

# RECIPE FOR BIOMASS TO ENERGY PROJECT

Thermo Energy Systems  
Vyncke Clean Energy Technology

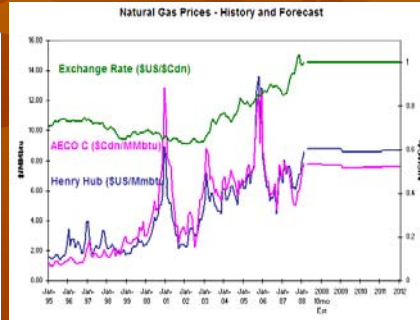
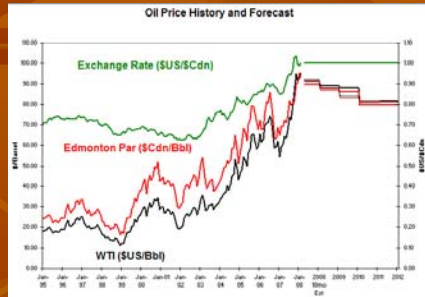
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## WHY

- High Cost Fossil Fuels
- Reduce Operating Costs
  - Increase Profits
- Environmentally Responsible



# High Cost Fossil Fuels



## PLANNING

- Time has to be spent figuring a payback for your investment. Acquiring the information about the fuel and how to integrate the new biomass project into your system.



## WHAT IS THE VALUE OF WOOD FOR BOILERS?

- If natural gas costs \$10 per million BTU, green wood with 50% moisture content is worth \$57.30 / ton for the same heating value and 20% moisture content wood is worth \$106.00 / ton. The average cost for wood fuel is averaging around \$25.00 / ton so as you can figure wood fuel would be \$2.50 per million BTU.

## FIND ENOUGH FUEL AT THE RIGHT COST



## SUITABLE FUEL COST

- Wood fuel has many characteristics such as size, moisture, and free of dirt which are all important. Sized right so that it goes through the equipment and into the boiler. Moisture is the most important as you do not want to truck water down the road and it robs your boiler of its efficiency and lastly dirt as it has no btu's and can reduce your boiler life and increase operating costs. Cleaner the fuel the less problems with meeting emission standards.

## PROBLEMATIC

- With 50% moisture in your fuel every other load is water. Basically most boilers like 40% or less moisture. Efforts have to be made to acquire as dry as possible.



## COST OF TRANSPORTATION

- Transportation costs will typically be the highest cost factor for energy in wood. Wood is a low energy density fuel so it cannot be transported long distances or the transportation cost will exceed the wood value. The closer to your source of fuel the more efficient your project will be.

## Emissions

- Knowing and responding to your local, state, and federal standards are important. Also fuel void of impurities make this much simpler. Teaming up with a good EPA professional is probably the best way to approach this.



## MADE THE DECISION



## WERE READY



## DELIVERY OF FUEL



## DELIVERY OF FUEL



## DELIVERY INTO BOILER



## BURNING AND CONTROL





## REMOVAL OF ASH



## HOT WATER ENERGY



## FINISHED PROJECT

- This farm is saving about 50% on heating fuel cost so far after finishing project. We have some that are saving up to 75% on their fuel cost. We feel that we have helped to reduce operating costs for these companies so they can use their dollars better.



## RECIPE TO FIND MORE TIME TO SPEND HERE



# SOLUTION

