



## 42 MW CHP PLANT 35% DESIGN & CAPITAL COST ESTIMATING @ GRAPHIC PACKAGING PULP & PAPER MILL

### SUMMARY

Bryan Power Generation (BPG) prepared a detailed feasibility study, detailed capital cost estimate and a 35% Design for a 42 MW Combined Heat and Power (CHP) plant for Graphic Packaging International Inc. (GP) for their paperboard manufacturing and consumer packaging plant in West Monroe, Louisiana.

This natural gas fired CHP plant is based around a refurbished General Electric Frame 6B combustion turbine generator with a new Deltek Heat Recovery Steam Generator (HRSG). The GE Frame 6 combustion turbine was installed previously at the 56 MW Cardinal Cogen Plant at Stanford University in Palo Alto, California. It operated from 1986 until being shut down in March 2015.

The combustion turbine, generator, switchgear, natural gas compressors, controls, and all auxiliary equipment related to the combustion turbine was salvaged and removed by Bryan Power and transported to West Monroe where it was reinstalled at the Graphic Packaging paper mill. It generates approximately 42 MW of electrical power and up to 250,000 lb/hr of 1,500 psig steam to drive existing steam turbines and for process use.

The CHP plant construction started in July 2015 and unit start-up was achieved in December 2015. Bryan Power's 35% Design and Cost Estimating Project was completed in December 2014.

### PROJECT HIGHLIGHTS

- GP had previously conducted a plant feasibility study using new equipment which resulted in a simple payback in excess of 7 years. BPG was contracted to prepare a second feasibility study using pre-owned equipment which resulted in a simple payback of 3-4 years.
- GP saved approximately \$20 MM by utilizing pre-owned equipment and reduced their overall project schedule by 9 months.

#### Client

- Graphic Packaging



#### Location

- West Monroe, LA

#### Date

- December 2014

#### Equipment

- 42 MW GE Frame 6B gas turbine generator and ancillary equipment

#### Service

- Equipment Procurement & Design / Engineering