



ANHUI TIANDU PAPER COMPANY LIMITED

Installation of Cogeneration

COMPANY DESCRIPTION

Anhui Tiandu Paper Co. Ltd. is a medium size paper company located in the Liushipu Industrial Development Area, Anhui Province, China, and currently produces up to 50,000 tons of industrial paper per year for the domestic market, but expanding production capacity to 200,000 tons/year.

The company is installing a new 50,000 tons production line, which will require more heat (from steam) and more electricity, which is about 10MW. For this reason the company is planning to buy another 35 tons/hour boiler for paper-making machine #8. To meet rising steam and electricity demand, the company will install a 3MW cogeneration or combined heat and power (CHP) system. Investment costs are US\$ 2,061,000, net annual savings (after subtracting operating costs) are US\$ 600,000 and the payback period is 3.4 years. Each year, 9906 tons of coal is saved, resulting in reductions of 15,057 tons CO₂ emissions. At the time of writing this case study, part of the CHP system was implemented, but implementation was delayed due to difficulties in generating funds for financing the system.

KEY WORDS

Pulp and Paper, China, Cogeneration, Combined Heat and Power (CHP)

OBSERVATIONS

Heat loss mainly consists of heat from steam blow down. At the same time the company is installing a new 50,000 tons production line, which will require more heat to support, and will also increase electricity demands. Therefore the company is planning to buy another 35 tons/hour boiler for paper-making machine #8, which is part of the new production line.

OPTIONS

To meet the rising steam and power requirements, the company will build a steamer generator set for machine #8, and use combined heat and power system. The generator will supply electricity to both machine and other department; reused steam from production process will generate electricity by the generator. The 3MW GHP system will produce electricity power 17,000,000 kWh per year. At time of writing of this case study, the main building work for a new production line was completed and the main equipments were installed. The new boiler was purchased and was expected to be installed soon. But the implementation schedule is delayed due to shortage of finance.

RESULTS

Financial benefits

- Investment: US\$ 2,061,000 or 17 million CNY
- Annual cost savings: US\$ 600,000 or 5 million CNY



- Payback period: 3.4 years

Environmental benefits

- Annual coal savings: 9906 tons
- Annual GHG emission reduction: 15057 tons
- Other emission reductions:
 - SO₂: 1 tons ($9906 \times 35 \times 0.7\% \div 2.2 = 1103.2kg$)
 - NO_x: 54 tons ($9906 \times 12 \div 2.2 = 54.03T$)
 - CO: 2.25tons ($9906 \times 0.5 \div 2.2 = 2251.4kg$)
 - PM₁₀: 59 tons ($9906 \times 13.2 \div 2.2 = 59.44T$)

FOR MORE INFORMATION

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