Reheat and superheat steam temperatures within plants affect the responsiveness and efficient generation of electricity. These steam temperatures must be maintained at all times within strict limits. Off-temperature operation adds operating cost, while excessive and frequent temperature excursions can lead to mechanical failures and higher maintenance costs. Maintaining these temperatures can be challenging with conventional control tools, especially when the unit is ramping.

**BENEFITS**

The superior disturbance rejection ability of Invensys Operations Management SimSci-Esscor™ Connoisseur® software provides tighter steam temperature control, even during ramping units and mill starts. While some units have increased ramp rates of 100%, this tight control provides the lowest heat rates and NOx under all conditions. The system eliminates excessive thermal stress, which leads to shorter boiler tube, and steam turbine component lives. In addition, minimizing forced outages caused by tube leaks increases unit reliability.

**CONTROL STRATEGY**

Connoisseur uses multivariable model predictive control algorithms to anticipate reheat and superheat temperature effects, and is a truly dynamic Multivariable Process Controller (MPC). It can recognize any given position within the control process, and predict/evaluate proceeding steps for optimal efficiency. Connoisseur provides multiple techniques including Neural Net and nonlinear capabilities. The system manipulates conditions such as oxygen bias, burner tilts, superheat sprays, reheat sprays, and gas recirculation to stabilize reheat and superheat steam temperatures. Ramp rates accelerate until steam temperature or emission constraints are encountered, while steam temperatures are maintained during mill starts and other unit disturbances.
Tight integration with the plant’s basic control system provides a secure mechanism for applying this critical control. Additionally, Invensys Operations Management Connoisseur can provide advanced control capability for mill optimization, combustion optimization, and smart soot blowing.

Connoisseur is an advanced application of Invensys Asset Performance Management. A comprehensive solution to help optimize generation assets, reduce cost, and increase capability and reliability.

Invensys Operations Management Connoisseur can overcome the following obstacles within your plants and easily keep your unit highly responsive to system demands:

- Changing Fuels
- Mill Deterioration and Outages
- Variable Boiler Cleanliness
- Soot Blowing Effects
- Extreme Load Changes