

CHAMBAL FERTILISERS AND CHEMICALS LTD. GADEPAN-I, KOTA (RAJASTHAN)

UNIT PROFILE

Chambal Fertilizers & Chemicals Limited (CFCL), the flagship company of Zuari-Chambal group has its Nitrogenous fertiliser manufacturing facilities located at Gadepan, District Kota in the state of Rajasthan. The complex at Gadepan has two independent Ammonia & Urea Plants with common Offsite facilities.

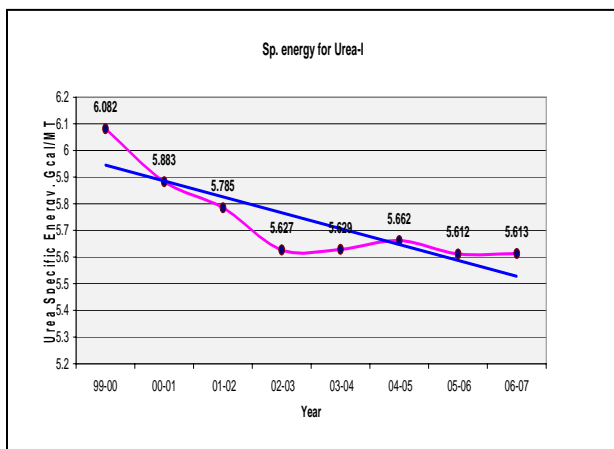
Gadepan-I plant has a total production capacity of 864600 tons of Urea per annum based on Haldor Topsoe Steam Reforming Ammonia Process and Snamprogetti Technology for Urea Process, were commissioned in Jan'94. The re-assessed capacity of Ammonia and Urea plants are 1520 TPD and 2620 TPD respectively.

CFCL, an ISO-14001/18001 certified company, has a well documented written down Environmental, Safety & Health and Energy Management Policies where utmost thrust has been given for resource conservation.

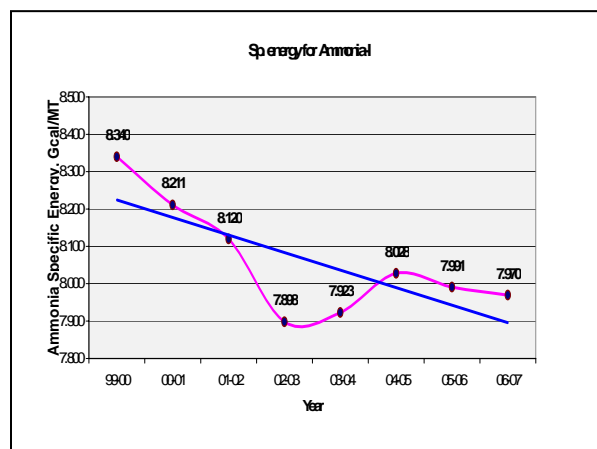
ENERGY CONSUMPTION

With continuous efforts, rigorous monitoring and implementing number of energy conservation measures, CFCL have achieved continual improvement in Specific Energy consumption since commissioning of the plant. The given below trends show reduction in specific energy of Ammonia-I and Urea-I: -

SPECIFIC ENERGY– UREA-I (GCAL / MT)



SPECIFIC ENERGY– AMMONIA-I (GCAL / MT)



Further, a summary table for specific energy consumption, energy cost and energy cost as % of total manufacturing cost for last three years viz. 2004-07 is given below. Sp. Energy of Urea has reduced from previous year due to higher production & less plant interruptions.

