

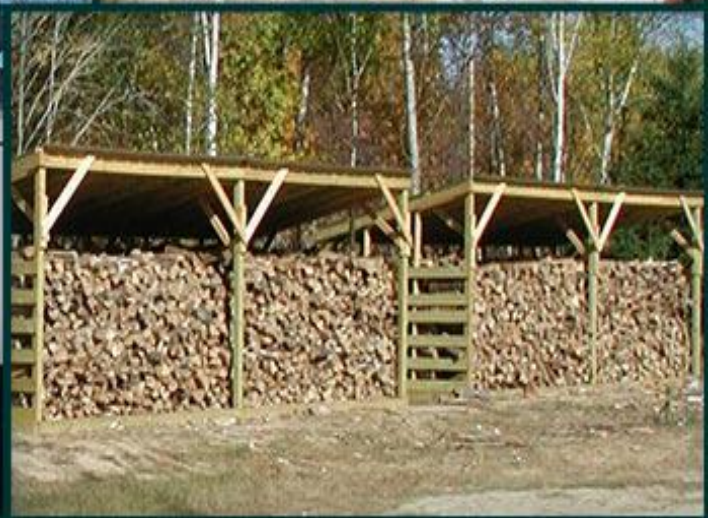
Deep Portage Environmental Learning Center Advanced Wood Combustion

By

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Deep Portage Learning Center



Energy Centers



Wood Gun (Left) and Garn (Right)



Wood Storage





Wood Gun 4000 gallon storage tank



Deep Portage Interpretive Center



Frohling with 1600 gallon storage tank



Alder Harvest



Load of Alder



Sawmill Slabs





Shrub Shed



Firewood Logger



Firewood Processing Crew



High Efficiency Fireplace Insert

Evaluation Criteria	Propane	Wood Gasification
Adds to Fossil Carbon Loading	Yes	No (ambient carbon)
Creates Local Jobs	No	Yes
Enhances Wildlife Habitat	No	Yes
Annual Cost 2012-13	\$67,000 est.	\$44,000 (\$18,000 wood + \$12,000 loan payment, \$10,000 labor, \$3,600 electricity)
Byproducts	Hazardous Waste (Refinery)	Fertilizer

Deep Portage Gasifier Project Investments

Provides: 100% of Heat for 62,000 sq. ft. of buildings
50% of Domestic Hot Water of Main Building
100% of Domestic Hot Water of Interpretive Center

2009	E3 Building + Garn (3,200 H2O storage) + Woodgun	\$136,000 DEED Grant \$100,000 Local Bank \$68,000 Deep Portage Foundation
	Subtotal	<u>\$304,000</u>
2011	4000 gallon H2O storage	\$40,000 Dept. of Energy
2009-12	Wood Sheds (10)	\$13,000 Deep Portage Foundation
2011	Froling Installation (1650 gallons H2O storage)	\$43,000 Deep Portage Foundation
	Total	<u>\$400,000</u>

* Quote for Ground Source Heat Pump for **just** the main building was \$500,000.

IMPACT OF FUELWOOD ON LOCAL ECONOMY

- The majority of the fuelwood that is delivered to Deep Portage is purchased from FSC certified, Cass County managed forest land.
- *For each \$100 a logger spends purchasing timber from Cass County managed land, the local taxing districts receive the following *(5-year average)

Township	\$ 7.69
School District	\$15.39
County General Revenue	\$15.39
- Of the \$44,000 cost for wood gasification \$40,000 goes directly into the local economy.
- If we still used propane, what percent of the \$67,000 would be directed into the local economy?
- What is the carbon footprint of locally sourced fuelwood compared to the carbon footprint of propane?



The ash-enriched virgin soil produced some phenomenal crops in the period following the 1910 fire. Above: rutabagas and oats. Right: products from the burnt-over district, 1912.