

## Energy Company Complies to New Mercury Removal Emission Regulations Without Compromising Project Cost by Using Smart Wireless

### RESULTS

- Compliance with Federal and State Regulations
- Reduced project cost
- Minimized environmental risk
- Reduced safety and health risk of nearby communities

### APPLICATION

Temperature measurements of boiler boxes

### CUSTOMER

Energy company located in Western, USA

### CHALLENGE

All coal fired plants are being required to reduce mercury emissions under federal regulatory rules by November 2010. This energy company planned to comply with the law by implementing a system which would reduce their mercury emissions without incurring high project cost.

One way to reduce mercury emissions is to introduce chemicals that will help mercury in coal to be water soluble. The first step is to spray calcium bromide onto the coal which will react with mercury to form mercury bromide. Then, inject activated carbon upstream of the air pre-heater to grab mercury bromide and allow a flue gas desulfurization (FGD) scrubber to remove it. This process needs accurate and reliable temperature measurements at the back of the boiler box since mercury conversion works better at specific temperatures.

Uncontrolled mercury emissions have many adverse effects; one is raising the risk of polluting the environment. Another is risking the health and safety of nearby communities. Furthermore, if found not complying with the law, this energy company risks penalties and damages to their reputation.

### SOLUTION

Efficient mercury removal requires that the temperature across the entire back of the boiler box be within a specific temperature range. A complete temperature profile across the back of the boiler box is needed. Several multi-point Rosemount 848T wireless temperature transmitters were installed at the same level on each boiler box. These were then wirelessly connected to a single DCS to provide the desired temperature profile monitoring. This installation proved cost effective as it eliminated the cost of running conduit and wires to each sensor.



*Rosemount 848T Wireless Transmitter enabled this energy company to meet government mandated law without compromising on project cost.*



*Rosemount 848T Wireless Temperature Transmitter*

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Rosemount 848T Wireless Temperature Transmitter enabled this energy company to meet the new mercury emission removal regulation, avoiding fines and penalties while saving an approximate 40,000 USD in project cost by going wireless. Most importantly, the 848T played a key role in a control system with which they were able to lower mercury levels in their flue gas, reducing risk to the environment and the health and safety of nearby communities.

### RESOURCES

#### Emerson Process Management Power Industry

<http://www.emersonprocess.com/solutions/power/index.asp>

#### Rosemount Temperature

<http://www2.emersonprocess.com/en-US/brands/rosemount/Temperature/Pages/index.aspx>

#### Emerson Smart Wireless

<http://www2.emersonprocess.com/en-US/brands/rosemount/Wireless/Pages/index.aspx>

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