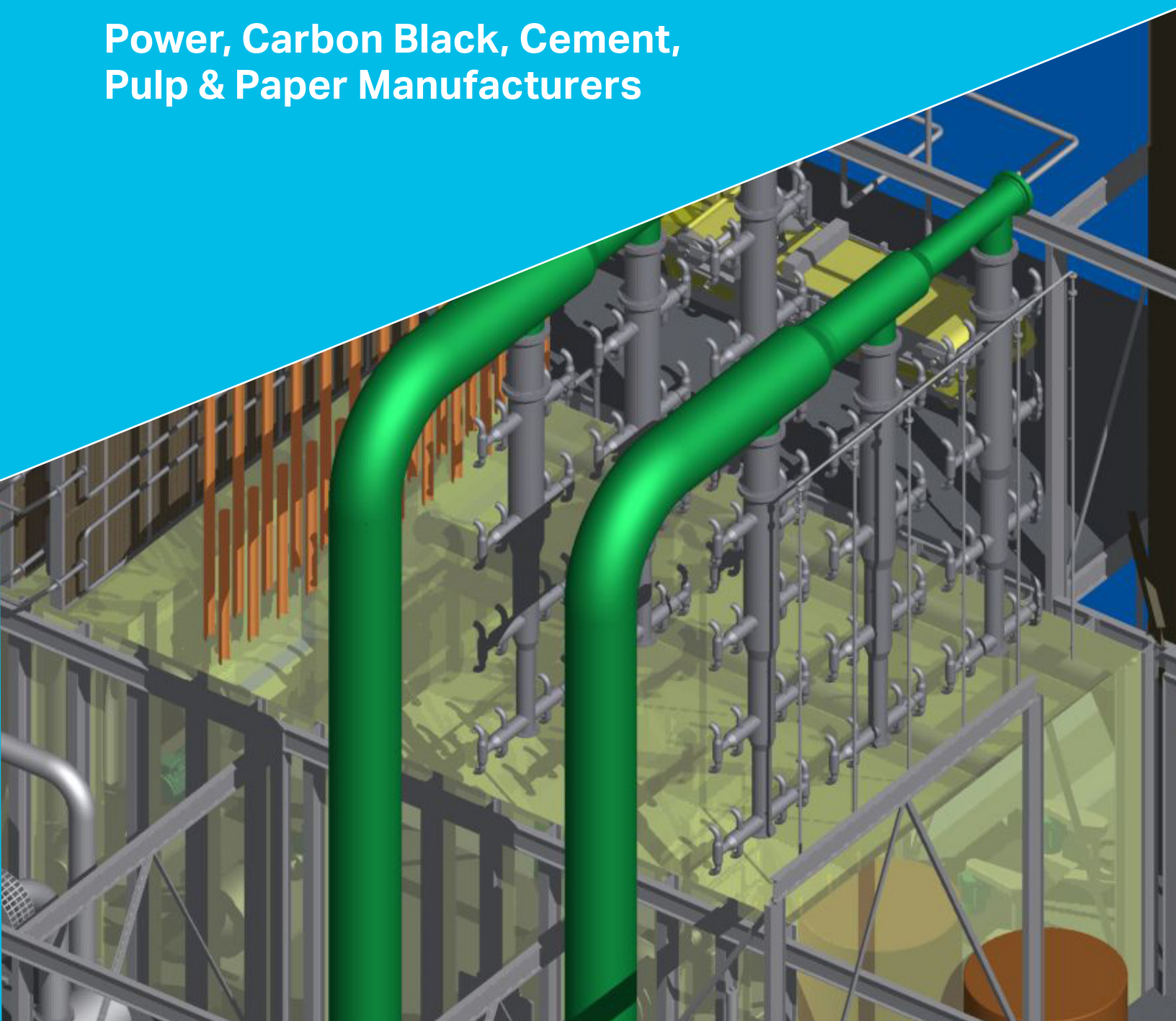
AECOM

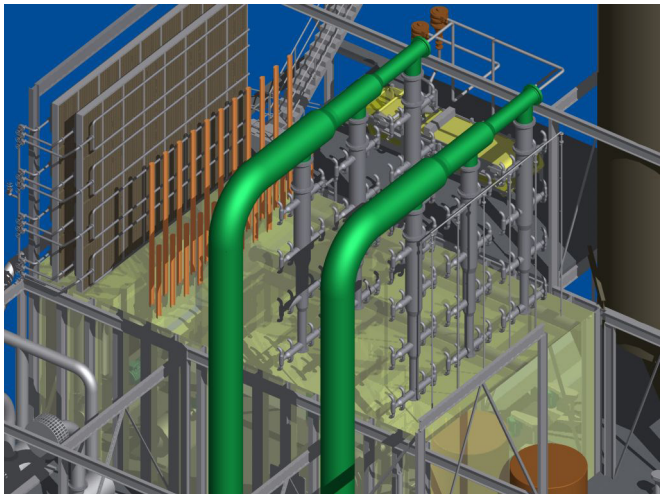
SO_2 Control for Small Utility and Industrial Boilers

