



**ALLIANCE**  
**FOR GREEN HEAT**  
clean, renewable & local

## State Residential Biomass Report Card

February 15, 2011

### Background Q & A

#### What is role and position of federal government?

**1. Regulation:** The EPA is in the process of updating wood appliance regulations which includes: making emission standards stricter, requiring *all* stoves meet emission standards including pellet stoves, outdoor wood boilers and the inexpensive exempt wood stoves. Within 3 – 5 years, most observers believe that the EPA will require stoves to be less than 2.5 to 3.5 grams per hour.

**2. Education:** The EPA has an excellent website about clean wood burning - “Burn Wise,” at <http://www.epa.gov/burnwise>. The site has a wide array of resources, links and tools that can be used by states, local counties and town, and wood burners.

**3. Incentives:** The EPA has excellent resources for wood stove change-out campaigns (<http://www.epa.gov/burnwise/how-to-guide.html>) but little guidance or involvement in incentive programs that focus on the cleanest wood heat technologies on the market today.

#### How has Europe taken the lead in this renewable energy market?

Many parts of Europe have been giving significant incentives for pellet systems and automated central wood and pellet boilers for many years. Instead of just focusing on expensive residential solar and geothermal systems, European countries have been able to assist hundreds of thousands of families install affordable biomass systems to reach their renewable energy goals much faster.

#### What kinds of incentives are most effective?

For low and moderate income families, rebates and grants are generally the best. Tax credits do not help taxpayers who are unemployed, for example, and do not owe taxes that year. Generally, tax credits are a common and popular incentive device by the federal and some state governments. Low interest renewable energy or energy efficiency loans are helpful to some, including those doing larger renovations, but involve more paperwork and commitment from the consumer.

#### Does the federal government provide any wood stove incentives?

The federal government provided a 30% tax credit, up to \$1,500, for biomass appliances that were at least 75% efficient at the lower heating value (LHV) during 2009 and 2010. That credit, provided under section 25c of the tax code, covers scores of energy efficient products and was extended in 2011 at much lower levels. Wood and pellet stoves, for example, now are capped at \$300 through the end of 2011. Unlike other products that had strict eligibility requirements to incentivize the top 10-20% most efficient models, virtually all wood stoves became eligible using the manufacturer certified 75% LHV threshold. The Alliance for Green Heat believes an emission based cap, at no more than 4.5 grams an hour for wood stoves, and a lower cap for pellet stoves, would have been a much more effective incentive during 2009 and 2010.

### **Won't solar, geothermal and wind always be the cleanest options?**

In terms of air quality, yes, but even these renewables have their own drawbacks. Additionally modern clean biomass systems are far better than fossil fuels. Moreover, low and moderate-income families may never be able to afford those technologies, whereas they can afford modern, clean biomass system.

### **Why should southern states care about wood heat?**

Many more people heat with wood in the south than people may expect. For example, residents in Mississippi, Alabama and Tennessee use wood heat as a primary or sole heating fuel on a per capita basis as much or more than the national average. However, the amount of wood they use is far lower, around half to a quarter the amount needed to heat homes in northern states. Arkansas and New Mexico residents are in the top 10 states of per capita wood heating, at 4.5% and 6.1% of their populations respectively.

### **In which states do residents use wood heating the most?**

On a per capita basis, residents in Idaho (7.3%), Maine (8.7%) Montana (7.8%), Oregon (7%) and Vermont (11%) use wood heat the most. In *rural areas*, residents in New Mexico (22%) and Washington (15%) are among the highest per capita. Other states that have very high *rural* per capita use of wood as a primary heating fuel include California (12.3), Missouri (10.3), New York (10.4), New Hampshire (10.1), Wisconsin and Wyoming (10.9) and West Virginia (10.3). See [http://factfinder.census.gov/servlet/ACSSAFFHousing?\\_sse=on&\\_submenuId=housing\\_1](http://factfinder.census.gov/servlet/ACSSAFFHousing?_sse=on&_submenuId=housing_1).

