

**Wartsila 18V50 SG Nox suppression**

By: JOH

Rev: 0

5-Nov-15

Rev: 1

12-Apr-16

installed cost of SCR system =

€ 21,058,000 F/x =

1.3

\$27,375,400

US\$1 MM per unit

US\$ 1MM per engine.

Urea usage rate =

2.9 ltrs/MWh

0.26417

0.766093 gals/MWh

Annual MWh projected =

539 MW rated

8760 hrs/yr

91% dispatch

4,296,692 MWh/yr

Annual gallons of Urea used =

9.2 lbs/gallon @ 40% Urea concentration

39,529,570 Lbs/yr Urea

Metric tonnes per year of aqueous Urea solution =

17,927 tonnes/yr

Annual Urea useage =

7,171 tonnes/yr

Demineralized water usage =

10,756 tonnes/yr

Cost of Urea / yr =

\$413 per tonne

\$2,961,580 Annual cost

Cost of Demin water/yr =

\$6.15 per tonne

\$66,152 Annual cost

Urea price variation:

24 month high \$535/mt

24 month low \$214mt

Feb 3 2012 Current \$413/mt

Variable O&amp;M @ 2% of CAPEX =

\$547,508 Annual cost

Total OPEX for Urea injection =

\$3,575,240 Annual cost

Cost of emissions control =

\$0.83 per MWh

What will be the effect on heat rate of the increased backpressure caused by SCR?