

Application of Skewed Gas Flow Technology to Reduce Particulate Emissions and Increase Firing Rates at Two Pulp Mills

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ABSTRACT

The electrostatic precipitator standards calling for uniform flow assume a uniform dust distribution exists within the precipitator. Previous work has, however, shown that the re-entrainment of falling dust increases the dust concentration toward the bottom compared to the top. The overall collection efficiency can be improved by modifying the gas flow to account for this non-uniform dust distribution resulting in reduced particulate emissions and opacity. This non-uniform gas flow profile is referred to as Skewed Gas Flow Technology.

This technology has been successfully applied at over twenty coal-fired power plants and is now being adopted into the pulp and paper industry.

Results from installations on precipitators for a recovery boiler and a hog fuel fired power boiler are discussed, which show reductions in particulate emissions of 6% and 30% respectively.

In both applications, allowable emissions had been limiting boiler operation, and the improved precipitator performance resulting from the installations of Skewed Gas Flow allowed the boiler firing rates to be increased by over 10%.

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