

# Heating with Pellet Fuel 101: The Basics and the Benefits

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A Presentation by Jon Strimling,  
President and CEO of WoodPellets.com,  
A subsidiary of American Biomass



# Intro to WoodPellets.com

WoodPellets.com is America's leading independent distributor of wood pellets, with nationwide delivery capabilities, patented logistics software, and world class customer service.

Our customers enjoy:

- convenient home delivery of the highest quality premium and super-premium wood pellet fuels;
- the attention of our committed and capable customer service team;
- and access to our extensive network of affiliated hearth shops to provide appliance maintenance and service.

We provide the industry with:

- a unique and influential portal to obtain information on the latest research, technology, and legislation;
- and a dedicated team of government affairs advocates to influence new public policies.

# Biomass Pellet Fuel Basics



Lumber residuals and agricultural bi-products

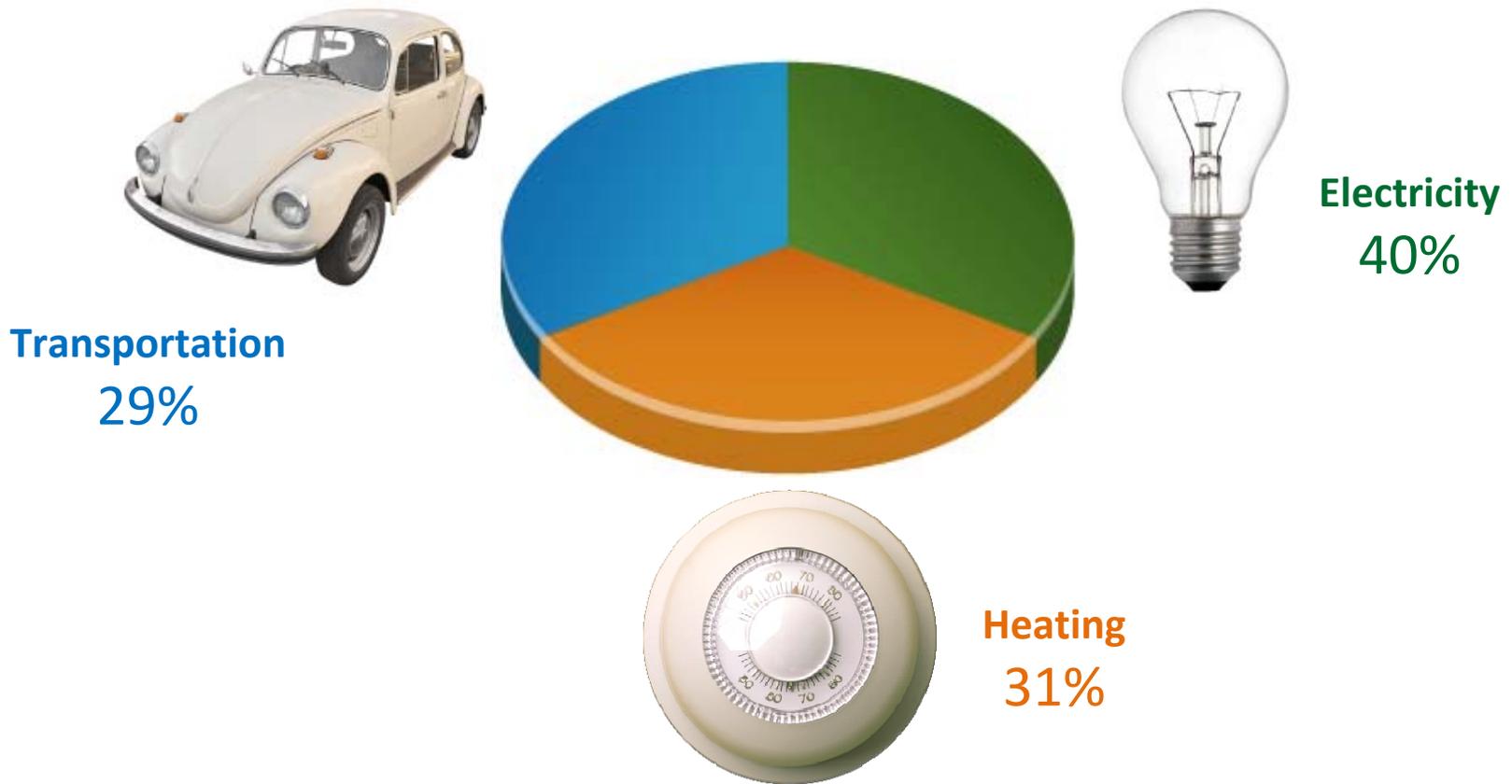


Biomass heating products from sustainable resources



Carbon neutral biomass heating systems

# America's Energy Usage Has Three Major Slices

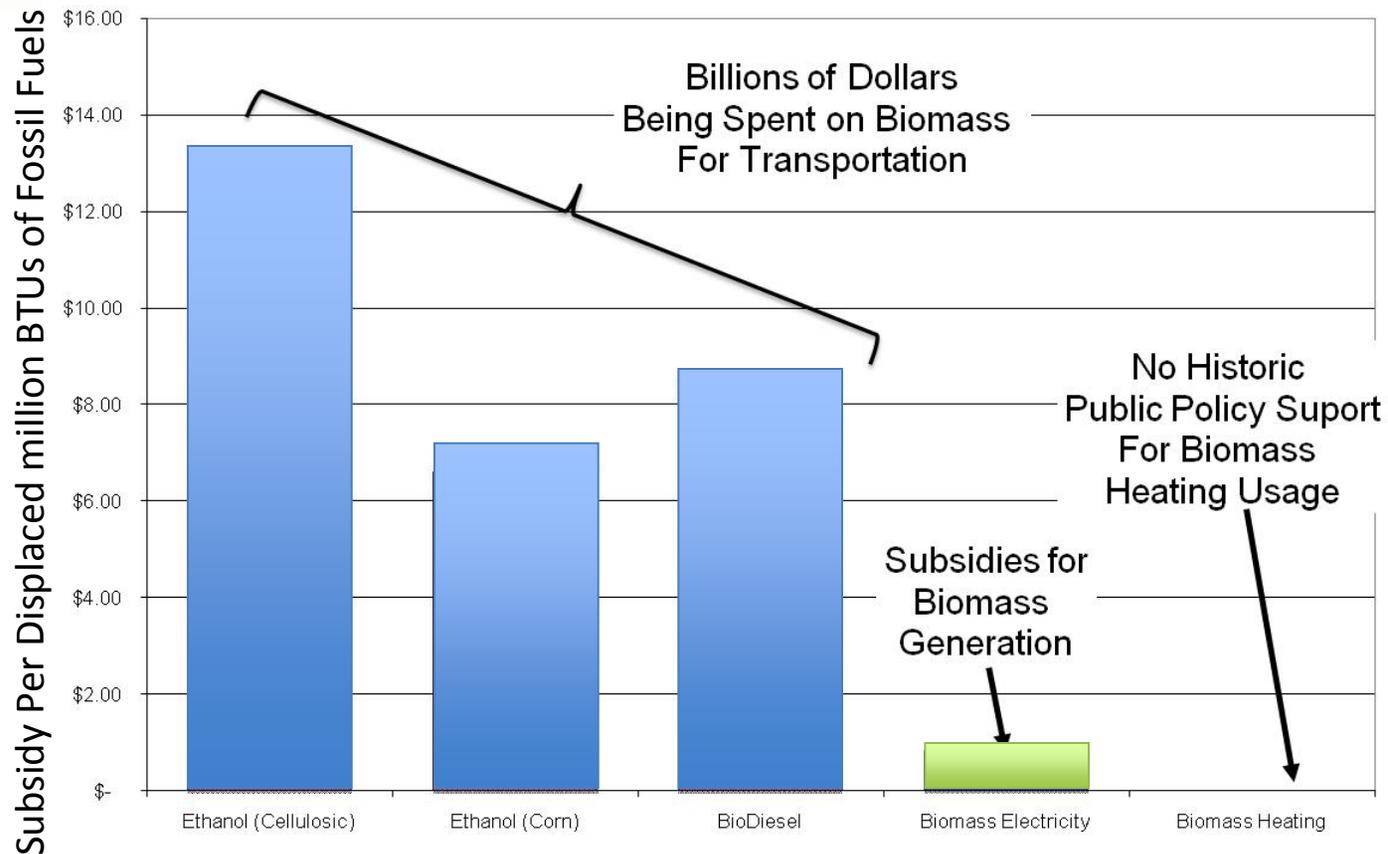


