



LaFarge Cement

Alpena, Michigan

Installation of a 4.0 MW Back Pressure Turbine Generator

Problem

LaFarge Cement generates heat in its industrial kilns during the cement making process. The high temperature exhaust is captured in a heat recovery boiler where high pressure and high temperature steam is generated. These boilers are designed for low gas velocities due to the dirty gas/high particulate loading of the gas stream.

LaFarge Cement wanted to reduce maintenance costs and plant manpower by converting 5 steam turbine drives to electric motor drives. The result of this change allowed for more steam flow through the pressure reducing station.

Resolution

Optimira suggested that a single steam turbine generating set be placed in parallel with the pressure reducing station. The turbine generator would produce 4 megawatts of added electricity, thereby offsetting purchased electricity.

Project Description

The project involved the installation of a new 4,000 kW multi-stage steam turbine synchronous generation set, 4,160 volt switchgear, new turbine generator foundation, mechanical and electrical interconnections, the offloading and setting of a turbine generator unit on new foundations, and the delivery of equipment to the site. Additionally, Optimira oversaw site preparation, project startup, project engineering and project management.



End Result

The output of the generator produced 2.5 times more electricity savings than the steam turbine drives and allowed the maintenance and operating costs to remain at lower levels.