



Evergreen Engineering

Biomass Energy Services

EVERGREEN ENGINEERING: AN INDUSTRY LEADER

Evergreen Engineering is defining the industry standard for biomass engineering and design services. From concept development to training and start-up, Evergreen offers a complete range of services to the biomass industry. A full-service architecture and engineering firm with 24 years of experience and completion of thousands of projects, Evergreen has a formidable track record. Evergreen provides specialized engineering services to many of the most notable public and private corporations in the United States and beyond as well as numerous local, state and federal government agencies. With a business structure designed to accommodate any project, large or small, domestic or international, Evergreen has truly earned its place as a leader in a variety of industries.



Unparalleled Biomass Experience

From fuel yard to substation, Evergreen can support all your biomass needs. Key recent projects include:

24 MW Sludge & Waste Wood Fired Plant

Complete engineering and purchasing services for equipment to be installed in a paper mill sludge and wood waste fired power plant. Plant included a 200,000 #/hr, 850 psig, 900°F bubbling bed boiler and a 24 MW extraction and condensing turbine/generator.



15 MW Steam Turbine Generator

Civil, structural, mechanical, piping and electrical design for a 15 MW steam turbine generator. Project also included supplementary engineering for turnkey boiler and multiple additional areas of plant.

7 MW Purpose-Grown Biomass Power Plant

Complete engineering and equipment purchasing services for a wood biomass fired power plant using purpose grown biomass. Power will be supplied to the local utility grid from a multistage condensing steam turbine. The project will be a closed loop system with the ash returned for local agricultural use.



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Commitment to Excellence

Evergreen's long-standing industry experience and its dedication to client needs has defined its place in the world of engineering and has garnered it the respect of clients and competitors alike. Evergreen's commitment to awareness and continuing employee education on the latest technological advances and breakthroughs ensures its status as an innovator in the engineering industry.

Biomass Core Competencies

An industry leader in providing biomass energy services, Evergreen stands ready to support all your biomass engineering, permitting, and project management needs. Some of Evergreen's core competencies and tasks performed as part of our projects include:

Project Development

- ◆ Business plan development support
- ◆ Scope development & feasibility studies
- ◆ Electrical interconnect agreements
- ◆ Energy & raw material contracts' support
- ◆ Environmental permitting
- ◆ Equipment evaluation & selection
- ◆ Fuel & raw material studies— wood yard experts
- ◆ Project funding support
- ◆ Project team development
- ◆ Site selection

Project Management

- ◆ Budget controls
- ◆ Code analysis & permitting
- ◆ Construction management
- ◆ FM insurance carrier requirements
- ◆ Maintenance systems' development
- ◆ Overall project management
- ◆ Project scheduling
- ◆ Startup & spare parts plan

Engineering

- ◆ Civil & structural
- ◆ Environmental
- ◆ Mechanical & piping
- ◆ Process design
- ◆ P&ID development
- ◆ Plant optimization
- ◆ Detail design & engineering
- ◆ Overall plant general arrangements & layouts

- ◆ Electrical control, instrumentation & power
- ◆ Power plant heat & mass balance evaluation

Equipment Expertise

- ◆ Boiler island
- ◆ Building
- ◆ Cooling tower
- ◆ Emission controls
- ◆ Fly ash handling
- ◆ Foundations
- ◆ Fuel preparation & feeding systems
- ◆ Pumping & piping systems
- ◆ Sludge dewatering
- ◆ Substation & power systems design
- ◆ Steam & condensate systems
- ◆ Turbine island
- ◆ Water treatment
- ◆ Wood yard design

The Evergreen Difference

- Evergreen prides itself on consistently meeting the challenges of new technologies and industry needs
- Company success is a result of steadfast focus on clients' needs, schedules and budgets
- Over 95% of Evergreen's business is repeat and referral
- All Evergreen projects benefit from the direct and continued involvement of Principals from beginning to completion
- Evergreen supports an extensive variety of project types and its dynamic corporate structure facilitates collaboration when external expertise is necessary

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