# Biomass Is Used Across Sectors

Unlike wind or solar, biomass is being used in electrical generation, as a feedstock for transportation fuels and as a heating fuel, along with for other non-energy uses for the same materials.

- Incentives in one sector (generation, transportation, heat) impact the pricing of raw materials for all other uses of those materials.
- Heating has historically been overlooked as policy measures focused on either the transportation sector or the electrical generation sector.

# Public Policy in the US Favors Transportation



Source: Database of State Incentives for Renewable Energy ([www.dsireusa.org](http://www.dsireusa.org))

# Public Policy Should Reward Efficiency

We support an energy policies focused on these desired outcomes:

- **Promotes highest efficiency** utilization of all energy resources
- **Maximizes job creation** in the biomass energy sector
- **Reduces greenhouse gases** that contribute to climate change
- **Improves air quality** through the support of clean, efficient combustion technologies
- **Maximizes the reduction of America's reliance on foreign fossil energy** and increases America's energy independence
- **Promotes sustainable use** of finite natural resources

We seek a *level playing field*, where biomass thermal can compete on its merits with biomass electrical generation and liquid transportation fuels.

# Some Quick Facts and Statistics

## **Biomass is the most broadly used form of renewable energy in our country**

- *Biomass represents 53% of our nation's renewable energy portfolio*
- *Biomass displaces 10X more fossil energy than wind, solar or geothermal*
- *Over two million homeowners use biomass as their primary heating source*

## **Heating with biomass fuels is effective. Doing so:**

- *Eliminates 75% of the carbon emissions associated with fossil fuel heating*
- *Displaces twice as much imported oil as ethanol (per unit of biomass)*

## **Heating with biomass fuels is practical. Biomass heating solutions:**

- *Are affordable, with millions of homeowners utilizing wood and pellet stoves today*
- *Have no technical barriers, with equipment readily available on the market*
- *Have been demonstrated to benefit from supportive public policy initiatives, as has been seen in Germany, Sweden and throughout Europe*

# Heating is the Most Efficient Use of Biomass

## Energy Potential for U.S. Biomass

The examples in this chart are based on 1 million tons of green biomass.

