

## Boiler Controls Upgrade Project

State of California, Department of Corrections — California Men's Colony Prison



### LOCATION:

San Luis Obispo, California

### PROJECTS & SERVICES:

- Project Management
- Engineering Design
- Construction Oversight
- Quality Control/Quality Assurance
- Startup Services Including Boiler Tuning

### PROJECT OVERVIEW:

Source California Energy Services, Inc. (SCES) was selected by the State of California, Department of Corrections, to research and provide a complete detailed design and project management for the upgrade of their boiler control system on three identical Erie City Boilers, each rated at 20,000 lbs/hr steam flow at 125 psig saturated steam. Each boiler was originally controlled using one main servo motor connected to a jackshaft that actuated the fuel, air and gas recirculation valves and dampers. This jackshaft design caused numerous instabilities, many of which occurred during the boiler light-off process creating the need to provide a safer combustion control system.

SCES engineers superimposed their wealth of power utility boiler process and controls experience to create a final control upgrade design comparable to the level of performance and quality found in the modern and large fossil-fueled power plant boilers. SCES acted as owner's engineering representative responsible for overseeing the final equipment design, procurement, installation, and startup of a "fully metered" multi-loop microprocessor controlled upgrade to the client's previously problematic control system.

Besides fully surpassing the original safety goal, the project also achieved full stack emission compliance at all operating conditions including a turndown of greater than 10 to 1, a fuel savings of \$52,000 in the first four months of operation, an estimated annual total savings of \$140,000 resulting in a project payback period of approximately four years, and process stabilities never seen before resulting in less equipment stress and life extension.

SCES has written an extensive report on the success of this project and is able to provide a personal tour of the client's boiler facility.