

Roxboro Station Units 1 - 4

Wet Flue Gas Desulfurization Systems

Project Case History

Progress Energy

Roxboro, North Carolina

Babcock & Wilcox's (B&W) wet flue gas desulfurization (FGD) systems feature a combination of design components to provide a high level of reliability and removal efficiencies. These include B&W's signature tray tower design to provide superior gas to liquid contact and uniform flow distribution through the absorber spray zones; its patented inlet awning, interspatial headers to reduce absorber height, pump power requirements, and internal support costs; forced oxidation system; and advanced mist eliminators.

Boiler/Plant Information

- 3 x 700 MW (Units 2, 3 and 4), 1 x 400 MW (Unit 1)
- Boiler type: Pulverized coal fired

- Design fuel: Bituminous
- Additional environmental equipment: Electrostatic precipitator, selective catalytic reduction system, and waste water treatment system

Project Summary

- Engineering, procurement and commissioning of a wet flue gas desulfurization system
- System designed to remove 97% of the entering SO₂ without organic acid addition
- Type: Limestone forced oxidation with gypsum byproduct
- Commercial operation: April 2007 (Unit 2), December 2007 (Unit 4), May 2008 (Unit 3), December 2008 (Unit 1)

B&W Scope

- Four (4) wet FGD absorbers – functional design by B&W, supply by Stebbins
- Three (3) limestone ball mill systems (2 operating, 1 spare)
- Four (4) vacuum filter systems (3 operating, 1 spare)

Results

The project met engineering, fabrication and delivery objectives.



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