

# MULTI-POLLUTANT AIR QUALITY CONTROL SYSTEMS



**Babcock Power**  
ENVIRONMENTAL

a Babcock Power Inc. company

**BABCOCK POWER ENVIRONMENTAL INC.**, a Babcock Power Inc.® company, and its sister company Riley Power Inc., offer a complete portfolio of technologies and services to encompass all your air pollution environmental needs. Our companies share more than 90 years of utility boiler engineering experience, along with a full range of environmental technologies, making us a leader in developing, installing and implementing complete Air Quality Control Systems (AQCS) for the power generation industry. Our Selective Catalytic Reduction (SCR) Systems\*, Low NOx Burners, Wet Flue Gas Desulfurization (WFGD) Scrubbers, Dry Scrubbers including our Circulating Dry Fluid Bed Scrubbers, and Mercury Removal systems are all available and can be integrated into a cost-effective, highly efficient air pollution control system from one supplier.



## Select Catalytic Reduction (SCR)

The Babcock Power SCR incorporates the use of our unique and proprietary Delta Wing® mixing technology which enables Babcock Power Environmental to offer direct ammonia injection without the use of vaporizers. The SCR system requires minimal tuning requirements, delivers ammonia through large open lances and provides for uniform

ammonia to NOx distribution. The Delta Wing® mixing technology provides unmatched mixing and distribution of flue gas flow, flue gas components, flue gas temperature, and fly ash and delivers the lowest long term outlet NOx emissions over the entire operating load range with the highest reliability in the industry.

(continued on page 2)

**Rely on industry-leading air pollution control systems integrated through the convenience of one supplier.**

**CONTACT BABCOCK POWER ENVIRONMENTAL INC. TODAY.**

## BENEFITS

### Complete In-house Design and Supply for Your Multi-Pollutant AQCS

- Single source/one contract from the boiler/firing system to the stack
- Simplified contract execution – one primary point of contact; one schedule
- Responsibilities and performance guarantees more easily defined and measured to meet your environmental compliance goals
- In-house installation, start-up and commissioning services
- In-house CFD and physical modeling capabilities

### World Leading Technology Base

- More than 90 years of boiler engineering and fuel firing experience, including in-furnace NOx reduction technology, to complement your AQCS project
- Over 30 years of scrubber technology experience, with numerous absorber vessel materials including alloys, as well as lined vessels utilizing plastics, rubber, and acid tile technologies
- Almost 40,000 MWs of SCRs in operation, under construction or under review, just in the U.S.
- Portfolio of mercury removal technologies, including exclusive supplier of Activated Lignite HOK® for North America
- Experienced in integrating particulate removal equipment into the total AQCS



### Multi Pollutant Control Reactor (MPCR)

The Babcock Power MPCR system is designed to reduce NO<sub>x</sub> and other emissions including CO and VOCs from flue gas. For boilers, the system is often coupled with Babcock Power's split air heater to eliminate the requirement to reheat the flue gas. The MPCR is especially designed to achieve high NO<sub>x</sub> removal for biomass and industrial applications.

### Regenerative SCR

The Babcock Power RSCR System is designed to reduce NO<sub>x</sub> and other emissions from flue gas including CO and VOCs and process equipment, targeting tail-end/low temperature applications where the flue gas is relatively cool with low levels of particulates and acid gases. The modularized system is highly thermal efficient (>95% heat recovery) compared to other tail-end SCR technologies and requires a very short outage for a duct tie-in.

### HRSR and Simple Cycle SCRs

The Babcock Power HRSR and Simple Cycle SCRs incorporate the use of our knowledge of modeling and mixing technology to distribute flue gas flow and temperature to effectively maintain emissions and optimize drop during cyclic transitions.

### Delta Dry Sorbent Injection (DSI)

The Babcock Power Delta DSI system maintains higher removals and reduced reagent consumption compared to traditional DSI systems. The system incorporates the use of our unique and proprietary Delta Wing® mixing technology to maintain sorbent distribution over the entire operating flue gas flow range to remove acid gas constituents including SO<sub>2</sub>, SO<sub>3</sub>, HCl, and mercury.

### Circulating Dry Fluid bed Scrubber (CDS)

The Babcock Power CDS is a cost effective, highly efficient system designed to remove acid gas constituents, including SO<sub>2</sub>, SO<sub>3</sub>, HCl, HF, mercury, and other trace pollutants from flue gas streams. The system is optimized to minimize pressure drop and reagent consumption while maintaining removal across the entire flue gas operating range.

### Wet Flue Gas Desulfurization (WFGD)

The Babcock Power WFGD system maintains high efficiency SO<sub>2</sub> removal while still effectively managing power consumption. The WFGD system is optimized to minimize the WFGD effluent stream while producing marketable gypsum.

### Water Management

Babcock Power Environmental has a keen understanding of water chemistry across the entire process from years of experience as an OEM (original equipment manufacturer). Babcock Power Environmental will work with customers with provide technology options for zero liquid discharge. These options will allow a plant to reduce O&M, reduce WFGD effluent discharge and reclaim and/or eliminate pond water. Water optimization includes:

### AQCS Upgrades

With dispatch requirements resulting from changing generation portfolios coal fired generating units are facing challenges running their AQCS to meet emissions requirements. Maintaining flue gas and temperature distribution is important to maintain permitted emissions, and the marketability of flyash and byproduct with the minimization of reagent feed and wastewater purge. The keys to addressing these challenges are a comprehensive understanding of the design and operation of the equipment and technology and expertise to apply solutions to resolve these issues. Babcock Power's experience as an original equipment manufacturer understands the entire process and process impacts across the system and can partner up with owners to find the best solutions to these challenges to maintain emissions and reduce O&M.

SAFETY<sup>3</sup> PEOPLE. POWER. PROJECTS.

We're giving safety the third degree.

Babcock Power Inc. and its subsidiaries place the safety, health and security of our people at the core of our company values. Our team is our most valuable resource, generating solutions everyday to deliver safe, clean, reliable energy globally. With a keen focus on safety, Babcock Power Inc. conducts business in a manner that protects our people, our customers and the environment. From innovation to generation, we are proud of our award-winning safety record and are committed to operating with integrity and excellence.

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