

Contemporary Wood Heat Trends in Maryland

Alliance for Green Heat

www.forgreenheat.org

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Many low-income families rely on wood heat because they can harvest it at very low cost and avoid the fossil fuel bills that cause the 'heat or eat' dilemma in many poor communities. Wood heat provides a means by which rural, low-income households can afford winter heating and can also stay off of public heating assistance programs such as LIHEAP.

In Maryland, as in the rest of the US, rural families using wood avoid using more fossil fuel than all the Maryland families using wind, solar and geothermal combined.

Based on US census and national trends, there are probably about a 242,000 Marylanders who use wood or pellets for heat. Another 594,000 Maryland homes have fireplaces. Of the 242,000 homes with stoves, 90% of that population uses wood as a secondary heat source and only about 10%, or 23,000, use it as a primary or sole heat source. Based on national trends, Marylanders burn about 400,000 – 500,000 cords of wood per year¹ 75% of this is burned for heat in stoves and 25% in fireplaces or campgrounds.

Typically, only 1/3 of firewood is purchased and the rest is self-harvested. Based on this national trend, Maryland businesses likely sell around \$19 million by the cord, and \$32 million is smaller packaged bundles.²

1. Counties with per-capita income below the Federal Poverty Line have almost 3 times more wood heat users than counties above the Federal Poverty Line.

To measure the disparity in wood use between high and low-income communities, we examined a total of 196 counties in six states; Oregon, Maine, New Hampshire, Montana, West Virginia and Maryland. The states selected were chosen for their geographical spread, high percentage of forest land and high levels of residential wood heat use; five of the chosen states are in the top ten highest wood use states.

We analyzed the per capita income for each county to determine if families below the Federal Poverty Line (FPL) of \$22,050 (for a family of four, 2009-2010) were more likely to use wood heat than families above the FPL. When the two groups were compared, we found that counties with a per capita income below \$22,050 were 2.8 times more likely to have wood heat users than other counties

¹ This is based on national averages of each wood stove using an average of 1.5 cords per year and each fireplace using an average of .25 cords. It also conforms to US Forest Service estimates on wood usage per capita nationally.

² Based on national averages of how much wood is sold in bulk by the cord and sold in higher priced small packages in retail stores.

(P=.001). Counties with a per capita income below the FPL had an average of 10.7% wood heat use as a primary or sole heat source compared to 3.8% in higher income counties.

Since counties with per-capita income falling below the Federal Poverty Line are almost three times as likely to heat with wood, we can conclude that the financial benefits of wood heat are a significant benefit to low-income areas. This analysis underscores the function of wood heat as a vital resource for lower income communities to heat their houses affordably

2. Maryland counties show a 42% correlation between higher wood use and a higher percentage of families below the poverty line.

We examined Maryland to determine the correlation between the percentage of families in a county living below the Federal Poverty Line and the percentage of wood use. Maryland is geographically well suited to take advantage of forest resources, and the counties have a wide range of incomes. Maryland counties have percentages of families living below the FPL ranging from 2.6%-13.3%. Analysis reveals a positive correlation between rising percentages of wood heat users and percentage of families in that county below the poverty line (Fig. 1).

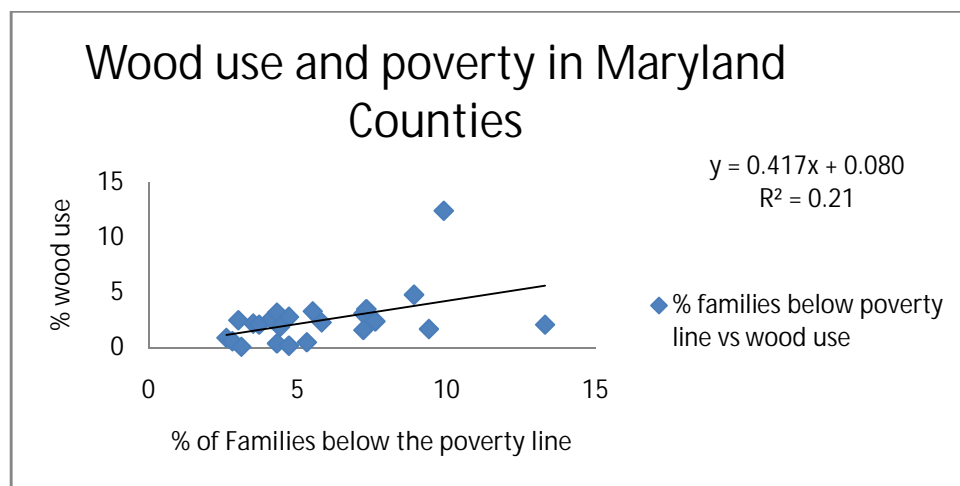


Figure 1: % of Families below the Federal Poverty Line vs. % of wood use in 23 Maryland Counties

The predictable converse of this is visible in Figure 2. Counties with higher per-capita incomes are correlated with less wood heat use.

