

## **PROJECT SUMMARY**

### **13 MW PAPER MILL CHP PLANT TECHNICAL & ECONOMIC FEASIBILITY STUDY**

#### **PROJECT SUMMARY**

Bridgestone Associates prepared a detailed technical and economic feasibility study for an 8 - 13 MW Combined Heat and Power (CHP) plant for the Mondi paper mill in Pine Bluff, Arkansas, USA. Mondi Group based in Vienna, Austria, had recently purchased this Kraft paper mill from Graphic Packaging.

The Mill is a major user of energy and as a result, its energy costs are significant. The five primary energy sources used within the Mill are natural gas, biomass (waste wood and bark), recovered process liquors (black liquor), steam, and electricity. Mondi had been exploring the installation of power generation equipment that may provide all or the majority of the electrical requirements of the Mill (those that are currently purchased from Entergy), and also provide steam to the Mill. This steam would replace some of the existing boiler steam production and reduce boiler fuel use.

The detailed feasibility study prepared by Bridgestone included a complete analysis of hourly, daily and seasonal energy uses (electricity, steam, etc.), an analysis of existing costs, evaluation of different CHP plant alternative configurations, modeling of their performance using GT-PRO and GT-MASTER, evaluation of their costs, and a detailed analysis of the financial performance of each alternative. Based on the results obtained and the evaluations conducted, it was concluded that the development and installation of a CHP plant to include a combustion turbine generator and HRSG was a viable economic, technical and environmental solution.



#### **PROJECT STATISTICS**

Client:	Mondi Group / Bryan Power Generation Solutions
Project Type:	Natural gas fired combined heat and power (CHP) plant
Year:	2015
Size:	8.0 – 13.3 MWe and 150,000 lb/hr 450 psig steam
Estimated Project Cost:	US\$18.8 – 31.5 million depending on equipment selected
Simple Payback:	4.0 – 6.7 years depending on plant configuration selected
Plant Location:	Pine Bluff, Arkansas, USA
Plant Elevation:	238 feet above sea level
Facility Electric Demand:	13 – 15 MW (average), 17 MW (peak)

Facility Steam Load: 450 psig - 110,000 lb/hr (average), 150,000 lb/hr (peak)  
 150 psig – 55,000 lb/hr (average), 75,000 lb/hr (peak)  
 Interconnection Voltage: 13.8 kV  
 Primary Fuel: Natural gas  
 Available Gas Pressure: 60 psig  
 Configurations Evaluated: Siemens SGT400 – New and pre-owned  
 Solar Mars 90 – new and pre-owned  
 Solar Mars 100 – new and pre-owned  
 Solar Titan 130 – new and pre-owned  
 Rolls Royce 501KB7 – new and pre-owned – two units