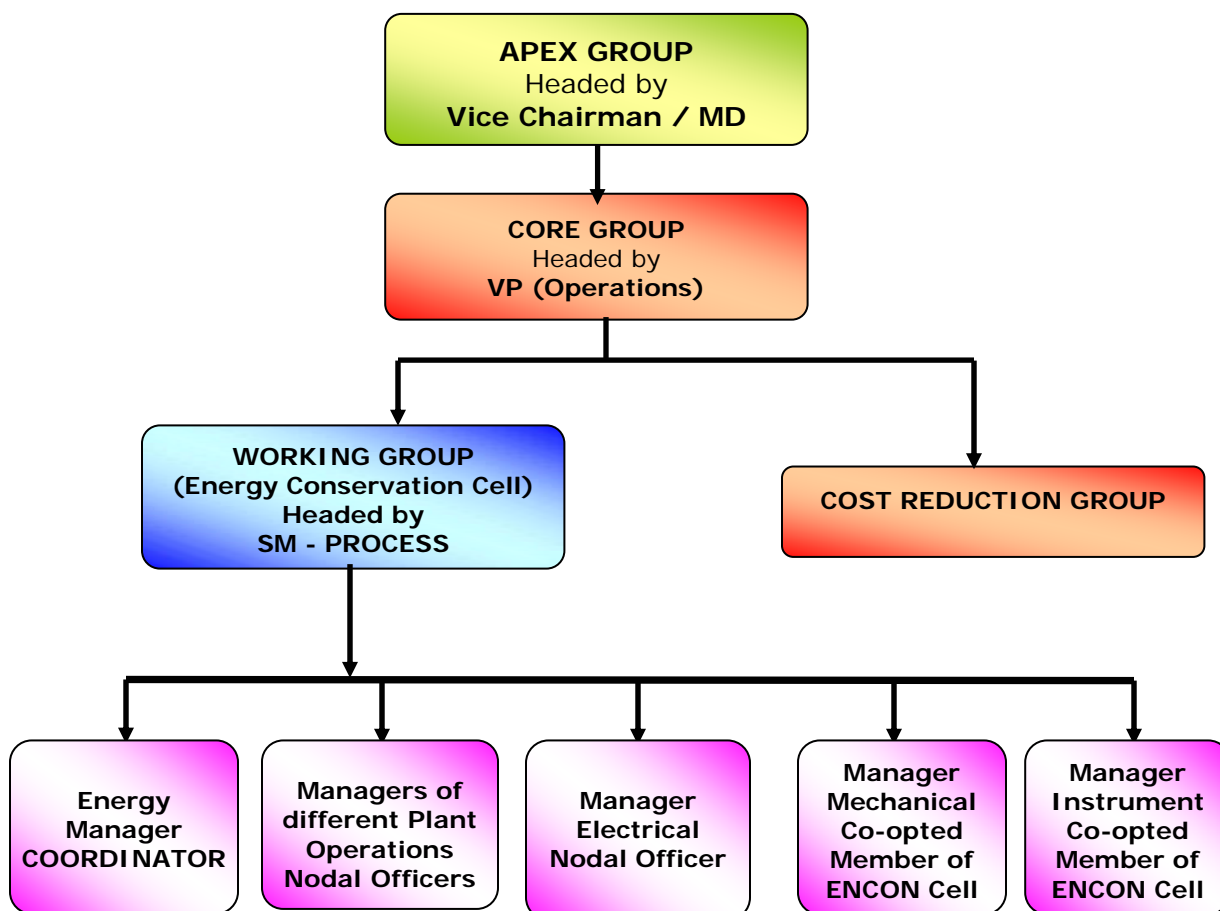
S.N	Description	Unit	2004-05	2005-06	2006-07
1	Annual Ammonia Production	MT	550554	552133	555567
2	Annual Urea Production	MT	961179	970077	973692
3	Spec. Energy consumption-Ammonia	Mkcal/ MT	8.040	7.991	7.969
4	Spec. Energy consumption-Urea	Mkcal/ MT	5.709	5.611	5.613
5	Total Manufacturing Cost	Rs/Lacs	61800.94	50027.00	56400.00
6	Total Energy Cost	Rs/Lacs	31297.04	17740.68	22645.62
7	Energy Cost as % of Total Manufacturing cost	%	50.6	35.46	40.15

