



Industrial Wood Residue for Fuel



GovEnergy
www.govenergy.gov



Goal is for you to know that:

▶ Industrial Wood Residue is available nationwide

▶ It's Cheap



Cost per BTU of Various Fuels

	Cost Units	Cost of Fuel \$/unit	Btu's/unit lb-ft ³ -gal- kwhr	Cost \$/MMBtu s
Coal	\$/ton	\$80.00	13,100	\$3.05
WOOD	\$/ton	\$25.00	4,250	\$2.94
Nat Gas	\$/M cu ft	\$12.23	1,000 ³	\$12.23
Propane	gal	\$1.90	90,000 ⁴	\$21.11
Htng Oil	gal	\$1.89	140,000 ⁵	\$13.50
Electricity	kWh	\$0.0733	3,412 ⁶	\$21.48



Wood Residue Sources

Classification	Number	Thousands Tons/Yr	Utilized
Loggers	4,499	5,840	< 10%
Saw Mills	2,889	13,007	80%
Containers/Pallets	2,149	5,951	60%
Millwork/Flooring	4,864	19,682	70%
Other - MFG	2,951	10,929	60%
TOTAL	17,352	55,408	

Market for Wood Waste

<u>Waste</u>	<u>End Use</u>	<u>Price</u>
Sawdust	Fuel, Charcoal, Pellets	\$15 – 20/Ton
Bark	Landscape Mulch	\$30 – 50/Ton
Clean Chips	Paper	\$30 - 35/Ton
Dirty Chips	Fuel	\$25/Ton
Yard Waste Slab wood	Charcoal, Chips, Landfill	?



Logging





Two Types of Waste

- Reject Logs (Log Dumps)
- Slash (Tops and Branches)



Log Dumps











Slash (Tops and Branches)







Why all this waste???

It's the economics

- Market for wood residue suitable for fuel is approximately \$15-\$20/GreenTon.
- Competes with saw dust.
- Cost to chip and haul logging residue is \$25/Ton (a reasonable price for fuel!!)



Sawmills



Saw Dust





Bark Mulch

**DISPATCH
OFFICE**
←





Clean Chips



Sawmill Yard Waste



Wood Pallets/Containers





Pallet/Container Waste

- Manufacturing waste is much like Sawmills with the exception of – no bark
- 60% + of Pallets are recycled
- 40% are scrapped – over 7 million tons annually – much of this land filled



Furniture, Millwork, and Flooring

- Saw dust
- Planer shavings
- Chips



Waste is dry



“Other” classifications

- Shavings – can be bailed
- Sanding Dust – explosion hazard
- Treated Cross Ties and Poles – great fuel but environmental concerns
- Veneer (trimmings/rejects, bark, log trim, log cores)



Miscellaneous Wood waste is almost always “wasted”.



For Federal Energy Managers

The Biomass and Alternative Methane Fuels (BAMF) program will identify wood fuel sources in your area.

Call or email us





Conclusions

- Wood is a very economical fuel.
- There is a large quantity of Industrial Wood Residue available for fuel.
- Much of it is wasted or under utilized.
- BAMF can identify sources in your area.



For More Information

- Edd Bills
- Research Development Solutions (RDS)
- National Energy Technology Laboratory
- Morgantown, West Virginia
- edd.bills@eg.netl.doe.gov 304-285-1337

Don't forget to fill out and drop off your session evaluations!



GovEnergy
www.govenergy.gov



New Orleans
August 5-8