



Woody Biomass to energy using Firebird V-III™ Vortex Combustion Technology Program Outline

We have developed a program to use trees to generate significant amounts of clean, renewable energy. Trees, also known as woody biomass, are considered to be one of this country's most abundant and valuable natural resources. As part of the US Forest Service's Woody Biomass Utilization Strategy practices, forest thinning helps to maintain healthy forests by cutting down the smaller trees that can choke out the growth of the larger, established trees. These trees that are typically between 2 and 5 inches in diameter, and only 25 to 30 feet tall, are known as the understory, and are considered for the most part to be unmarketable timber. In a process similar to weeding out our gardens, these trees are cut down, stacked, and allowed to season, or dry out, to be later burned in open burning known as prescription burns.

Since these open burns are only using wood as the fuel, they pose no real health hazards to communities nearby. Environmental groups have accepted this practice, and in fact encourage forest thinning to help maintain a better growth pattern for the larger trees. Besides, the alternative to these open burns is to long-haul to processing plants, which would add immense amounts of carbon emissions from the vehicles. The cost to process this wood is also prohibitive, so the open burns have been the method of choice for decades.

What are the benefits of using our technology?

The primary benefits that come from forest thinning using our Firebird V-III™ technology are:

1. Safety and the prevention of wildfires caused by current open burning methods
2. Increased productivity for forest thinning activity
3. Production of abundant amounts of clean, renewable energy
4. Significant revenue opportunities from the sale of the electricity, energy production tax credits, and the sale of Renewable Energy Certificates, offering a shortened timetable for ROI.

Here's how it works:

- System is situated either as a fixed facility, or can be used as a mobile solution if no energy recapture is required.
- Trees are cut down, and either chipped onsite, or taken to processing site to be chipped there.
- Because our system can take very high moisture content, these trees can be processed within minutes of being cut down.
- This allows for efficient processing, at a rate of up to 10 tons per hour.
- Because of the closed chamber combustion technology, there are no concerns of fly ash or sparks escaping and causing uncontrolled wildfires in nearby forest areas.
- Our patented technology takes unburned material and re-introduces it back into the high speed vortex, allowing it to burn continuously until fully combusted.
- Unlike typical woody biomass to energy methods, our technology doesn't require the production of feedstock to use as a secondary fuel source. The cut and chipped timber becomes the primary fuel, with the clean high-temperature exhaust capable of being used to boil water in a boiler creating steam used by a steam turbine.

For more information on this program, contact:

Jim VanNatta

JimV@AmericanEnergyGroup.org

847-980-4681