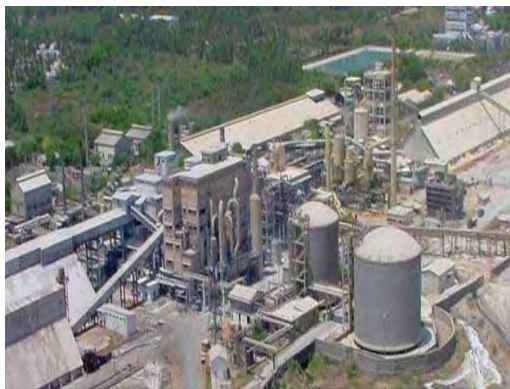





1	<b>ID: 44</b>	<b>Title of measure</b>	<b>Sector: Fertilizer Industry</b>
2	<b>Survey Year: 2007</b>	<b>Use of Surplus steam for Preheating the air</b>	<b>Technology : Preheaters</b>
3	Name of the Company : <b>Coromandel Fertilizers Limited, Sriharipuram, Visakhapatnam, Andhra Pradesh, INDIA</b>		
4	Agency that executed the project : In-house		
5	Year of Implementation : 2006-07		
6	<p><b>Unit Profile:</b></p> <p>Coromandel Fertilisers Limited, incorporated in 1964, is one of the leading manufacturer's of farm inputs comprising phosphatic fertilisers and pesticides. It belongs to the well known south India based Murugappa Group. It has Complex Fertiliser manufacturing facilities at Visakhapatnam and Ennore, Single superPhosphate manufacturing facility at Ranipet, and Pesticides manufacturing facilities at Thane, Jammu and Ankleshwar. The main product of Visakhapatnam Fertiliser Plant is Complex Fertiliser grades of 28-28-0, 14-35-14, 20-20-0 and 10-26-26, specialty nutrient fertilisers like Bentonite Sulphur and Water Soluble Fertilisers. The total Production capacity is 0.80 Million Tonnes per annum of Complex Fertiliser. The Visakhapatnam unit's annual sale turnover was US\$ 0.35 billion in 2006-07.</p>		
7	<p><b>Description of Energy Conservation Measure:-</b></p> <p>This project is the first of its kind in the fertilizer industry in India and is the innovation of the in-house team. The team observed that the surplus steam used for power generation, generally yields a thermal efficiency of 35%. However, when the same steam is used for drying, as in the case of this project, the thermal efficiency is more than 60%.</p> <p>The team recommended using the surplus steam in lieu of LSHS (Low Sulphur Heavy Stock) fuel firing, to preheat the air for drying of fertilizer products.</p>		
8	<b>Coromandel Fertilizers Ltd., Visakhapatnam</b>	<b>Picture After Modification</b>	
			
9	Total investment :	1,637,500 US\$	
10	First year energy cost savings :	1,274,150 US\$	
11	First year additional savings beyond energy (i.e. water, raw materials etc.):	Nil	
12	Annual oil consumption before, kl	7,211	
13	Annual oil consumption after, kl	2,830	
14	First year oil savings, kl	4,381	
15	First year tons of CO <sub>2</sub> mitigated	13,213	
16	Assumed sustainability, years	10	
17	<b>Expected tons of CO<sub>2</sub> mitigated throughout life cycle</b>	<b>1,32,130</b>	

1	<b>ID: 45</b>	<b>Title of measure</b>	<b>Sector: Fertilizer Industry</b>
2	<b>Survey Year: 2007</b>	<b>Fluid Coupling Installation for Ammonia Primary Reformer ID Fan</b>	<b>Technology : Fluid Coupling</b>
3	Name of the Company	: <b>Nagarjuna Fertilizers and Chemicals Limited, Kakinada, Andhra Pradesh, INDIA</b>	
4	Agency that executed the project	: In-house	
5	Year of Implementation	: 2006-07	
6	<b>Unit Profile:</b>		
	<p>The flagship company of the Nagarjuna Group, Nagarjuna Fertilizers and Chemicals Limited is one of the leading manufacturer and supplier of plant nutrients in India. Nagarjuna Fertilizers and Chemicals Limited is involved in the production and marketing of a wide range of fertilizers. Urea, the widely used nitrogenous fertilizer is both manufactured (at Kakinada Plant) and marketed through imports (at Vizag and Kakinada Ports). NFCL currently markets about 1.2 million tons of Manufactured Urea and about 0.6 million tons of Imported Urea per annum. The sales turnover for the kakinada unit for the year 2006-07 is US\$ 0.13 billion.</p>		
7	<b>Description of Energy Conservation Measure:-</b>		
	<p>In Ammonia plant, Primary Reformer is one of the major energy intensive equipment. The in-house team observed that during normal operation the suction damper of ID (Induced Draft) fan is open by only 20 to 25% even at higher loads. The motor power consumption and fan efficiency were 883 kW and 51.2 % respectively. Too much throttling of Inlet dampers was causing higher pressure drop and inefficiency of fan. The in-house team decided to install a Variable Speed Fluid Coupling.</p> <p>However, the installation including the modification of existing foundation, modification of base plate to place Fluid coupling and motor were carried out with the technical expertise available within NFCL. The original speed of the fan was 1000 rpm and after installation of the fluid coupling the speed of fan was brought down to 790 rpm which resulted in considerable power savings in the motor. The power consumption after installation of Fluid Coupling was 683 KW. The Fluid Coupling unit continues to run successfully since commissioning.</p>		
8	<b>Nagarjuna Fertilizers, Kakinada Plant</b>	<b>Picture After Modification</b>	
			
9	Total investment :	45,000 US\$	
10	First year energy cost savings :	35,350 US\$	
11	First year additional savings beyond energy (i.e. water, raw materials etc.):	Nil	
12	Annual electricity consumption before, MWh	7,920	
13	Annual electricity consumption after, MWh	6,336	
14	First year electricity savings, MWh	1,584	
15	First year tons of CO <sub>2</sub> mitigated	1,584	
16	Assumed sustainability, years	10	
17	<b>Expected tons of CO<sub>2</sub> mitigated throughout life cycle</b>	<b>15,840</b>	