

# Wet ESPs Remove Particulate for CO<sub>2</sub> Capture Pre-treatment

For CO<sub>2</sub> capture installations, the wet electrostatic precipitator (wet ESP, or WESP) provided by Babcock & Wilcox Environmental (B&W) offers highly efficient control of submicron particulate and acid mists ahead of the CO<sub>2</sub> absorber.

## Background

A coal-fired power plant in the Midwestern United States required a small wet ESP for particulate removal as part of its research and development of a patented CO<sub>2</sub> capture amine absorber.

## Scope

The customer chose our tubular wet ESP technology based on its unique up-flow tubular design that minimized footprint while capturing particulate with very high efficiency.

We designed and built a 1,000 acfm two-field wet ESP system for this pilot-scale application that was easy to ship, commission and operate for testing. Material supply consisted of a 316L stainless steel wet ESP with internal sprays, vertical collecting tubes, rigid discharge electrodes, and high voltage power supplies.

## Results

The wet ESP demonstrated greater than 99% removal of submicron particulate on both a mass and numerical basis. Removing fine particulate and aerosols prior to the CO<sub>2</sub> absorber is critical to protecting the amine chemical from contamination to enhance performance and longevity of the CO<sub>2</sub> capture system.



## PROJECT HIGHLIGHTS

PLANT TYPE	Coal-fired power plant
LOCATION	Midwest USA
APPLICATION	CO <sub>2</sub> Pre-treatment
GAS VOLUME	1,000 ACFM
PRIMARY CONSTRUCTION MATERIAL	316L stainless steel
AWARD DATE	2020
RESULTS	99% particulate removal

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