



Cogeneration Plant (under construction)

District Energy St. Paul provides heating and electricity service to over 30 million square feet of building space in St. Paul, Minnesota. The completion of a new 40 mW combined heat and power (cogeneration) plant in 2003 made District Energy St. Paul the largest cogeneration plant in the United States to serve a district energy system.

ThermalTech acted as the Owner's Engineer for the District Energy St. Paul and Duke Energy Generation Services (formerly Cinergy) team. ThermalTech was responsible for the design, on-site construction management, and commissioning for the entire project to convert the existing coal-fired plant to cogeneration.

The 40 mW biomass cogeneration plant operates on nearly 280,000 tons of urban wood waste annually. ThermalTech provided engineering design services for connections to the existing district heating plant utilities, including steam, condensate, and high-temperature hot water.



Project Owner and Location

Duke Energy (Cinergy)
District Energy St. Paul
St. Paul, Minnesota

Firm's Responsibility

MEP Engineering
Owner's Engineer
Construction Management
Commissioning

Total Budget

\$60,000,000

Completion Date

2003



**DISTRICT
ENERGY
ST. PAUL**



The wood-fired 310-KPPH field-erected boiler operates at 1,250 PSIG and 950° F. Also included is a 40 mW condensing/extraction steam turbine with surface condenser and cooling tower system. ThermalTech also designed all ancillary systems for the new plant, including wood and ash handling, water treatment, fire protection, telecommunications, and electrical systems. To tie all of the system controls together, ThermalTech retrofitted the existing boiler plant control system to a new DCS system.

Through wood-waste fuel and the cogeneration process, District Energy reduced its reliance on coal by 80%, and reduced greenhouse gas emission by 280,000 tons per year. The new plant also changed the face of the city, as the resulting water vapor cloud from the cooling towers is a prominent feature on the St. Paul skyline in the winter months.

