



Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of S-50 Synthesis Converter and MP Syn. loop Boiler	Sector: Fertilizer			
Year to be filled by BEE		Technology: HTAS			
<p>Description of the energy conservation measure: For energy reduction in the ammonia synthesis loop, S-50 Ammonia Synthesis Converter has been installed at downstream of the existing Synthesis Converter (105-D). With S-50 converter, ammonia conversion has increased and resulted into reduction in circulation rate in the synthesis loop. This has resulted in power saving in the synthesis gas compressor.</p> <p>To recover the heat generated in S-50 converter (because of conversion of N₂ & H₂ into NH₃), a Medium Pressure Waste Heat Boiler at downstream of the S-50 converter is installed. About 30 t/h MP steam is produced from the MP Waste Heat Boiler and is used as process steam. The total LNG saving works out to be 123.76 Lakhs Sm³/Annum and annual monetary benefit is Rs. 1687 Lakhs.</p>					
Picture after modification					
					
Agency that executed the project (with complete address and email): In house					
Total investment, Rs. Lakhs: 2240.67			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 1687.00					
First year other savings, Rs.: --					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before (Lakhs Sm ³ /a)**	--	--	--	--	--
Energy consumption after (Lakhs Sm ³ /a) *	--	--	(-) 123.76	--	--
Energy tariff, Rs/ Sm ³	--	--	13.63	--	--
Company complete address: Indian Farmers Fertiliser Co-op. Ltd., Kalol Unit, P.O. Kasturinagar Dist: Gandhinagar, Pin: 382 423 North Gujarat				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information:				Signature	
				Date	

** Energy consumption figures before modifications cannot be measured as there is no dedicated flowmeter for the particular piece of equipment.

* Energy consumption after modification is calculated saving of R-LNG due to energy saving measure.


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ID to be filled by BEE	Title of the measure	Sector: Fertilizer			
Year to be filled by BEE	Syn. Loop Piping modifications and Ammonia Wash Unit	Technology: HTAS			
Description of the energy conservation measure:					
<p>In Original process, Converter effluent gases (including Ammonia & unconverted gases) were recycled through Synthesis Gas Compressor. Ammonia separation was at downstream of Synthesis Gas Compressor. By modification in Synthesis Loop piping, ammonia is being separated from Synthesis converter effluent gases and then recycled through compressor. It has resulted in reduction in volumetric flow through Synthesis Compressor and thereby saving power. It has also resulted in power saving in Refrigerant Compressor. Total LNG saving works out to 30.94 Lakhs Sm³/Annum and monetary saving is Rs. 422 Lakhs. To take care of oxides in the make-up gas, Ammonia Wash Unit has been installed.</p>					
Picture after modification					
					
Agency that executed the project (with complete address and email): In-house					
Total investment, Rs. Lakhs: 302.72			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 422.00					
First year other savings, Rs.:					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before (Lakhs Sm ³ /a)**	--	--	--	--	--
Energy consumption after (Lakhs Sm ³ /a) *	--	--	(-) 30.94	--	--
Energy tariff, Rs/ Sm ³	--	--	13.63	--	--
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ID to be filled by BEE	Title of the measure Revamp of Syn. Gas Compressor	Sector: Fertilizer			
Year to be filled by BEE		Technology: HTAS			
Description of the energy conservation measure:					
<p>The syn gas compressor circulation load has reduced substantially with installation of S-50 converter, ammonia wash and syn loop repiping.</p> <p>The internals of LP and HP cases are revamped to meet the new operating conditions with better compression efficiency based on modern 3-D design rotor by Dresser Rand, France. Power saving in compressor is about 2200 kW. Total LNG saving works out to 69.62 Lakhs Sm³/Annum and annual saving of Rs. 949.18 Lakhs.</p>					
Picture after modification					
					
Agency that executed the project (with complete address and email): In-house					
Total investment, Rs. Lakhs: 1323.83			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 949.18					
First year other savings, Rs.:					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before (Lakhs Sm ³ /a)**	--	--	--	--	--
Energy consumption after (Lakhs Sm ³ /a) *	--	--	(-) 69.62	--	--
Energy tariff, Rs/ Sm ³	--	--	13.63	--	--
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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of additional BFW Coil in LT convection zone in Primary Reformer	Sector: Fertilizer			
Year to be filled by BEE		Technology: In-House			
Description of the energy conservation measure:					
<p>With installation of additional offsite BFW coil in LT convection zone in Primary Reformer, flue gas stack temperature has reduced from about 200 deg C to 165 deg C. Boiler Feed Water is heated from 103 deg C to 196 deg C to recover the heat. It has resulted in fuel saving on Offsite Boiler. Annual saving works out to 11.60 Lakhs Sm³ and Rs. 158.20 Lakhs.</p>					
Picture after modification					
					
Agency that executed the project (with complete address and email): In-House					
Total investment, Rs. Lakhs: 92.85			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 158.20					
First year other savings, Rs.:					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before (Lakhs Sm ³ /a)**	--	--	--	--	--
Energy consumption after (Lakhs Sm ³ /a) *	--	--	(-) 11.60	--	--
Energy tariff, Rs/ Sm ³	--	--	13.63	--	--
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ID to be filled by BEE	Title of the measure Performance improvement of LP absorber	Sector: Fertilizer			
Year to be filled by BEE		Technology: In-House			
Description of the energy conservation measure:					
Performance of LP absorber at downstream of HP Scrubber is improved by providing additional cooler to supply lean ammonia water at 40 deg C to lower bed of LP absorber. Provision for DM water to upper bed of the LP absorber is made.					
As a result of this modification, there is saving of about 15 kg/h ammonia. Monetary benefit is about Rs. 15.77 lakhs/annum.					
Picture after modification					
					