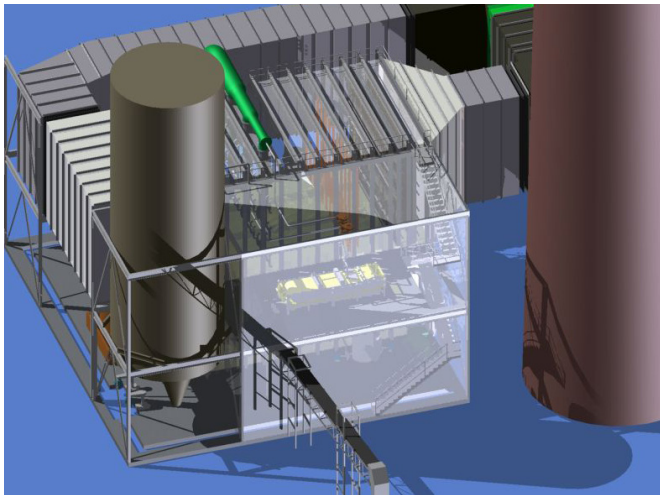
Power, Carbon Black, Cement, Pulp & Paper Manufacturers



Scrubber Solution for Small Boilers

AECOM provides a Best Available Retrofit Technology (BART), Co-Flo™ Scrubber, with low pressure drop and high removal efficiency for SO_2 and other pollutants in a single process island with minimal tanks and associated equipment.





Horizontal design of Co-Flo Scrubber

AECOM's Co-Flo scrubber is a low-cost strategy to keep your small boiler operating for the next 20 years by offering:

- 98% SO_2 removal
- 90% Oxidized Hg removal without re-emission
- High levels of PM removal
- Lowest installed cost
- Lowest operating cost
- Multi-pollutant control technologies
- Compact design
- Integrated design allowing reuse of fans and chimney
- Easily disposed of or marketable waste product

AECOM's Co-Flo Scrubber is based on co-current and counter current gas and liquid flow that offers SO_2 removal efficiency above 98 percent, oxidized mercury removal above 90 percent without re-emission, and high levels of particulate matter (PM) removal—as required under section 169A(b)(2)(A) of the Clean Air Act (CAA) Amendment.

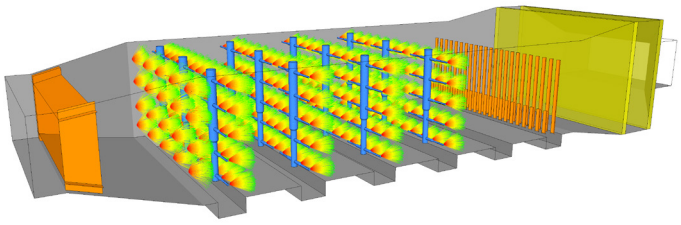
The characteristics of the Co-Flo Scrubber make it ideal for retrofit to small boilers where cost and space limitations may preclude other options. For these smaller boilers, a Co-Flo Scrubber often costs less than half of a conventional system. The low profile of the horizontal Co-Flo Scrubber allows it to be easily integrated with existing ductwork and stack while the small footprint makes it a viable alternative for congested sites.

High efficiency/high reliability to remove: SO_2, Hg, HCl, PM, HF

The Co-Flo Scrubber uses lime/ limestone scrubbing to produce an easily disposed of or marketable waste product—gypsum.

Recycle slurry is injected into the absorber through spray headers that transfer momentum to the flue gas to create a pressure rise across the absorber. The pressure rise across the absorber allows the system to operate with a pressure drop typically less than one inch of water. This approach generally avoids the need for new booster fans and structural reinforcements of the boiler, ductwork, and electrostatic precipitators associated with a balanced draft conversion. The integrated design of the Co-Flo Scrubber also eliminates the need for multiple process islands such as absorbers, forced oxidation, reagent preparation, dewatering, and water management equipment. Furthermore, the integrated design means that fewer process tanks and associated equipment are needed.

Co-Flo Scrubber can be designed vertical or horizontal with co-current or counter current gas and liquid flows.



CFD model of horizontal Co-Flo Scrubber

Experience

AECOM is a full-service provider of air quality control systems, such as new FGD systems, FGD system upgrades, SO_3 control systems, SCR systems, Hg control systems, and wastewater treatment systems. AECOM provides more than 50 million man-hours of direct-hired construction services per year. State-of-the-art tools are used to provide a quality product including:

- Process simulation tools such as FGDPrism
- Computational Fluid Dynamics (CFD) modeling
- AutoCAD and MicroStation design tools

Single Process Island

- Compact design for reagent, dewatering, and water management
- Close-coupled design eliminates equipment
- Minimal tanks and associated equipment.
- Equipment integrated into single structure and building
- Less equipment reduces maintenance costs and improves reliability

Minimum Pressure Drop

- Innovative co-current design creates a pressure rise across the absorber, not a pressure drop
- Total system pressure drop including ductwork typically less than 1 inch of water
- Avoids costly fan upgrade or new booster fans
- Avoids structural issues with boiler, ductwork, and ESP from installation of new high-capacity fans

■ Plant A, 1000 MWe	Indiana
8x125 MWe AECOM Co-Flo Scrubber	
Design Coal S, lbs/MM Btu	7.4
Design Gas Volume, acfm	2,014,000
Typical SO_2 Removal	99%
Number of Absorber Modules	8
Date Operational	June 2012 & June 2013

■ Plant B, 670 MWe	Indiana
4 x 170 MWe AECOM Co-Flo Scrubber	
Design Coal S, lbs/MM Btu	6.5
Design Gas Volume, acfm	2,390,000
Typical SO_2 Removal	95%
Number of Absorber Modules	4
Date Operational	June 2008

■ Plant C, 850 MWe	Pennsylvania
5 x 215 MWe AECOM Co-Flo Scrubber	
Design Coal S, lbs/MM Btu	6.5
Design Gas Volume, acfm	3,390,000
Typical SO_2 Removal	95-96%
Number of Absorber Modules	5
Date Operational	November 2007

About AECOM

AECOM is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM companies have annual revenue of approximately US$18 billion.

See how we deliver what others can only imagine at aecom.com and @AECOM.

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