

1	ID: 34	Title of measure	Sector: Copper Smelting
2	Survey Year: 2006	Replacement of Electrical Heaters by Steam Heaters	Technology: Steam Heaters
3	Name of the Company : Sterlite Industries (India) Limited, TV puram, Tuticorin		
4	Agency that executed the project : In-house		
5	Year of Implementation : 2006-07		
6	<p>Unit Profile: Sterlite Industries (India) Limited, is one of the leading producers of copper In India. SILL pioneered the manufacturing of Continuous Cast Copper Rods in india and established india's largest Copper Smelting and Refining Plant for production of World Class refined Copper. Sterlite is a part of Vedanta resources , a London listed \$6 bn. metals and mining major with Aluminum, Copper and Zinc operations in India, Zambia and Australia Sterlite's tuticorin complex has a Copper smelter (4,00,000 tpa copper), Sulphuric acid plant (9,00,000 tpa), Copper Refinery (1,65,550 tpa copper), Rod mill (1,00,000 tpa copper) and Phosphoric acid plant (1,83,000 tpa). A captive power plant (LSHS based) with 46.5 MW capacity (4x6 MW, 3x7.5 MW) and a 11.2 MW Steam Turbine Generator (STG) generating power through waste heat from the smelting furnace meet the power requirement of the complex. In Silvassa Sterlite has a Copper refinery (1,80,000 tpa copper) and a rod mill (1,50,000 tpa copper).</p>		
7	<p>Description of Energy Conservation Measure:- In Oxygen plant-2 (Technology Supplier: Air liquid), the adsorbed re-generation (to remove CO₂ and moisture) was being done by using 360KW electrical heater (with specific on/off cycle) in parallel with a steam heater (as per the original design). Around 13000 Nm³/hr of nitrogen was being heated by using the steam heater supplied by the OEM and the remaining 5000 Nm³/hr of nitrogen was to be heated by using the electrical heater .The electrical heater power consumption was 2750 units per day. It was decided to upgrade the existing steam heater (supplied by OEM) to totally eliminate the parallel electrical heating system. A new steam heater of higher capacity was installed with an investment of 23.4 lacs. After installing the new steam heater electric heating system was totally switched off and old steam heater is kept as stand by.</p>		
8	<p>Picture Before Modification</p> 	<p>Picture After Modification</p> 	
9	Total investment :	58,500 US\$	
10	First year energy cost savings :	97,500 US\$	
11	First year additional savings beyond energy (i.e. water, raw materials etc.):	Nil	
12	Annual electricity consumption before, MWh	—	
13	Annual electricity consumption after, MWh	—	
14	First year electricity savings, MWh	1,010	
15	First year tons of CO ₂ mitigated	1,010	
16	Assumed sustainability, years	10	
17	Expected tons of CO₂ mitigated throughout life cycle	10,100	