The Crorey Biomass Gasifier System

Payback Calculations

Assumed Data:

Cost per bone dry Ton	$20.00 per BDT
BTU per wet pound	5000 btu per wet pound (40% to 50% moisture)
BTU per bone dry pound	7500 btu per dry pound
Naturals gas Cost	$.70 per therm

Each 100 BHP requires an input of 4,200,00 BTUs. Therefore, we need an input of:
4 x 4,200,000 BTU per hour or 16,800,000 BTU per hour for 400 BHP.

One therm is 100,000 BTU or 100 cubic feet of natural gas. Therefore we need approximately 168 equivalent therms of bio fuel – and will shed 168 therms of natural gas cost.

Saving 168 therms per hour at an avoided cost of $.70 per therm, relates to a fuel cost savings of $117.60 per hour or **$940,800 for 8000 hours of operation.**

The cost of the bio mass feed stock to produce this 168 therms per hour is:
16,800,000 BTU / 5000 BTU per pound = 3360 pounds per hour
3360 pounds per hour x 8000 hours per year = 26,880,000 pounds per year
or 13,440 tons per year
13,440 tons per year x $20 per ton = $268,800 per year.

Therefore, the **yearly savings** would be $940,800 - $268,800 = **$672,000 per year or $56,000 per month.**