

# AHM Case History

## Suggested Actions

- Determine your boiler capacity, average steam production, combustion efficiency, stack gas temperature, annual hours of operation, and annual fuel consumption.
- Identify in-plant uses for heated water, such as boiler makeup water heating, preheating, or process water heating.
- Determine the thermal requirements that can be met through installation of a condensing economizer.
- Determine annual fuel energy and cost savings.
- Contact your local utility for help in consulting, rebates and incentives available to improve efficiency.

For more information and a quotation on condensing economizers please contact:

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## Santa Clara Plant Reduced Fuel Cost with Condensing Economizer

### SITUATION

To improve efficiency, a Santa Clara, California Processing Plant replaced its steam boilers with a combined-cycle cogeneration power plant in 1985. The project included a natural gas fired combustion turbine, coupled with a duct-fired heat recovery steam generator (HRSG). Exhaust gases from the gas turbine are supplemented with a Coen Duct Burner and used to produce high pressure steam in the HRSG. The power plant produced 390 F of waste heat in the stack flue gas.

With unsettling fuel prices, the mill investigated new technologies to improve efficiency by recouping heat from the high temperature stack flue gas. By adding state-of-the-art heat exchange and recovery technology, the paper mill could capture valuable waste heat energy from the exhaust gases to reduce significantly their natural gas use while heating process water essential to paperboard production.

### SOLUTION

Working with Pacific Gas & Electric (PG&E) and AHM Associates, the mill installed a Condex Condensing Economizer to recapture the high temperature waste heat in the stack

flue gas. PG&E offers grants, rebates, consulting services and many other incentives to businesses looking to improve their efficiency.

Virtually every utility district in California provides similar incentives to increase efficiency. On this project, PG&E awarded an energy efficiency incentive of \$1.1 million to offset the project's cost. This incentive along with the projected fuel cost savings and ability to heat process water made good economic sense and got the ball rolling.

### RESULTS

According to PG&E, the Processing Plant investment in waste heat recovery resulted in one of the highest natural gas savings on record.

- Duct burner natural gas consumption cut by 50%
- 38,178,000 Btu/hr recovered at peak load
- Over \$3,000,000 in yearly fuel savings
- Plant will save 2.7 million therms of natural gas in current year
- 15,700 tons of CO<sub>2</sub> eliminated
- Plant recovers over 30,000 lb/hr of water for process needs