



WOOD ^{to} ENERGY



Handout

Wood to Energy Conversion Handout

Typical southern pine plantation	=	0.6 to 1.2 green tons (0.3 to 0.6 dry tons) of logging residues per year per acre depending on management intensity 4 to 8 green tons (2 to 4 dry tons) of merchantable wood per year per acre depending on management intensity
1 truckload	=	23 to 26 green tons of wood
1 green ton of wood	=	0.45 to 0.53 dry tons of wood
1 dry ton of wood	=	15 to 16 million Btu (British thermal unit)
1 megawatt (MW) per year	=	5,300-7,000 dry tons of wood per year 85,000-110,000 million Btu per year powers approximately 400 to 800 homes per year

Several factors affect how much energy a given amount of wood can produce. When using the above conversions, please consider the following assumptions:

- The estimates for a typical southern pine plantation are based on low and high slash pine growth and yield model scenarios from Pienaar and Rheney (1995), which assumes 50 percent moisture content on a green weight basis.
- Logging residues represent 13 percent of the total above-ground volume (Bentley and Johnson 2004), and half of the total amount of logging residues is considered available for energy fuel.
- Harvesting operations are assumed to occur on 25-year cycles and to occur steadily across pine plantation land area, providing annual estimates for wood availability.
- The number of million Btu per year that equals 1 MW is based on low and high scenarios of generation efficiency in the range of 30 to 40 MW.
- The number of homes that 1 MW can supply power to varies by geographic location and is based on estimates provided by Bellemar (2003).

See the Energy and Forest Management sections of "Resources" at <http://www.interfacesouth.org/woodybiomass> for the complete citations.



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