ENERGY CONSERVATION COMMITMENT, POLICY AND SET-UP

COMMITMENT /POLICY

M/s. Chambal Fertilisers as an organization is aware of the fact that the world is moving from abundance to scarcity in terms of available energy resources. Chambal Fertilisers' vision of becoming the largest player in the fertilizer industry cannot be realized unless there is top management commitment and thrust towards Energy Management, in Energy policy attached as Annexure-II

ENERGY MANAGEMENT SET-UP



AWARENESS PROGRAMMES

National campaign on Energy Conservation 2006-07

Following awareness programme were conducted as part National Campaign on Energy conservation & communicated to BEE from time to time

<u>S.No.</u>	<u>Month</u>	<u>Name of activity</u>
01.	Feb 2006	In-house lecture/presentation on electrical energy saving at Plant/Township
02.	March 2006	Awareness campaign through cable network for optimum and efficient use of power in township
03.	April 2006	Tips to farmers for saving diesel in engines/tractors
04.	August 2006	Awareness campaign on energy conservation among the children through essay writing/painting competition
05.	October 2006	Training on ENCON to Management/Non-management staff at Gadepan by an expert from TERI/NPC
06.	Feb 2007	Awareness campaign through cable network for optimum and efficient use of power in township.
07.	April 2007	In house lecture/ presentation on the energy saving in Cooling Towers.
08.	June 2007	In house lecture / presentation for power savings in pumps.
09.	August 2007	Tips to farmers for Diesel savings in Tractors/ Diesel engines.
10.	October 2007	In-house lecture/presentation on electrical energy saving at Plant/Township.

ENERGY CONSERVATION PLANS AND TARGETS

CFCL is committed to further improve upon its energy performance and would like to sustain the reducing trend in next incoming years also. The following energy conservation measures are planned for future:

1. Variable frequency drives in identified pumps/Fans.
2. Installation of Kellog Reforming Exchanger in Ammonia-I
3. Installation of Additional ammonia converter & additional loop boiler in Ammonia-I
4. Installation of Vacuum Pre-concentrator(2Nos) & MP-pre decomposer (2Nos.) in Urea-I
5. Provision of energy efficient lights in Control room as well as Administration buildings.
6. Optimization of power consumption of Force draft Fan in SPG by installation of VFD & Speed reduction of Turbine.
7. Use of MP absorber washing column off gases as fuel in Primary reformer.
8. Air compressor Suction air cooling by Vapour absorption Chiller.
9. Cooling of air at Gas turbine inlet.

HEALTH, SAFETY AND ENVIRONMENT

Chambal Fertilizers and Chemicals Limited (CFCL) as an organization is committed towards maintaining high standard of Safety in and around the complex. State of art "Environment Protection and Safety Management System", along with Computerized Control of operations through 'Distributed Control System' and 'Safe Shut Down System' through programmable Logic Control have been installed since inception, which provide inherent strength for maintaining equipments in sound health.

CFCL has recently won the British Safety Council's coveted Sword of Honour for 2007.

Five Star Safety audit by M/S British Safety Council-UK was conducted at Gadepan complex in 2006. They found our OH&S system well defined and awarded 5-star rating with 95.2% marks.

CFCL, an ISO: 14001 certified company is also certified with OHSAS: 18001 from M/s Det Norske Veritas.

Over and above, Chambal Fertilisers' clearly defined Safety, Health and Environment Policy is ascertaining management's desire for maintaining high standards of Safety and Environment Protection'. Our Chief Executive accords the highest priority to Safety and in his message to plant managers has explicitly conveyed time and again that Safety and Environment Protection cannot be compromised for higher production / profits.

The company has planted 2.65 Lacs trees of 144 varieties in Gadepan complex, immensely improving the quality of the environment. The company is maintaining 80 acres of sprawling forest around the plants at Gadepan besides developing the landscaping and lawns in the premises.

