**The Motivation**

Increased utilization of the capacity of its existing drying kilns and the addition of a high temperature drying chamber increased Holzindustrie Templin GmbH’s heat requirements. It wanted to generate heat from renewable energies and envisioned a green plant solution utilizing heat recovered from untreated timber. Independence from fossil fuel prices would create a supply solution with stable costs. Process heat could be provided, e.g. to dry timber, and the simultaneous production of power would generate further returns from revenue from Renewable Energy Act tariffs.

**The Principle**

A biomass-fired cogeneration plant with a thermal output of 3.5 MW was developed, engineered and built for the company. The plant’s electrical efficiency with the implemented ORC is stable over a large power spectrum. It generates approximately 600 kW of electrical power, which is supplied to the public grid.
The boiler firing system is equipped with a staged air supply and flue gas recirculation to minimize nitrogen oxide emissions. The automatic boiler control system continually adjusts the quantities of air, fuel and recirculated gas to assure optimal burnout and thus low carbon monoxide emissions and little residual carbon content in the ash.

Our Service – Your Success

Supplying all of the plant’s fuel from timber processed for the production facility eliminates otherwise disposing of waste wood by hauling it to other users. The cogeneration concept supplies process heat and the operator profits from revenues from the sale of electricity. The process engineering and automation of this version of the plant and the pressureless operation of the boiler eliminate any need for staff to monitor it constantly. Following a planning, approval and construction period of less than one year, the plant has been in proper continuous operation since December of 2005.

Our Expertise – Your Edge

The Process and Plant Engineering Business Unit has many years of experience planning, engineering, installing and commissioning combustor and gasifier prototypes in the lower industrial performance range. We develop state-of-the-art thermal conversion systems and produce customized plants that recover energy from biomass, biogenic residues and high caloric wastes for our clients.

In the process, the Process and Plant Engineering Business Unit responds to and factors in your company’s individual circumstances in order to identify innovative solutions, which can be integrated in your production process.

References

We have engineered and overseen the construction of biomass cogeneration plants for, among others:
- Holzbearbeitung Bralitz GmbH,
- Robeta Holz OHG Milmersdorf,
- elbstrom AG Aschersleben and
- Holzindustrie Templin GmbH.

The Fraunhofer IFF has also completed other innovative projects with highly efficient conversion technologies. If you are interested, contact us any time.