**Thermal Energy**  
78 – 85% Efficient



*Yield*  
 x 87,000 households

*Jobs Created*  
 x 200

*Foreign Import Reduction*  
 x 1,310,000 bbl.  
Foreign crude

*GHG Reduction*  
 x 520,000 metric tons

*US Taxpayer Spending*  
 x None

*Technology*  
Advanced technology in place

**Electricity Feedstock**  
30 – 40% Efficient



*Yield*  
 x 73,000 households

*Jobs Created*  
 x 25

*Foreign Import Reduction*  
 x 0

*GHG Reduction*  
 x 700,000 metric tons

*US Taxpayer Spending*  
 x Production Tax Credit:  
\$8M

*Technology*  
May require technology upgrade

**Transportation Fuel**  
10 – 15% Efficient



*Yield*  
 x 29,000 households

*Jobs Created*  
 x 30

*Foreign Import Reduction*  
 x 860,000 bbl.  
Foreign crude

*GHG Reduction*  
 x 230,000 metric tons

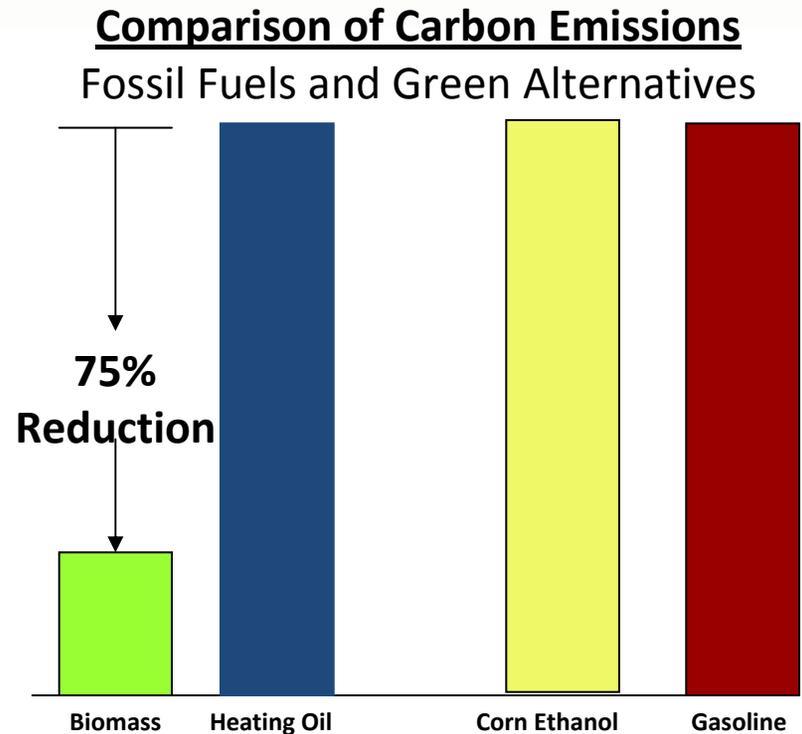
*US Taxpayer Spending*  
 x Production Tax Credit:  
\$40M

*Technology:*  
Unproven cellulosic technology required

# Biomass Heating Offers Practical Carbon Reductions Today

## Key Points on Carbon:

- The globe requires carbon reduction efforts to start immediately.
- We have finite agricultural and forest resources as biomass feed-stocks.
- Utilizing biomass for corn ethanol does not significantly reduce net carbon emissions (given emissions from transport and processing.)
- Utilizing biomass for heating provides a net 75% reduction.

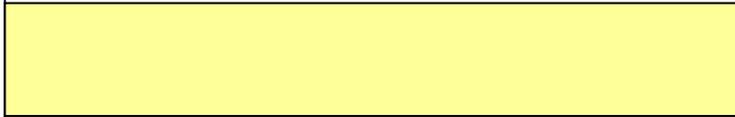


Source: J. Pendray, MIT, 2007, "Prospects for Increased Low-Grade Bio-Fuels Use in Home and Commercial Heating Applications."

# Biomass For Heating Provides Energy Independence

Using biomass for heating displaces more than twice the oil of using the same feed-stocks for ethanol.

Oil displaced per unit of biomass converted to ethanol



Oil displaced per unit of biomass by solid biomass heating



The technology to save money with biomass heating exists today;  
but the technology for cost effective cellulosic ethanol is still being developed.

Source: J. Pendray, MIT, 2007, "Prospects for Increased Low-Grade Bio-Fuels Use in Home and Commercial Heating Applications."

# Biomass Heating Spurs Job Creation

Biomass has enormous potential for job creation

- Multiple 'green-collar' jobs, from forests to transport/processing to equipment manufacturer, installation and service
- Usage for heating creates more jobs (per ton of biomass) than other sectors
- Unlike solar or wind, the fuel needs to be harvested and brought to the consumer year after year, resulting in substantial long-term job creation

German leads in green job creation (biomass leads among renewables):

- Jobs in solar industries : 75,000
- Jobs in wind industry: 84,000
- **Jobs in biomass industry: 96,000**

(German policies focus on the use of biomass for heat and cogeneration)