



Clean Power Development Synergies

Historically, biomass fueled power plants have operated only to produce electrical power, at an overall efficiency ranging from 18% to as high as 28%. In this historical model, these plants have done very little to promote broad economic development in their regions. Clean Power Development (CPD) breaks that mold with an entirely new vision of the synergistic relationship between a biomass power plant and what is possible around it. The end result being a plant that produces much more than just electrical power, at an efficiency that may near 90%. CPD is proposing a 29 MW biomass plant that will burn approximately 340,000 tons of low grade wood chips annually, with the goal of utilizing every possible BTU of that energy for the maximum possible economic impact.

Steam from the plant would be supplied to nearby industrial facilities, such as the paper mill in Gorham. A variety of industrial users could tap into that steam at their desired pressure at a reasonable cost, without the capital cost of their own steam generating system, or the operational cost of oil, maintenance or staff.

Cooling water for use in the plant will be drawn from the effluent of the local waste water treatment facility. Cleaning this water for reuse will not only reduce the plants impact on the local watershed, but will improve local water quality as the municipal waste water treatment facility moves toward reduced discharge.

Hot water from the facility could be the key to the creation of a district heating system in the local community. This would allow resident to use a renewable source of energy to heat their community, rather than relying on imported fossil fuels.

Additionally, heated water coming from the plant may also be used for a variety of commercial and industrial applications. Year around aquatic facilities, heated sidewalks that never need shoveling or salt, and economically heated sports facilities are just a few of the possibilities.

Algae production facilities and greenhouses for vegetables/flowers can utilize the heated water and CO₂ from the stack to grow crops that will provide fuel, food and jobs to the region. The biomass residue from both of these operations could then be fed back into the boiler as more renewable fuel.

Solid waste from the wastewater treatment facility could be reduced by 80% through the use of an anaerobic digester heated by the power plant. The community then would benefit from both the reduced disposal costs for solid waste, as well as selling the methane produced back to the plant as fuel.

Methane gas collected at a nearby landfill facility could be piped to the plant and used as yet another renewable fuel for the boiler. Additionally, sales of methane would add revenue to the local disposal district.

Nearby commercial and industrial facilities could connect directly to the electrical output of the plant and obtain power at rates approaching ½ of what the power would cost if purchased through the electric utility. This alone has tremendous potential implications for economic development in the region.

To further add to the symbiotic nature of this project and how one step feeds another, a wood pellet production facility would be located adjacent to the power plant. This would allow for the two projects to share some equipment, and would also allow for each plant to support the other. Bark peeled from the logs in the pellet mill would be fed to the power plant as fuel. Steam produced in the power plant would then be fed back to the pellet mill for use in drying and other industrial applications.

This is but a quick snapshot of some of the possibilities. Through creative development and inspired thinking, many things are possible and CPD wants to be there helping to make them happen.