Save Money this Winter while Improving Seeley Lake's Air Quality

By Megan Birzell and Carol Evans

The wonderful smell of fireplaces and wood stoves has already started to fill the air in the valley. This scent, combined with the cooler, wetter weather and the changing colors of the shrubs and tamaracks, tells us that winter is coming.

This is the second winter in the most recent La Niña cycle. Forecasters predict it will be colder than last year, which will raise our heating costs. We can either spend more money for more cords of wood, or we can spend more time cutting wood.

More wood smoke means poorer air quality in the valley. As the inversions trap the smoke low in the valley for days on end, it's less fun to be outside in the winter and can impact our enjoyment of winter sports like snowmobiling, skiing, and snowshoeing. Studies have shown that the health impacts are even greater than expected.

The good news is that there are several ways to save money on heating costs and improve the air quality in the valley. The way you burn wood in your current wood stove can improve your stove's efficiency while reducing the amount of particulates your stove releases into the area. Further, upgrading to an EPA-certified wood stove can significantly lower your long-term heating costs and improve the air quality in the valley.

Low-Cost Solutions

To increase wood stove efficiency and lower emissions levels into the atmosphere:

- Obtain firewood in late winter/early spring to ensure firewood is seasoned & sheltered from weather for 6 months. Seasoning firewood will reduce wood consumption by up to 25%
- Firewood size is important: Smaller pieces burn more cleanly because more surface area is exposed to the flame. Wood should be split to maximum thickness of 10-15 cm, depending on stove size, and should be 10 cm shorter than the firebox
- Careful control of the air supply determines how completely the fuel is burned. When you start a fire or add wood to it, the fresh fuel requires much more air for the first 10 to 15 minutes. Once the wood is well charred, the amount of air required drops off
- Loosely packed pieces burn faster since combustion air can reach all pieces at once. To maintain a consistently clean burn, refuel your stove frequently with suitably sized loads of wood before the previous load is completely consumed, and the firebox cools.

Catalytic Combustors

The best way to increase the efficiency of your current wood stove and reduce air pollution is to install a catalytic combustor. Installing a catalytic combustor in your wood stove results in a huge increase in heat output from the stove. In order for the catalytic combustor to engage, the stove must reach an internal temperature of 500-1000 degrees. Once the combustor is engaged, it slows down the burning process in the stove. The wood is slowly "cooked" as opposed to being burnt. The slow cooking of the wood is a more thorough burn that results in total combustion. The total combustion utilizes the wood as a fuel source with no waste. In addition, a catalytic combustor forces all smoke to be re-burnt before it enters the chimney. This results in cleaner emissions in the air. Catalytic combustors range in price from $60 to $120 and can last five years or longer when properly maintained.

EPA-certified Wood Stoves

Beginning in 1992, all wood stoves sold in the US must be certified by the EPA. This certification ensures that wood stoves produce less than 7.5 grams of smoke per hour compared to approximately 42 grams of smoke emitted from wood stoves manufactured in the 1970s and 1980s. You can tell if your stove is EPA certified by looking for a label on the side or back that reads "Environmental Protection Agency."

Efficiency

On average, EPA certified stoves are about one-third more efficient than older wood stoves and almost all of the currently available central wood heating furnaces and boilers. That's one-third less cost if you buy firewood, or one-third less cutting, hauling, and stacking if you cut your own. At $125/cord that could add up to a savings of $500-600 a year. Although this higher efficiency is a by-product of mandatory emissions limits, it has made the EPA rules a winner for both the environment and stove users. EPA certified stoves cost, on average, $200 more than the older wood stoves they replace. Over just two seasons of wood burning, the greater efficiency of the stove more than compensates for the higher initial cost.

EPA certified stoves produce about 70% to 90% less particulate matter - smoke - than older stoves. After a fire is ignited, you should see no visible smoke from the chimney. Seventy to ninety percent less smoke means 70% to 90% less creosote. This gives three important benefits. First, the risk of chimney fire is virtually eliminated, as long as the stove is operated correctly and reasonable maintenance is done. Second, the flue pipe and chimney will need cleaning much less frequently, which is another way the new technology stoves save time and money. And third, 70% to 90% fewer particulates means much cleaner air in the valley.

Costs and Cost-Savers

EPA-certified wood stoves cost anywhere from $1000 to $3000 depending on the manufacturer and heating capacity of the stove. The chimney averages $800, and installation is about $500. Admittedly, EPA-certified wood stoves require a higher initial investment than the low-cost options discussed above. However, in the long-term less wood is needed for these new stoves, saving hundreds of dollars and/or hours of time each year.

Here are some tools you can take advantage of as a Montana resident to reduce the cost of buying and installing an EPA-certified wood stove:

- Energy Conservation Installation Credit: The State of Montana will reimburse you 25% of the expense of buying and installing a new EPA-certified wood stove up to $500. A family can receive a **credit of up to $1000** if the homeowners (i.e. a husband and wife who own a home jointly) claim the credit up to $500 each, or $1000 for the couple.

- Low Income Energy Assistance Program: This grant program, operated through the Montana Department of Health and Human Services, provides financial assistance for low-income families looking to heat their homes more efficiently. The Department accepts applications from October through April each year. Applications are ranked according to degree of need and are placed in "priority groups." **Special priority is given to older adults and individuals with disabilities**. To be eligible for the program, you must make no more than 150% of the federal poverty level. This means that, for a household of four, gross income cannot exceed $31,800 in order to be eligible for the program.

More Information

The Clearwater Resource Council website provides more information on steps you can take to improve wood burning efficiency and lower the amount of particulates released into the air as well as providing links to Missoula wood stove retailers and State of Montana websites detailing the **Energy Conservation Installation Credit** and the **Low Income Energy Assistance Program.** Visit www.crcmt.org/airquality for more information.

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