

Flue Gas Desulfurization Systems

HITACHI POWER SYSTEMS AMERICA, LTD.



J-Power - Tachibanawan – 1050 MW – Operation 2001

Who we are!

- Global company with over thirty years experience in power generating station air quality control improvements including wet flue gas desulfurization technology worldwide.
- Fifty-five (55) wet FGD installations
- Many on high sulfur applications.
- Leaders in NOx removal
- Actively piloting and testing new systems to remove mercury.

Why Hitachi?

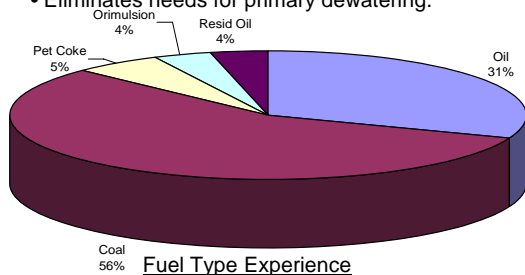
- Global company with Global Resources
- State of the Art AQCS solutions
- Strong Financials
- Skilled and Experienced USA Based Project Execution teams
- Commercial and Contract Flexibility

R&D Initiatives:

- Computational fluid dynamic modeling
- Full scale testing of spray header layouts
- SCR Catalyst Improvements
- Mercury Characterization & Removal
- H2SO4 Removal

Our WFGD technology:

- In-situ forced oxidation using air lances and side entering agitators.
- Employs limestone slurry.
- SO2 removal-enhancing additives not Required
- Utilizes both open spray tower and tray tower technologies.
- Produce commercial grade gypsum.
- Eliminates needs for primary dewatering.



Hitachi's wet FGD absorber modules have several features that minimize capital investment and operating costs while increasing reliability and turn-down

Wide Flue Gas Inlet:

- Reduces Absorber Heights
- Improves Gas Distribution

Increased Spray Zone Velocity:

- Increased SO2 Removal
- Reduces Absorber Diameter

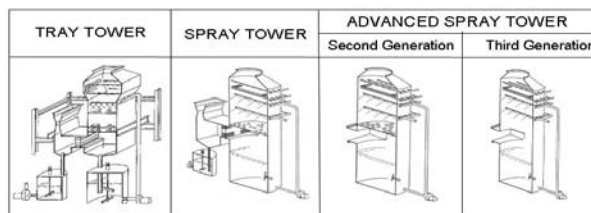
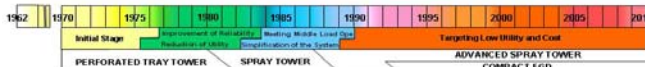
Spray Flux Density Profile:

- Reduces absorber Heights
- Improves Gas Distribution (Sneakage)

Reaction Tank Solids Concentrations:

- Maximizes Absorption and Reaction of SO2
- Permit Single Stage Dewatering

Desulfurization absorbers have undergone a series of technology advancements that today, result in improved reliability, increase availability, lower investments and lower operating/maintenance costs.



Hitachi's Absorber Attributes Summarized

- Optimum Size, Power Consumption and Pressure Drop to Yield Smallest Footprint and Lower Operating Cost.
- No Gas Distribution Internals
- Excellent Gas/Liquid Contact
- Eliminates Sneakage of Unscrubbed Gas
- High Forced oxidation Efficiency
- Maximum Turndown and Unrestricted Unit Ramp Rate

Wet FGD Experience

- 55 Installations
- 18,900 MW
- All Common Utility Fuels
- Inlet SO2 from 500 to 4,000 ppm
- Absorber Capacities to 1,050 MW
- All Common Absorber Materials
- 30 Years of Commercial Grade Gypsum



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FGD systems at Chvaletice in the Czech Republic have a single absorber module, serving two boiler units. The East European brown coal fired in these 200 MW units is of poor quality, and the resulting gas flows are comparable to 350 MW bituminous coal fired units. The FGD systems at Chvaletice consistently achieve SO₂ removal efficiencies of about 98 percent at inlet concentrations of almost 2,800 ppm.



FGD Completed – CEZ – Chvaletice – Czech
2 x 400 MW FGDs for 4 x 200 MW
Commercial Operation 1998



Absorber Assembly – Kozenice - Poland – 800 MW
Commercial Operation 2007

www.hitachi.us/hpsa



Absorber – Sokolovska Uhelna – Vresova -
Czech Republic – 1 Single FGD for 4 x 55 MW
Lignite Boilers
Commercial Operation 2002

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