Agency that executed the project (with complete address and email): In-House					
Total investment, Rs. Lakhs : 5.00			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 15.77					
First year other savings, Rs.:					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before (Lakhs Sm ³ /a)**	--	--	--	--	--
Energy consumption after (Lakhs Sm ³ /a) *	--	--	(-) 1.16	--	--
Energy tariff, Rs/ Sm ³	--	--	13.63	--	--
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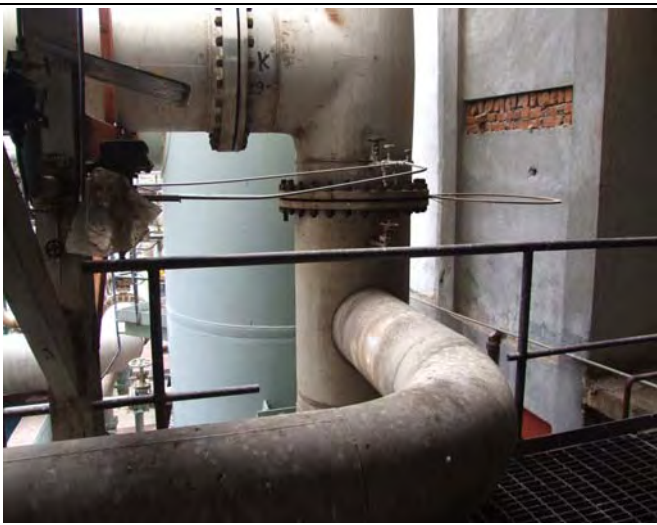
Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Utilization of surface condensate instead of steam condensate for CCS-I make up	Sector: Fertilizer			
Year to be filled by BEE		Technology: In-House			
Description of the energy conservation measure:					
<p>To reduce cooling water load in CCS-I cooler, about 1.0 m³/h surface condensate at temperature of 40 deg C is used as make up water instead of steam condensate at 100 deg C. With this modification, heat load on cooling water is reduced by about 0.06 Gcal/h which is equivalent to 100 kg/h LP steam in deaerator. Equivalent monetary saving works out to be Rs. 4.70 lakhs per annum.</p>					
Picture after modification					
					
Agency that executed the project (with complete address and email): In-House					
Total investment, Rs. Lakhs: 2.00			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 4.70					
First year other savings, Rs.:					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before (Lakhs Sm ³ /a)**	--	--	--	--	--
Energy consumption after (Lakhs Sm ³ /a) *	--	--	(-) 0.30	--	--
Energy tariff, Rs/ Sm ³	--	--	13.63	--	--
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ID to be filled by BEE	Title of the measure Isolation of idle CO2 suction header of NP/PB CO2 compressor	Sector: Fertilizer			
Year to be filled by BEE		Technology: In-House			
Description of the energy conservation measure:					
<p>Urea Plant has a set of old compressor known as NP.PB Compressor. During normal plant operation, NP/PB CO2 compressors are not in line. The NP/PB CO2 compressor suction header was remaining charged as there is no isolation valve. To reduce CO2 losses through seal ejector, casing drains, vents etc., a blind is provided to suction line of NP/PB CO2 compressor. This has saved CO2 losses from compressor. Total monetary saving works out to be 78.74 Lakhs/Annum.</p>					
Picture after modification					
					
Agency that executed the project (with complete address and email): In-House					
Total investment, Rs. Lakhs: 2.50			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 78.74					
First year other savings, Rs.:					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before **	--	--	--	--	--
Energy consumption after *	(-) 255.02	--	--	(-) 294.61	--
Energy tariff, Rs/ kWh/ MT	5.577			21900	--
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* Energy consumption after modification is calculated saving of LSHS & power due to energy saving measure.

Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Pre heating of LNG fuel in BHEL boiler		Sector: Fertilizer		
Year to be filled by BEE			Technology: In-House		
Description of the energy conservation measure:					
<p>About 6000 Sm³/h LNG is used as fuel in BHEL boiler. The R-LNG pre heater to heat LNG with LP steam from ambient temperature to 100 deg C is installed in plant turn around May-2006. There is fuel saving of about 11 Sm³/h LNG equivalent to monetary benefit of Rs.11.88 lakhs per annum.</p>					
Picture after modification					
					
Agency that executed the project (with complete address and email): In-House					
Total investment, Rs. Lakhs: 2.00			Year of implementation: May, 2006		
First year energy cost savings, Rs. Lakhs: 11.88					
First year other savings, Rs.:					
On annual basis	kWh 000'	Naphtha (MT)	R-LNG Sm ³	LSHS (MT)	Coal (MT)
Energy consumption before (Lakhs Sm ³)**	--	--	--	--	--
Energy consumption after (Lakhs Sm ³) *	--	--	(-) 0.87	--	--
Energy tariff, Rs/ Sm ³	--	--	13.63	--	--
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