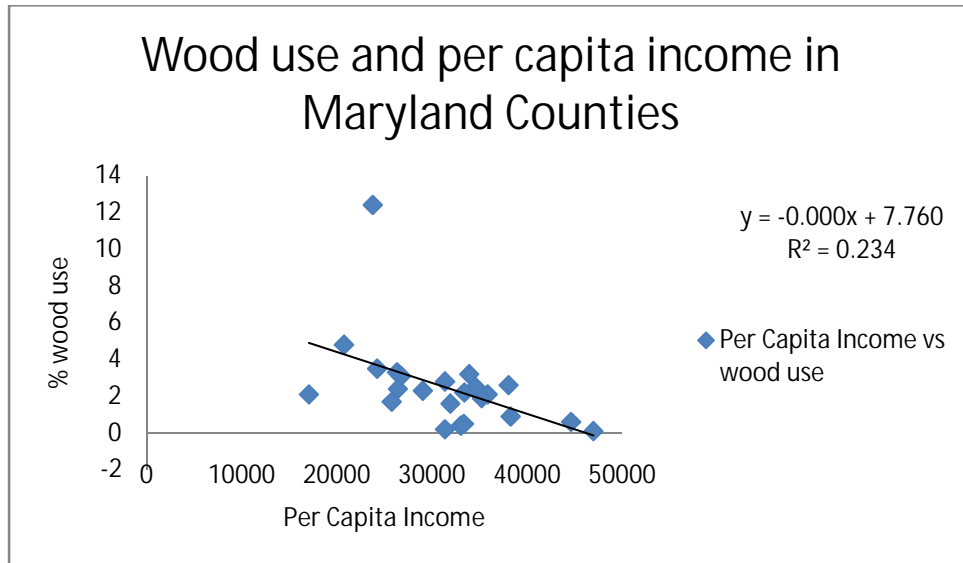


Figure 2: Per capita income vs. % of wood use in 23 Maryland Counties

Maryland’s counties reinforce the existence of a connection between families living below the Federal Poverty Line and wood heat use. This data suggests that low-income families consistently turn to wood heat as a heating source.

3. Preliminary analysis suggests wood heat users are less likely to turn to LIHEAP funds

Federal LIHEAP statistics indicate that while over 3% of low-income households are likely to use wood heat nationally, only 1.2% of LIHEAP recipients receive funding for wood heat. This could suggest a number of things including: qualified wood heat users don’t apply for LIHEAP assistance or despite being qualified for LIHEAP funds, wood heat users can afford to remain off public assistance. The Alliance for Green Heat is currently examining the LIHEAP programs in Maryland and West Virginia to further explore this question.

Wood heat not only benefits the community by keeping heating dollars in the local economy, and benefits the state by potentially allowing LIHEAP eligible families to remain off heating assistance. It also may help the borderline LIHEAP eligible demographic save money and avoid becoming qualified for LIHEAP.

4. Emissions from wood stoves can be significantly reduced with incentive programs

The major drawback of wood heat is emissions. In most areas of the US, 65 – 80% of stoves used were made prior to 1988 when the EPA started regulating stoves for emissions. Those older stoves typically emit 30 – 40 grams of particulates per hour, and justifiably cause concern. Since 1990, the EPA has limited wood stoves to a maximum of 7.5 grams an hour. While technology and state regulation has advanced, EPA’s emission limits have stayed the same, rendering them somewhat irrelevant. Today, about a quarter of wood stoves produced are under 3 grams an hour. Pellet stoves have never been

regulated by the EPA but states have provided some necessary regulation, and about a quarter or a third of pellet stoves today are under 1.5 grams per hour. Moreover, emissions from pellet stoves are consistent over time, unlike wood stoves that can vary depending on the moisture content of the wood and other factors.

An incentive program is likely to steer most consumers to the eligible stoves, resulting in much cleaner stoves being sold and installed. Moreover, if combined with an additional rebate to turn in older, non-EPA compliant stoves, it gets those stoves out of circulation instead of onto the second hand market. Under the proposed legislation in Maryland, half the population that lives in more densely populated areas and heats with gas is only eligible for a rebate for a pellet or corn stove, not wood. That is likely to lead to people in densely inhabited areas installing low-emission pellet or corn stoves, instead of wood stoves. This too will lead to an improvement in air quality, if this program is adopted.

The Alliance for Green Heat is a non-profit, 501c3 organization based in Takoma Park Maryland. The Alliance promotes high-efficiency wood combustion as a low-carbon, sustainable and local heating solution. The Alliance seeks to make wood heat a cleaner and more efficient renewable energy option, particularly for those who cannot afford fossil fuel heat.