

# DELTA V Boiler Economic Dispatch

## Real-Time Cost Based Load Allocation

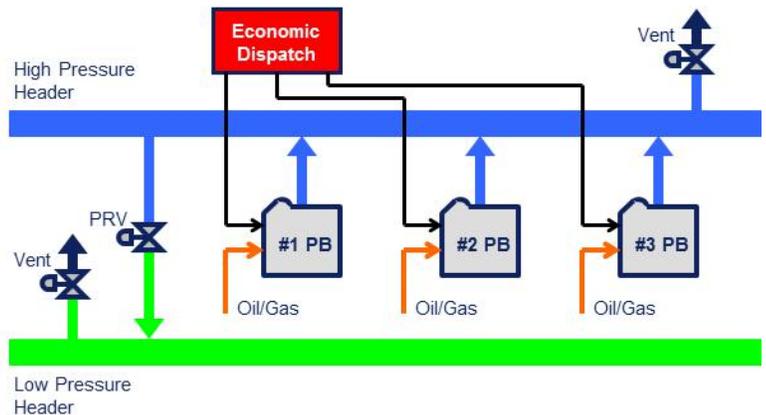
### Better control for boiler fuel cost reduction

Most sites operate more than one boiler to produce the steam needed for process operations, heating, and/or electric generation. Steam load is typically distributed across two or more boilers depending on factors including:

- Unit availability
- Perceived cost per pound of steam on each unit
- Unit responsiveness and constraints

Often a site will base load one or more boilers and use another unit to follow changes in steam demand. While this can be a straightforward and acceptable method of operation, it is not likely to produce the lowest overall fuel cost at all times for boiler operations.

The Emerson Boiler Economic Dispatch Solution provides the control functionality needed to automatically distribute steam load across boilers in the most economical manner at all times. Economic Dispatch improves power and utility operations by providing the functionality including the following:



- Cost per pound of steam is calculated in real-time for each available boiler unit
- Steam load is split across the available units in the most economical manner at all times
- Boiler equipment constraints, environmental limits, and any other restrictions are considered in loading units
- Operations may include or remove a boiler from Economic Dispatch at any time

In short, the Emerson Economic Dispatch solution accomplishes optimal boiler loading each minute of the day taking into account cost, operating limits, and equipment availability.

### Optimization in the Controller

The Economic Dispatch solution uses the power of DeltaV advanced control functions to accomplish optimization at the controller level. The solution is a robust real-time control application, not a snap-on program running in a PC or remote box. This makes it reliable and easy to maintain, and delivers a low life-cycle cost.

## What is controlled?

As shown in the diagram, the Boiler Economic Dispatch solution takes the following inputs from the powerhouse processes:

- Plant Master
- Boiler firing rates
- Boiler limits
- Boiler real-time costs

The optimizer uses these inputs to calculate optimal setpoints for each available boiler, and provides these to each boiler combustion control system typically every 5 seconds.

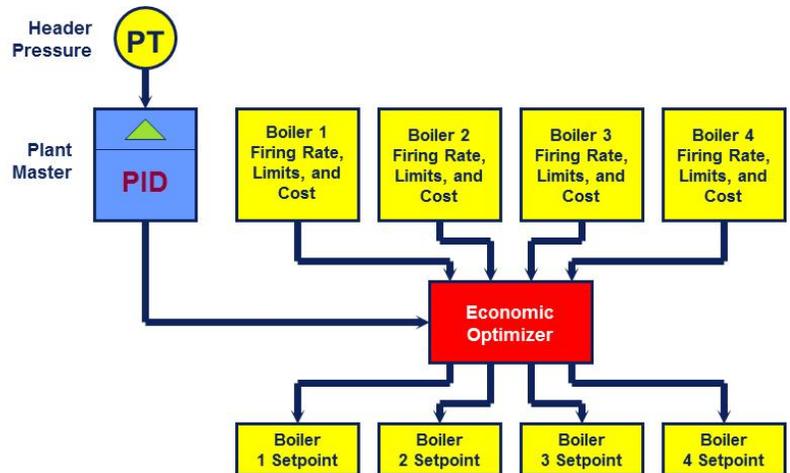
## How can Economic Dispatch improve Powerhouse performance?

The Economic Dispatch solution delivers improved performance for Powerhouse owners including:

- Boiler operation is cost optimized in real-time at all times, automatically within constraints
- Multiple boilers are used to follow steam demand load swings providing better response and less header pressure variation

### Contact:

Emerson Process Management  
Process Systems and Solutions  
Telephone: +1 (512) 835 2190  
email: Bob.Sabin@Emerson.com



## What other combustion control functionality is available?

Emerson can provide a complete set of combustion process control and optimization functionality to improve process performance and reliability while reducing fuel cost and emissions, such as:

- Boiler Burner Management System (BMS) implementations
- Boiler unit combustion efficiency optimization
- Automatic warm-up routines
- Improved turn-down capability
- Emissions constraint control

## What about support?

Few operations have the resources or expertise to design, implement, startup, tune, and maintain a complex combustion process control system on their own. Emerson experts are available to assist with any stage of a combustion control project. Our industry experts can help design, justify, and implement improved combustion control that will show immediate results on an organization's bottom line. Please call us to find out how.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our software licensing agreement and terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of our product and services at any time without notice.

© 2010 Emerson Process Management, LLLP. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. SmartProcess, Emerson Process Management and the Emerson Process Management design are marks of one of the Emerson Process Management group of companies. All other marks are the property of their respective owners.