



Frequently Asked Questions

WHAT IS BIOMASS ENERGY?

Biomass energy is any combustion of biological materials including wood chips, pellets, agricultural crop residues, farm animal wastes, landfill gases, wood manufacturing by-products and firewood to produce various types of energy including heat, steam, electricity, and liquid fuels.

WHAT ARE THE COST SAVINGS FOR CONVERTING TO WOOD?

Over the past 20 years, biomass costs have remained stable versus increasingly volatile markets for oil and natural gas. Prices are not as susceptible to shifts in global demands or limited supplies of fossil fuels. Wood chips are 50 to 70 percent cheaper than No. 2 heating oil and 75 percent cheaper than natural gas when compared on Btu output. Wood is also 8 to 10 times cheaper than electric heat.

After installing a wood biomass boiler, schools and similar facilities often reduce annual heating expenses within their first year. However, the capital costs for installing these systems are significantly higher due largely to the extra storage necessary to accommodate wood. For this reason, it usually takes longer for an institution to realize a full return on its investment (ROI). Experts look at a 5- to 10- year payback window as a reasonable timeframe for a project to be financially feasible. Of course, as costs for fossil fuels rise, the payback period gets shorter and ROI is faster.

IS USING WOOD FOR ENERGY SUSTAINABLE?

- Forests cover 75 percent of the Catskill/Lower Hudson Region.
- It is estimated that 700,000 tons of woody biomass is available annually from the Catskill Region. At current growth-to-harvest ratios of 3:1, New York State can supply a portion of our energy needs on a sustainable basis.
- Developing local markets for low-grade wood provides opportunities to improve forest health while returning more energy dollars to the local economy.
- Biomass energy derived from sustainable forest management is considered nearly carbon-neutral resulting in an overall reduction of greenhouse gas emissions. Trees and forests remove carbon dioxide (CO₂) from the atmosphere as they grow and are replaced with new trees, resulting in zero net gain in CO₂. Burning oil, gasoline and coal releases carbon previously stored within the earth and results in new CO₂ being added to the atmosphere.

HOW DOES A BIOMASS HEATING SYSTEM OPERATE?

Biomass boiler systems are designed with the needs of the user and available fuel sources in mind. A typical system is used in tandem with a computerized delivery mechanism that draws fuel from the storage bin with an auger and feeds it directly to the burner. Maintenance is usually less than one hour per day for automated systems and requires the periodic removal of small amounts of ash which can be used as a soil amendment. Many facilities choose to maintain their existing energy system for use as a backup.

WHAT ABOUT THE SMOKE?

One common misconception about modern biomass combustion systems is that they are similar to residential wood stoves and outdoor wood boilers. There are virtually no visible emissions and odors associated with modern wood chip and pellet heating systems due to the high efficiency of the burn and additional pollution controls.

Emissions from modern wood heating systems comply with state air quality regulations and are permissible in virtually every area of upstate New York.

IS THERE FUNDING AVAILABLE FOR WOOD BIOMASS PROJECTS?

If your facility is a good fit for a biomass energy system, funding may exist in the form of grants and low-interest loans from the USDA Rural Development Program (serving municipalities of 50,000 or less), US Forest Service, NYS Energy Research & Development Authority (NYSERDA) Smart Communities Program, Catskill Watershed Corporation and other agencies. Some projects may be financed through an Energy Service Contractor (EsCo) which provides a “design, build and maintain” service that borrows against the future savings of the new system to finance the capital construction. Carbon offset banks offer another alternative funding source.

If you're interested in learning more about how woody biomass can work for your facility in the Catskill/Lower Hudson Region, please contact Collin Miller, Wood Utilization Specialist at the Watershed Agricultural Council, (607) 865-7790 ext 112.

CASE STUDIES

- ❖ **Mountain View School District** in Susquehanna County, Pennsylvania installed a wood-biomass boiler system in 1991 as part of a new school construction project and continues to operate the system today. The school buildings totaled 200,000 square feet. Fuel for the system is obtained under contract from a local firm that conducts whole tree chipping. In 2006, the school district saved over \$114,000 by heating with wood chips instead of fuel oil. With the addition of a cyclone exhaust cleaning system, much of the particulate material is removed and there have been no difficulties meeting or exceeding state air quality requirements.
- ❖ **Arnot Ogden Medical Center** in Elmira, New York is entering into a \$4 million energy contract with the Honeywell Corporation to implement a renewable energy technology and infrastructure upgrade program. Its goals are to help the Medical Center cut greenhouse gas emissions and insulate its operating budget from fluctuating energy costs. The performance contract, guaranteed to save Arnot Ogden more than \$535,000 in annual energy and operational costs, includes the installation of a wood chip-fired boiler that will handle most of the heating load for the main building. The system will use roughly 7,000 tons of chips per year supplied by a local sawmill. As a result, nearly 60 percent of the energy consumed by the building will come from a renewable energy source. The new boiler alone is expected to reduce CO₂ emissions by more than 9.5 million pounds, or the equivalent of removing 970 cars from the road.
- ❖ **Dillon Floral Corporation** of Bloomsburg, Pennsylvania converted two high-pressure steam boilers that consumed 140,000 gallons of No. 6 heating oil to a wood-fired boiler system in 2007. The company expects to save more than \$180,000 on heating costs this season. The project will also result in an annual reduction of stack emissions by 23 tons of sulfur oxides (SO_x), 2 tons of nitrous oxides (NO_x) and 1,870 tons of CO₂.

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