

An ECOMB AB Coal Fired DeNOx Experience



NOx REDUCTION IN PARIS'S LARGEST HEATING UTILITY

CPCU, a company within the SUEZ group, own and operate the 2 coal fired utility boilers in Saint Ouen. The boilers were since many years equipped with traditional type SNCR systems for NOx reduction in order to comply with the current emission limit of 250mg/Nm³ (6% O₂ dry).

Operational results were not efficient and reliable enough considering the next emission reduction step due to be enforced by the IED (Industrial Emissions Directive) fixed at 200 mg NOx / Nm³ in 2013.

The traditional SNCR system that was in use operated with wall mounted injection nozzles. The system reached a NOx performance of approx 250mg. The SNCR system consumed large amounts of urea, approximately 550 l/h (42% concentration) per unit.

After a BAT review by the client, CPCU decided at the end of 2008 to retrofit the 2 coal fired boilers with **Ecotube Systems** (including integrated urea injection systems in each Ecotube) together with a new FGR (Flue Gas Recirculation) system and a new common air control software.

The entire works program was purchased as a « Turn Key » contract to **ECOMB AB**. The contract was divided into two parts: one boiler was retrofitted during 2008 and the second would be retrofitted the following year.

After commissioning and tuning of the first installation in 2008, all guarantees were successfully achieved and surpassed.

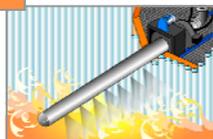
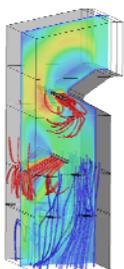
Due to the very positive outcome of the first installation it was decided to follow up the DeNOx works program on the second boiler using exactly the same equipment as fitted to the first boiler.

The second installation was commissioned in December 2009.



Main performances :

- NOx reduction from 380mg to **150mg/Nm³** @ 6%O₂
- Due to the Ecotube SNCR technology, urea consumption was reduced from 550 l/h to only 150 l/h per boiler enhancing a huge operational cost saving.
- The excess air reduction provides a significative boiler efficiency improvement.
- CO remains low and steady.
- Exhaust gas flow reduction at stack



▶ Client : CPCU (Suez)

▶ Plant:

- Saint Ouen 2
- Close Paris suburbs

▶ Characteristics:

- 2 coal boilers
- Steam output : 340t/h each
- Steam pressure: 20b
- Ignifluid (fluidized bed)

▶ ECOMB retrofit works:

- 2 SNCR Ecotubes per boiler
- 1 Complete FGR process line per unit
- One common urea feeding network
- A New ECOMB air law operating software

▶ Performance issue:

	ECOMB results	Previous values
NOx	150 mg	380 mg
O ₂	2,8/3,5%	3,0/6,5%
Boiler efficiency	+ 0,6%	
CO	Steady low	< 100mg

* mg/Nm³ 6% O₂ dry gas

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The ECOTUBE system is a patented combustion improvement and DeNOx tool