CHP Energy Solution
Delivering Tall ROI and Short Payback
With rising electricity prices, high energy demands and climate changes, manufacturers must secure a cost-effective energy future for their organization. In order to do this, manufacturers are turning to combined heat and power (CHP).

CHP is a cost-effective solution wherein a power station is installed to simultaneously generate electricity and useful heat.

Sized properly, these systems can improve overall utility resource efficiency by 40 percentage points as compared to a traditional system where power is purchased from the grid and heat is generated by on-site boilers.

Under the right conditions, that higher overall efficiency turns into operational savings.

A leading paper manufacturer wanted to drive sustainability and reduce operational costs using this approach. They selected Haskell to evaluate their steam load and energy consumption for their tissue machines and design a Combined Heat and Power (CHP) solution.
Reciprocating Engine Solution

Upon review of the facility, discussion with the client and a closer look at their energy needs, Haskell determined that a reciprocating engine solution would meet their requirements and provide great value. The solution includes installation of two General Electric (GE) gas reciprocating engines, two heat recovery steam generators, and a new, package boiler to augment the heat captured from the engines.

EPC Delivery Method

In order to guarantee performance, Haskell and the customer agreed on the Engineer-Procure-Construct (EPC) contracting methodology. In the EPC agreement, Haskell guaranteed the schedule, electrical output, steam output and the CHP cycle efficiency of the plant. Should the CHP plant not produce electrical output and/or thermal output, the contract held Haskell accountable to correct any deficiencies at its own cost or pay damages – significantly reducing owner risk.

The following was guaranteed in the EPC Contract:

- Electrical output
- CHP Efficiency
- Steam Production (CHP)
- Steam Production (Boiler)
- Fuel Consumption (CHP)
- Parasitic Load (CHP)
- Compliance with the air permit

CHP Integration Plan

Haskell’s goal was to install this CHP solution without impacting the production and normal operation of their client’s paper manufacturing facility. As a result, Haskell engineered and constructed the required support infrastructure for the CHP and all ancillary systems and housed the engine generators separately in a new pre-engineered metal building.

Both the client and Haskell wanted to ensure the ambient noise level at the site boundary did not increase over the existing levels while the mill was operating normally. To achieve this, Haskell isolated the foundation/pad from the building to reduce vibration and installed acoustical dampers in the rooms of the engine generators and mechanical support equipment.

The finished CHP installation will realize an annual net savings of over $2.9 million dollars. This investment provides the customer a simple payback of 2.80 years, resulting in a 37.2% return on investment (ROI).
Results: Client Savings and Payback

Compared to their prior operations where electricity was purchased from the utility grid and steam was produced by on-site boilers, the finished CHP installation will realize an annual net savings of over $2.9 million dollars.

This investment provides the customer a simple payback of 2.80 years, resulting in a 37.2% return on investment (ROI).

Environmental Impact

Not only will the customer have simple, reliable, cost-effective energy, they also will enhance energy efficiency and reduce their carbon footprint.

Would you like to learn more about how Haskell helped this leading paper manufacturer save over $2.9 million dollars? Would you like to know how a CHP energy solution could impact your energy savings?

Take a moment to speak to one of our Energy experts, Travis Dauwalter by email, travis.dauwalter@haskell.com.