

## Maximizing Near-Term Potential Climate & Energy Challenges with Woody Biomass

*Or, how do we achieve maximum fossil fuel energy displacement at the lowest subsidy cost to the American Taxpayer?*

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**This is not a trick question: what do you get for one million green tons per year of biomass?**

100 MW Biomass Power	VS	Five Regional Pellet Plants
\$180+ million	<b>Required Capital</b>	\$90 million
25	<b>New Jobs</b>	125*
35%	<b>BTU Energy Conversion Efficiency</b>	80%
\$54 million	<b>US Govt. Subsidy (ITC)</b>	\$0

\* Not including the thousands of jobs created in the distribution of the fuel and the maintenance of the appliances

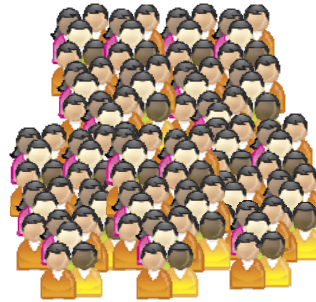
**Biomass thermal energy applications typically create quality jobs in the rural community and better use of sustainable forest resources**

**100 MW Power Plant**



**☐ 25 new jobs**

**Five Pellet Plants**



**☐ 125\* new jobs**

\* Not including the thousands of jobs created in the distribution of the fuel and the maintenance of the appliances

**Biomass thermal energy fuels and systems displace significant amounts of imported fossil fuels**

Current US & EU Pellet Market	
2,200,000	2008 Pellet Production (US)
\$528,000,000	US Retail Sales 2008/2009
<b>264,000,000</b>	<b>gallons of displaced heating oil</b>
10,000,000	2008 EU Pellet Production
\$2,760,000,000	European Sales 2008/2009

## Thermal Energy Woody Biomass Can Achieve Immediate Impacts to Our Climate and Energy Challenges

- ❖ Biomass thermal heating is very efficient – thus making it one of the lowest CO2 abatement cost options available today
- ❖ Capital invested for biomass thermal heating stays in the regional economy
- ❖ Biomass thermal energy is an important lever to retain our logging sector intact
- ❖ Biomass thermal applications are low-tech, reliable and simple to implement with wide employment and community benefits throughout US

## Comparing EU with US Woody Biomass Markets

- ❖ EU woody biomass market is not homogeneous:
  - ❖ **Pellets for Power** markets: NL, BE, UK
  - ❖ **Pellets for Heat** markets: DE, AT, IT, Ireland
  - ❖ **Combined** markets: DK, S
- ❖ Per capita consumption varies 50Kg/capita (S, DK & At) to 3kg/capita in US
- ❖ EU heating equals ~50% of Co2 emissions and is viewed to be a vital ingredient to achieve 20/20/20 targets
- ❖ Like the US, energy security is a big motivator for market change
- ❖ District heating and CHP are big energy systems solutions – with complex lead times for development, funding and construction
- ❖ Pellet fuel production is a low-capital cost construction cycle

## Thoughts on US policies to accelerate use of renewable woody biomass thermal applications

- ❖ Incentives to scrap old inefficient log burners and replace with pellet boilers ( must reduce particulate emissions)
- ❖ Financial support to replace oil burners
- ❖ Encourage the industry to establish labeling, uniform specifications and chain of custody and related definitions
- ❖ Set up framework for measuring heat consumption with a view of future including it in RES

## Challenges Ahead For Thermal Energy

- ❖ One Third of ALL energy consumed in America is Thermal. Yet virtually no federal regulations recognize the importance of this source of savings which can be so easily achieved
- ❖ Subsidies for renewable thermal energy systems are uniformly dismissed or diminished at state and federal level.