



# Ergon, Inc.

## 4.72 MW CHP System

### Project Overview

The Ergon, Inc facility in Vicksburg is a crude oil processor as well as a producer of asphalt products. In 1994, the facility installed a CHP system to supply the plant with reliable electricity while also taking advantage of the ability to use the waste heat to create steam for the refinery. The prime mover of the system is a gas fired turbine that has a maximum capacity of 4.72 MW. The steam that is produced by the waste heat from the turbine is delivered to the refinery at a pressure of 650 psi. It can produce 50,000 lb/hr at this pressure. While the production of the electricity is more costly than buying it from the utility provider, the steam production saves Ergon an estimated \$1.7 million per year.

### Reasons for Installing CHP

The CHP system at Ergon was installed in order to provide a stable electrical source for the plant's processes. At the time of installation, the plant was experiencing a high number of outages due to inconsistencies with the utilities provider. Even though the outages are no longer common, the CHP system is still in use today so that it can continue to produce the steam that is needed for the refinery.

### Quick Facts

**LOCATION:** Vicksburg, Mississippi

**MARKET SECTOR:** Crude Oil Processing

**FUEL:** Natural Gas

**MAX CAPACITY:** 4.72 MW

**IN OPERATION SINCE:** 1994

**EQUIPMENT:** Solar 60 Gas Turbine

Ideal Electric Co. Generator

Volcano International Waste Heat Boiler

Economizer and Exhaust System

Davis Combustion Systems Duct Burner

Effox Diverter Valve

**USE OF WASTE HEAT:** Create Steam for Refinery

**YEARLY SAVINGS:** \$1.7 million through steam production

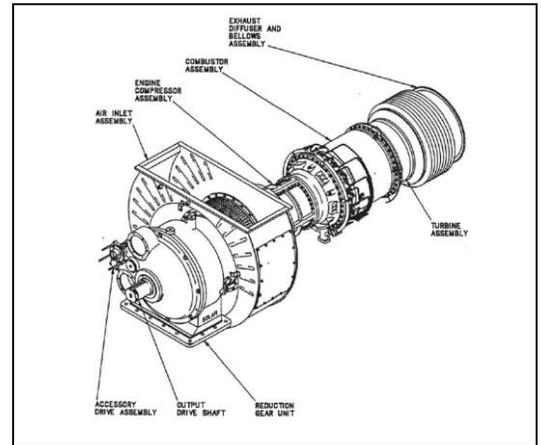


*Aerial view of Ergon facility in Vicksburg, MS*

### Equipment List

- Solar Taurus 60–7301 Gas Fired Turbine
- Ideal Electric Co. Generator
- Volcano International Waste Heat Boiler
- Economizer and Exhaust System
- Davis Combustion Systems Duct Burner
- Efox Diverter Valve
- Heat Recovery Steam Generator

Natural Gas is used to fuel the gas fired combustion turbine. The shaft power created from the turbine is converted to electrical energy using an accompanying generator that was manufactured by Ideal Electric Company. With this generator, the work from the turbine can produce 4.72 MW of electricity. All of the generated power is used for processes within the facility.



*Diagram of Taurus 60 Gas Fired Turbine*

The CHP unit at Ergon utilizes a Heat Recovery Steam Generator (HRSG) System. This portion of the CHP unit is responsible for producing steam from waste heat recovered from the turbine/generator set. The HRSG system in place at Ergon can produce 50,000 lb/hr of steam at a pressure of 650 psi. The HRSG is made up of a Volcano International, Inc. waste heat boiler, a Davis Combustion Systems, Inc. duct burner and control system, and an economizer and exhaust system.

At Ergon, the HRSG system can produce steam with or without the waste heat from the turbine/generator with the use of the duct burner. This allows Ergon greater flexibility in the operation of their CHP system. The 650 psi steam that is produced is used, as is the electricity, in the process. The CHP system also produces low pressure steam at 135 psi which is used by facility processes as well.

The entire CHP system is governed by demand. As the need for electricity or steam fluctuates, so does the use of the CHP system. This requires an operator to closely monitor the use of the CHP system.



*Ergon refinery in Vicksburg, MS*



*Entrance to Ergon facility in Vicksburg, MS*

### For More Information

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