



## INDUSTRY

Pulp and Paper

## OBJECTIVE

Meet Boiler MACT particulate reduction requirements

## SOLUTION

Geoenergy® E-Tube® wet ESP

## RESULTS

- Met Boiler MACT particulate requirements
- High uptime and low maintenance costs
- No boiler fan modifications required
- Minimal process downtime required for installation.

## CONTACT

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# BOILER MACT COMPLIANCE AT BOISE WALLULA

LUNDBERG HELPED BOISE WALLULA REDUCE EMISSIONS  
WITH A GEOENERGY® E-TUBE® WET ESP

A major pulp and paper supplier in the northwest was in need of a cost effective solution to reduce their particulate emissions from a biomass fired boiler. Lundberg provided a Geoenergy Wet ESP to meet their needs. The result was a ten fold decrease in particulate emissions and they now meet current Boiler MACT particulate emissions standards.

## PROBLEM

In 2005 a major pulp and paper supplier required air pollution control equipment that would reduce particulate emissions from their biomass wet stoker boiler. The boiler was already equipped with a wet scrubber, and the client was in search of a simple reliable solution to further reduce emissions.

**“SEVERAL YEARS LATER THE SYSTEM CONTINUES ITS TREND OF HIGH PERFORMANCE AND RELIABILITY.”**



### LUNDBERG'S SOLUTION

The Lundberg team designed the E-Tube for high uptime, maximum performance and long equipment life. The unit was constructed of stainless steel alloy and utilized the STAR II/SPHERE rigid mast electrode along with switch mode power supplies (high frequency TR units). The STAR II electrode and high frequency TR units minimized the equipment size requirement and reduced power consumption. An upflow configuration was chosen to reduce maintenance requirements in the insulator compartments and eliminate the need for downstream mist elimination.

### RESULTS

A model 1013-606 E-Tube wet ESP was installed and commissioned in early 2007. The E-Tube consistently achieved emission levels significantly lower than the regulatory requirement. It operates without impact on the boiler operation or boiler uptime. Several years later the system continues its trend of high performance and reliability.