

GREEN MOUNTAIN COLLEGE

Biomass Energy Plant

June 2010



PROJECT SUMMARY

- ◆ Combined heat and power (CHP) plant opened in April 2010
- ◆ System size: 14 MMBtu/hr, 400 HP, 250 psig
- ◆ Electricity produced: 15-20% of the campus's need (400,000 kWh per year)
- ◆ Produces 85% of the college's thermal energy
- ◆ Reduction in #6 fuel oil annually: 83% (from 230,000 gal to 40,700 gal)
- ◆ CO₂ reduction: 2,844+ metric tons (40% reduction in carbon footprint)
- ◆ CO emissions: 8 ppm average at 12% CO₂ (via EPA test method 10)
- ◆ Particulate matter emissions: 0.009 lbs/MMBtu average (via EPA test method 5)
- ◆ Total project cost: \$5.8 million
- ◆ Cost of CHIPTEC gasification equipment: \$1.2 million
- ◆ Annual wood chip consumption: 4,000-5,000 tons
- ◆ Fuel costs per ton: \$34
- ◆ Projected lifespan of equipment: 20-30 years
- ◆ Project simple payback: 15 years (conservative)

PROJECT DETAILS

Green Mountain College was ranked #1 on the Sierra Club's list of "America's 100 Greenest Schools" in 2010. The college moved up in the rankings to secure the lead spot largely thanks to its new biomass energy plant. Green Mountain opened its combined heat and power (CHP) plant in April 2010, making it the first college in the country to achieve carbon neutrality.

Green Mountain selected CHIPTEC Wood Energy Systems of Williston, VT to provide its gasification technology for the plant. The 400 HP system has replaced 83% of the college's annual consumption of #6 fuel oil. The college maintains a small fuel oil system as a backup for heating campus buildings.



*Biomass Plant at Green Mountain College
(Photo Source: czubad at flickr.com)*

The new system consumes 4,000-5,000 tons of locally sourced wood chips per year to provide 85% of the school's heat and 15-20% of its electricity.

By implementing a biomass energy plant, Green Mountain College was able to reach its goal of carbon neutrality and achieve national recognition as a leader in America's green school movement.

PROJECT CONTACT

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