May 2009 is available at the Air-Conditioning, Refrigeration, and Heating Institute (ARHI) website: [www.ahrinet.org/ARI/util/showdoc.aspx?doc=1358](http://www.ahrinet.org/ARI/util/showdoc.aspx?doc=1358)

An Energy Star product listing for both boilers and furnaces is available on the Environmental Protection Agency site at: [http://energystar.custhelp.com/cgi-bin/energystar.cfg/php/enduser/std\\_adp.php?p\\_faqid=5786](http://energystar.custhelp.com/cgi-bin/energystar.cfg/php/enduser/std_adp.php?p_faqid=5786). Remember though, not all Energy Star products meet the tough standards for tax credits.

The Montana credit for a boiler is also 25 percent of the investment, inclusive of installation costs, up to \$500 per taxpayer. The state recommends that consumers purchase highly efficient units, but to capture the credit a boiler installed prior to July 1, 2010 must simply be more efficient than the one it replaces. The unit may be installed in a second home or other building. Units installed after July 1, 2010 must meet the federal standards as outlined above. After this date, the home must be “habitually occupied as a residence in order to claim the credit.” Use state form ENRG-C to claim the credit.

Homeowners who have purchased a boiler or furnace should keep the energy efficiency certification label on file, even though there’s no requirement to submit a copy to claim the credit for either state or federal taxes.

### **Air-Source Heat Pumps**

Don’t confuse air-source heat pumps with ground-source heat pumps. Ground-source systems warrant a separate set of state and federal credits and a separate advisory has been prepared. Consumers investigating ground-source systems should research those areas.

Air-source heat pumps work according to the same principles as your home refrigerator: A low-grade ambient source — outdoor air — is stripped of its heat by interfacing with a closed-loop of refrigerant. The low-grade heat contained in outdoor air causes the refrigerant to evaporate in an exchanger. The refrigerant gas is compressed and heat is drawn off as it condenses through coils. The cooled refrigerant, having given off much of its heat, is sent back outdoors.

A split-system will feature coils for the refrigerant evaporator unit in an outdoor location, while the condenser coil and compressor are inside the house. This is a common configuration for

residential applications. Integrated or packaged systems are more common for larger buildings and commercial applications.

Air-source heat pumps can be efficient since they withdraw available heat from the air and move it to where it's needed. As you might expect, though, air-source heat pump systems function most efficiently when outside ambient air temperatures remain temperate — say, above 30 degrees Fahrenheit. For many areas of Montana, below-zero January air is simply too cold for these types of systems to function effectively. The default when outside air becomes too cold is usually a form of electric heat. Consequently, air source heat pumps are common mostly in our milder, lower elevation valleys.

### **Air Conditioning**

Residential air-source heat pumps may be configured to run in reverse — cooling the house in summer as well as providing heat in winter. For certain climates, a combined system that both heats and cools spaces is highly desirable.

The tax credit issues surrounding air conditioning are very similar to those for air-source heat pumps. The system must be central and may be split — having components outdoors and indoors — or packaged. Specific information to capture the federal credit is available below.

The Montana credit for air conditioning is 25 percent of the qualified investment, inclusive of installation costs, up to \$500 per taxpayer. The unit must be a central system and, if installed prior to July 1, 2010, be simply more efficient than the one it replaces. The nature of the incentive prevents the capture of the credit through an investment in central air for a structure that previously did not have a system. However, a qualified system may be installed in a second home or other building. Units installed after July 1, 2010 must meet the federal standards as outlined above. After this date, the home must be “habitually occupied as a residence in order to claim the credit.” Use state form ENRG-C to claim the credit.

### **SEER and EER**

A Seasonal Energy Efficiency Rating (SEER) expresses — as the name suggests — the efficiency of electrical consumption over an entire heating (or cooling) season. The SEER rating applies to the cooling efficiency of combined heating and cooling systems. To capture the federal credit, the SEER must be at least 15. The Energy Efficiency Ratio (EER) measures how a unit performs at a given air temperature. This second operating mode must be at least 12.5. The higher the number, the better the rating. But note that not all Energy Star-endorsed products qualify for the federal tax credit.

The EPA, working with the Consortium for Energy Efficiency (CEE), developed an easy-to-use tiered standard for central air conditioners and air-source heat pumps. Tier 2 and 3 represent the higher end for energy efficiency. Consumers researching this type of heating system must look for a certification label that meets these upper-tier standards — not simply an Energy Star endorsement. For units that do, the federal credit is 30 percent of the investment in equipment and installation, up to \$1,500 per taxpayer.

A “seasonal performance factor” measures a pump’s energy efficiency over an entire season. For example, to qualify for the federal tax credit, a split system air-source heat pump must be labeled with a seasonal performance factor of at least 8.5. For more information about SEER and EER, visit the Energy Star website: [http://energystar.custhelp.com/cgi-bin/energystar.cfg/php/enduser/std\\_adp.php?p\\_faqid=5799](http://energystar.custhelp.com/cgi-bin/energystar.cfg/php/enduser/std_adp.php?p_faqid=5799). These SEER and EER standards are also used to measure the energy efficiency air conditioning systems.

The CEE operates a website to search ratings for air-source heat pumps and central air conditioning units at: [www.ceedirectory.org/Content/HowtoUsetheDirectory\\_10.aspx](http://www.ceedirectory.org/Content/HowtoUsetheDirectory_10.aspx). You must enter detailed information about the manufacturer, type of system, model and heating and cooling capacity. And of course many manufacturers post efficiency information on company websites.

### **Resources**

The Tax Incentive Assistance Project (TIAP) is a coalition of public interest nonprofit groups, government agencies, and other organizations in the energy efficiency field. Its website is designed to give consumers and businesses the information needed to make use of the federal income tax incentives for energy efficient products and technologies. The TIAP website can be accessed at: <http://energytaxincentives.org/>

The Database for State Incentives for Renewables and Incentives (DSIRE) offers good descriptions of state and federal incentives at its national website: [www.dsireusa.org/](http://www.dsireusa.org/).

The Montana Department of Revenue offers a website that shows the overlap of state and federal energy tax credits at: <http://recovery.mt.gov/revenue/default.mcpX>. The site also offers links for additional information about state and federal conservation tax credits. You can also access the Montana tax form ENRG-B, which is used for alternative energy projects such as ground-source heating systems. The specific geothermal tax credit is form ENRG-A. The form ENRG-C is used for energy conservation work. The forms include questions and answers on the back.

The American Air-Conditioning, Heating & Refrigeration Institute offers a current product listing that meets the federal criteria at the website: [www.ahrinet.org/ARI/util/showdoc.aspx?doc=1516](http://www.ahrinet.org/ARI/util/showdoc.aspx?doc=1516).

Visit the Montana Department of Environmental Quality's site, Energize Montana at: <http://deq.mt.gov/Energy/default.mcpX>.