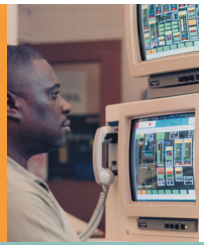
Response Optimization



OVATION™ ADVANCED APPLICATIONS

Optimize Plant Maneuverability

Application

The Ovation Response Optimization solution uses advanced unit analysis and modeling techniques to provide optimal load trajectory and control for improved ramping, startup, unit turndown, and overall performance. By modeling process response and unit characteristics, the solution calculates a variable derivative ramp rate to optimize plant maneuverability and AGC capabilities, eliminate overshoots, and provide a high level of unit control precision.

Strategy

Smooth Operation

The Response Optimization solution reduces plant operation costs with control tasks that allow for smoother operation of the steam generation assets.

Model Aspect

The Response Optimization solution responds to unit dynamic load demands by the modeled response capability of the assets.

Internal Models

Internal dynamic models for steam pressure, unit load, and steam generator response allow the Response Optimization solution to forecast key manipulated variables such as fuel flow for the HRSG or boiler and the turbine control valves in a coordinated mode, allowing for quick and stable changes.

Improved Unit Flexibility

Being able to run a unit in a stable manner at low load levels is key in the power industry. The solution improves unit stability across a broader load spectrum. This improved stability delivers faster, more efficient unit startups.

Results

- Models boiler/HRSG and turbine responses to increase ramp rates
- Reduces thermal stress due to fewer temperature fluctuations
- Improves the stability of ramp rates and low-load operation
- Increases startup efficiency
- Improves plant efficiency by explicit position control over the sliding-pressure range, as compared with unit control merely using positioning control
- Performs stress analysis to increase operational maneuverability

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