### **Can wood heat be promoted in air quality non-attainment areas?**

In non-attainment areas especially, incentives to get consumers to buy pellet stoves instead of wood stoves and to set stricter emission standards than the ones from EPA, can be very effective tools to lower wood smoke emissions. Five pellet stoves often put out fewer particulates than a single EPA certified wood stove.

### **Why is wood heat the fastest growing residential renewable energy source in the US today?**

We believe the big uptick in recent years of families heating with wood is primarily due to the price of fossil fuels combined with an economic recession and record high unemployment. To a much lesser extent, it reflects some people who want to be “green” and get off of fossil fuels, regardless of whether it saves them money. Biomass stoves are relatively inexpensive to purchase and operate, so have a short payback period, typically 2 – 5 years for wood and 3 – 8 years for pellets, depending on the type of fuel being replaced.

### **How much do families save heating with biomass?**

Generally, families can save significant amounts of money if they originally heated with electricity, propane or oil. The [January issue of Popular Mechanics](#) calculated that cord wood was the cheapest heating fuel of all, saving a few hundred compared to gas, and \$1,150-\$2,000+ per year compared to oil, propane and electric. They estimated gas heat could be cheaper than pellet heat, but pellet heat was \$500 - \$1,400 cheaper per year compared to oil, electricity and propane.

### **What are the most popular wood heat appliances in the US today?**

The non-catalytic wood stove or insert continues to be the most popular wood-burning appliance. Pellet stoves typically make up about 10% of the market and catalytic wood stoves are typically less than 10% of the market. Indoor and outdoor boilers also make up a small section of the market. Masonry stoves occupy the smallest niche, but are typically very efficient and clean.

### **How fast is wood heating growing in the US and is it expected to continue?**

The US Census shows that about 250,000 more homes are using wood as a primary or sole source of heat, reflecting a nation-wide increase of .1% of homes using wood heat to a total of 2.0% of homes using wood heat in the past 10 years. Within this larger trend, use of wood heat in six primarily northern states jumped 50 – 80% and fell 10% to 33% in six southern states. For every home that uses wood as a primary or sole source of heat, another 8 - 10 use it as a secondary source of heat. The Alliance predicts wood heat use will steadily grow if the price of electricity, oil and gas continues to rise. The recent fall in gas prices is significant for wood heat and wood heat would likely have risen much more if gas were not so cheap today. It is unlikely homes using wood will double from 2% to 4% any time soon, but with the right policies and incentives in place, the US could do so while reducing the wood smoke particulates currently being produced.

### **How can wood heat as the primary source of heat be increasing while sales of stoves are decreasing?**

This is likely due to people using existing stoves as a primary heating source, which had been used as a secondary heat source. Stoves can also be purchased on the second hand market, which is not tracked. In terms of new sales, figures from the Hearth, Patio & Barbeque Association show shipments of fireplaces, freestanding wood stoves and inserts declined about 30 percent from a high of 795,767 in 1999 to 235,647 in 2009. Pellet stove and insert shipments showed a pattern of dramatic one-year increases and decreases

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**How does this Report Card assess fireplace use?**

It doesn't. None of the Census figures or state programs we analyze address fireplaces per se. Fireplaces mainly serve an aesthetic purpose in most homes and typically do not help to heat a home. However, clean burn practices generally apply to both stoves and fireplaces by stressing importance of using dry wood and keeping a fire hot instead of letting it smolder, etc.

**Is sustainability of wood supply a big concern?**

No, not now and not in the foreseeable future. The two main sources of firewood in America are 1. Wood collected by homeowners on their own woodlots and 2. Wood from tree services that has already been cut for some other purpose. Since the wood used for residential heating is typically gathered on a very low-impact local scale, there is very little danger of overharvest. Wood pellets have an entirely different harvest and production profile. Currently, since there is a low demand for pellets in the US, much of the pellet production from North America is being shipped to Europe, where low carbon fuels are in much higher demand.