



# Driving power and energy costs lower

## Operational Challenges

Managing the industrial powerhouse to minimize the costs of electricity and steam requires constant attention, a great deal of information management and typically, significant manual intervention. Operations personnel are continuously multi-tasking, making critical process control decisions that include:

- adjustment of steam supply to meet process demands
- selection of various possible fuels based on cost and availability
- loading of available boilers based on cost and constraints
- amount of electricity to purchase versus generate
- loading of turbines based on cost, steam availability, and constraints
- response to disruptions and equipment breakdowns

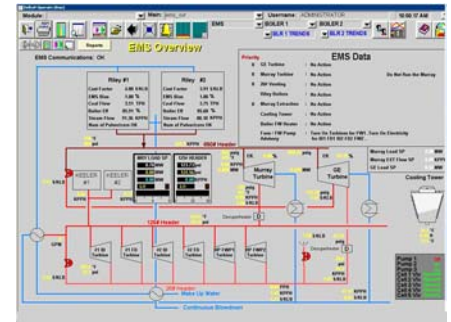
## SmartProcess Energy

The Emerson SmartProcess® Energy optimization solution is used to reduce the total cost of energy in a mill/plant by automating critical decision making and process adjustment. SmartProcess Energy employs facility-specific models and rule sets to continually determine the optimum setpoints for all powerhouse process units.

## Robust functionality

In the past, energy management functions have been offered to industry in various forms, with limited scope, robustness, and maintainability. The SmartProcess Energy solution has unique capabilities that provide the end user with superior value:

- Process unit modeling is included to allow the highest degree of accuracy in calculations and decision making.
- Expert system and/or fuzzy logic for decision-making provides flexibility and the ability to respond effectively to the widest possible variety of real-time conditions.
- The solution is developed using standard real-time open architecture hardware and software components so that the system is stable and maintainable.
- SmartProcess Energy is designed to perform full automatic control, but can operate in either Advisory or Direct Control mode. This flexibility allows operators to make system-suggested changes or the system can make setpoint changes itself in conjunction with the unit process control systems.



## SmartProcess modules

A number of modules make up the SmartProcess Energy solution including:

### Process data analysis/validation

- Statistical regression algorithms

### Fuel train optimization

- Boiler models
- Per unit cost to produce
- Per fuel cost to produce

### Purchased power optimization

- Turbine models
- Per unit cost to produce
- Purchase contract profile

### Decision logic

- Business models
- Integrated expert system

### Enhanced operator interface displays

## True industrial power and energy process expertise

Emerson's success in implementing high value energy management solutions is built on a foundation of true process expertise. Our Industrial Energy team consultants come from industry and have operated power and energy processes. A depth of knowledge and experience exists that delivers profitable results for client mills and plants.

Emerson Industrial Energy team experts maximize your business results by:

- Analyzing current operating results to define opportunities
- Identifying constraints so that they can be incorporated into the design of your SmartProcess solution
- Setting scope boundaries and justifying the investment required for a given benefit
- Involving key mill/plant personnel to ensure systems implemented are a tool for business improvement
- Providing comprehensive training in the solution operation/upkeep

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## Savings results

SmartProcess Energy solutions are operating in multiple locations in North America. End users are seeing two types of savings results;

- Identification of large opportunities for savings such as a change in fuel utilization or electrical generation adjustment.
- Continuous incremental savings are being obtained from small operating adjustments discovered through the constant attentiveness of SmartProcess Energy and the ability of the system to process large amounts of data. Typically, SmartProcess Energy users are realizing savings in the range of \$0.5 to \$2.0MM annually.

A SmartProcess Energy optimization solution will drive your power and energy costs lower. Contact us today to get started.



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