California State University Fullerton Trigeneration Plant

FULLERTON, CA

EMCOR SUSTAINABILITY

EDUCATION

UNIVERSITIES

CASE STUDY

OPERATING COMPANY
KDC Systems

CLIENT
California State University Fullerton

EMCOR

VALUE DELIVERED

KDC Systems interfaced the new trigeneration plant at California State University Fullerton (CSUF) to plant controls. Because we connected components to a bank of servers, critical measurements such as temperatures, voltages, amperage and more are displayed on control room monitors, enabling easy monitoring and adjustment.

Our view graphics allow CSUF's building operators to see in real time exactly how much electricity their facility is using from any networked computer, as well as dozens of other pieces of information about electricity transmission quality. This allows CSUF to correct inefficiencies and detect outages instantly.

Because our solutions contribute to the exceptional energy-efficiency of the overall plant, the University will be able to pay off the entire lease agreement on the equipment with the money the plant saves in electricity bills.

CLIENT OBJECTIVES

CSUF's trigeneration plant incorporates "smart grid" concepts in use by the U.S. Department of Energy to make the energy infrastructure more efficient, responsive, and less vulnerable. CSUF needed industrial automation solutions for this new trigeneration plant to help monitor and adjust electricity usage.

kdc-systems.com
714-484-2300

KDC Systems
An EMCOR Company

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SOLUTIONS

KDC Systems installed integration solutions that used sustainable waste heat recovery technology for boilers and chillers. As the turbine creates electricity, approximately 50 percent of the exhaust heat is recovered to make the turbine run more efficiently or to help heat water or provide winter heating. Our controls work included:

- ControlNet communication interface and interlocks for plant control of a 4.4-megawatt turbine generator, lube oil heat exchanger, and accessories
- Modbus communication interface to programmable logic controllers (PLC) for plant control of two 1,300-ton direct-fired absorption chillers
- PLC for control of two exhaust gas diverters with shared control and monitoring
- 12-kilovolt generator switchgear breaker control and monitoring
- Multiple heating and cooling water pumps and drives
- High and low pressure natural gas controls and monitoring with added seismic controls including overrides
- Two cooling towers with fan, pump, and valve controls
- Interface via server to the existing campus control system
- View graphics and web application packages

We also provided:

- Panel fabrication
- Installation of instrumentation and control valves for the balance of the plant
- Calibration and commissioning support

CLIENT BACKGROUND

California State University, Fullerton (CSUF or Cal State Fullerton) is a public university with more than 41,000 students.

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