

Process and Control Expertise Reduces SCR Costs

Downtime Not an Option

Coal-fired power generation plants must operate with maximum reliability while complying with strict environmental regulations.

ECS Solutions helps plants meet these operating requirements reliably and cost-effectively.

Various nitrogen oxides (NO_x) are pollutants power plants must remove from flue gases before discharging them into the atmosphere.

Selective Catalytic Reduction (SCR) systems inject ammonia into the gas stream and pass the hot gases over catalyst beds where chemical reactions remove the NO_x.

Why ECS?

Though large OEMs supply the SCR's, several power plants have specified ECS Solutions to design and implement the control systems because they know ECS is—

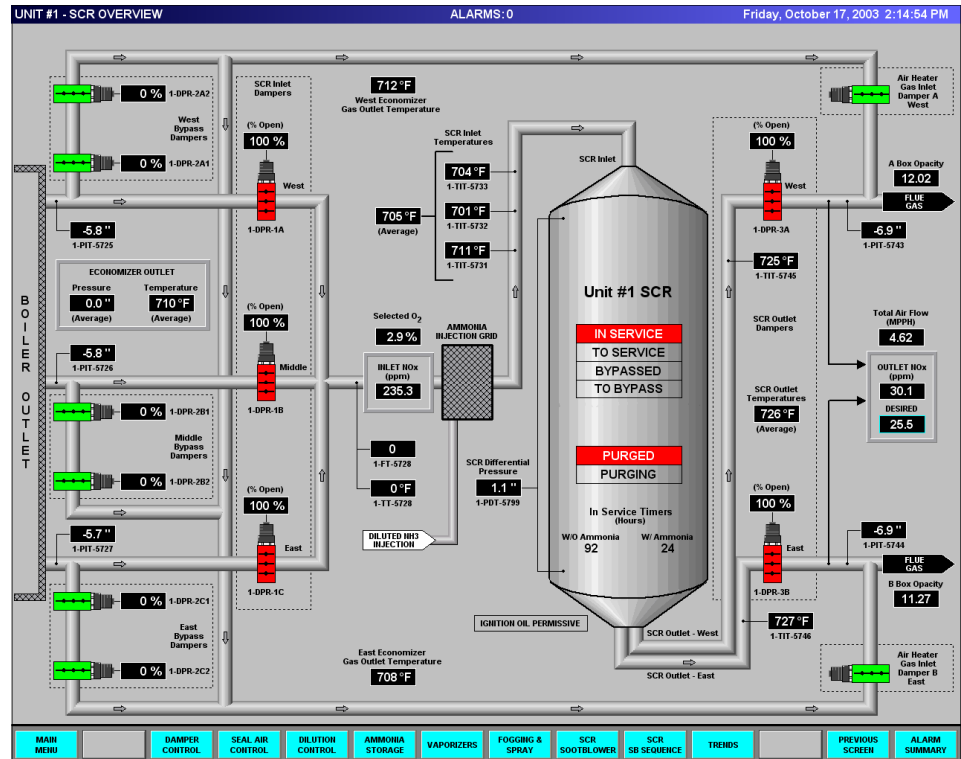
- Knowledgeable and innovative
- Responsive to their needs
- Thorough and complete
- On time and under budget
- Reliable with local support

Process Knowledge is Key

The challenge of SCR control is to measure the flow of gases from the boiler and inject only enough ammonia to reduce the NO_x that is present.

Inject too little ammonia and NO_x pollutants are discharged into the atmosphere.

Inject too much, and the excess ammonia combines with sulfur compounds in the flue gas to form hard, ceramic-like ammonium sulfates and sulfites that coat and plug downstream components.



SCR overview screen

Reliable and Cost-Effective

In one recent SCR control project, we combined the emissions control knowledge of our ex-power plant personnel with our control system expertise to design and implement a redundant Allen-Bradley® Control-Logix® PLC and Rockwell Software RSVIEW® SE HMI solution at considerable cost savings over a traditional DCS approach.

The system monitored and controlled the ammonia tank farm, the ammonia vaporization and injection system, and the flue gas dampers.

Inputs included flue gas flow, oxygen concentration, damper position, SCR inlet and outlet NO_x concentrations, ammonia flow rates, and data from the induced draft fans' variable frequency drives.

The system used these inputs to calculate ongoing ammonia injection rates. PID loops controlled the injection valves.

Response was nearly real-time, lagging only by the time required to obtain the NO_x concentration values from the flue gas analyzers.

This approach reduced SCR implementation costs and reduced ammonia operating costs while providing the required reliability.

Let ECS Help You Do More

The design and implementation of this SCR control system is just one example of the engineering services ECS Solutions can provide for industrial control and information systems in both power generation and manufacturing facilities. Let us help you do more with—

- Design and drafting
- Panel fabrication
- PLC programming
- HMI development
- System integration
- Training