

# Kn<sup>3</sup>™ Software Platform



## Optimization by Blending Process Modeling, Optimization and Control

This entirely new software platform brings optimization to a new level, emerging as an extremely powerful, yet generically applicable tool, blending three distinct knowledge-capturing capabilities. Kn<sup>3</sup> provides accurate modeling technology, unique optimization and state-of-the-art control.

### Product Overview

#### Process Modeling

Kn<sup>3</sup> modeling technology includes both neural nets and rules. Neural nets provide predictive models for key outcomes resulting from a process. Detailed, easily configurable rules can be written on any combination of data entering or leaving Kn<sup>3</sup>.

#### Optimization

Kn<sup>3</sup> provides sophisticated, multi-objective optimization, allowing several different goals to be addressed simultaneously. The optimization iteratively updates inputs, progressively driving the calculation efficiently and accurately towards the best set.

#### Control

Utilizing GE's proven MVC™ (Multi-Variable Control) system, users can effectively "close the loop" with the optimized setpoints found by Kn<sup>3</sup>, while ensuring there are no abrupt process changes or upsets when observing control constraints.

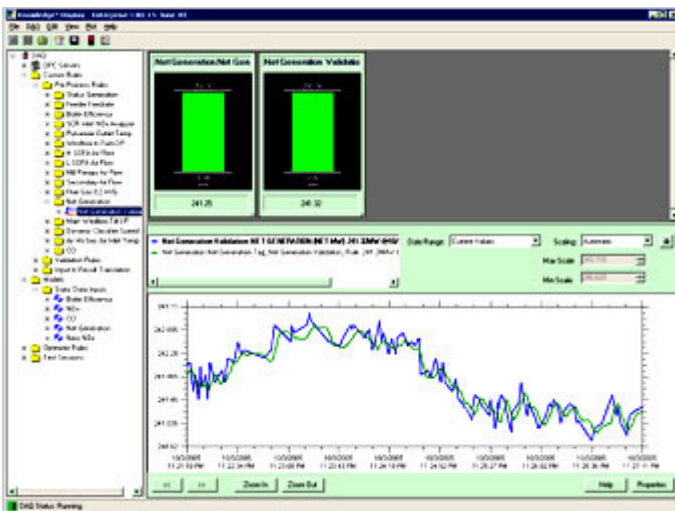
### Applications & Benefits

#### Energy Optimization

Kn<sup>3</sup> can be applied to a variety of energy-related processes such as power and steam production, pipeline optimization and grid management. One example is coal boiler optimization to improve emissions, efficiency and availability.

#### Improved Production Quality

Kn<sup>3</sup> is applicable to processes as diverse as steel and pharmaceuticals to improve the quality and quantities produced, while reducing costs.



#### Diagnostics

Combining both rules-based and neural net capabilities is a powerful combination for diagnosing problems or identifying anomalies even when highly complex data is involved.

#### Pattern Recognition

Kn<sup>3</sup> can easily identify a sequence of events that may lead to a particular process upset using neural net technology for process recognition. Kn<sup>3</sup>'s added advantages of being able to manage data and apply rules makes it uniquely powerful.