SIGNIFICANT INITIATIVES TAKEN IN THE FIELD OF SAFETY AND HEALTH

1. Hazard Identifications and Risk Reduction

CFCL adopting following techniques for hazard identification:

- (a) **Job Safety Analysis:** It is being used for safe execution of work.
- (b) **HAZOP:** This techniques is being used for Plant modifications before implementation to avoid any mishap.
- (c) **Safety Audit (Internal & External):** Internal Audit - once in year and external audit - once in two-year.
- (d) **Safety Inspection (Intermittent & Regular):** Inspection through Check List for all plants, mobile equipments, lift etc
- (e) **Proactive monitoring:** Monitoring through Make to Good as well as near miss accidents
- (f) **Personal protection equipments Policy:** This policy ensures the safety of employees/contract labor by use of personnel protective equipments.

There is no financial constraint in implementing of Safety Projects

2. On-site Emergency Plan

CFCL have a well-defined "On-site Emergency Plan" which is being updated on the basis of mock exercises and changes in process/ infrastructure etc. We conduct regular mock drills as per schedule to access emergency preparedness.

SIGNIFICANT INITIATIVES TAKEN FOR ENVIRONMENTAL MANAGEMENT

CFCL's Gadepan-I and Gadepan-II plant's have ISO-14001 accredited.

Following significant measures have been taken for environmental management

- I. Water shed management and Rainwater harvesting.
 - a. Construction of an Anicut /dam in the seasonal nallah which help villages to solve their water problem.
 - b. Additional height increase of Anicut in river Kalisindh.
 - c. Initiatives have been taken for Groundwater recharging in phases.
- II. Promotion of Bio-fertilizers
 - a. Demonstration and promotion of Vermi-culture and vriksha mitra to maintain the soil health and to reduce the consumption of chemical fertilizers.
- III. Launch of Uttam 30-Milestone project as environmental and social development through agriculture activities. It covers provision of promotional cum technical services in the field of Agriculture, Animal husbandry and self-employment programme, covering the 30 nearby villages.
- IV. CFCL has well defined and documented Hazardous Chemical Management and Solid Waste Management system and use of Eco-friendly chemicals.
- V. Conversion of solid and kitchen waste into manure with the help worms under Vermi-composting project.

Awards and achievements

1. "Greentech Environment Gold Award 2007" for the year 2006-07 from Greentech Foundation.
2. "Good Green Governance (G3) Awards- 2006" - for the year 2006 from Srishti.
3. "FAI Award for Best Performance among Nitrogenous fertiliser plants" (Runners Up Award) for the year 2005-06 from Fertiliser Association of India (FAI)
4. "Golden Peacock Eco-Innovation Award (GPEIA)"- for the year 2006 from World Environment Foundation on "VRIKSHAMITRA".
5. "Five Star Safety (Awarded with 5 - Star Rating with 95.2% Points)" - in the year 2006 by British Safety Council.
6. "Greentech safety Gold award" for the year 2005-06 from Greentech foundation.
7. "Golden Peacock Eco Innovation award" for the year 2006 from world environment foundation.
8. "Golden Peacock Environment Management award" for the year 2005 from world environment foundation.
9. "Greentech silver safety award" for the year 2004-05 from Greentech foundation.
10. "Golden Peacock Environment management award 2005" from World environment foundation.
11. "Environment Protection award" in December 2004
12. Awarded best industrial complex for Green Belt and Horticulture development in Kota by Rose Society of Rajasthan for year 2003- 04.
13. Prize for best work in Forest development and Forest safety 1998-99 from department of Forest Kota division.

Measures taken for Water Conservation

1. Raw water consumption is 5.14 m³/MT of Urea for 2006-07.
2. Optimization of regeneration cycle of Ion-exchangers beds in DM plant
3. Running of Cooling towers on High cycle of concentration (8-10 cycles)
4. Service water mainly used for sample coolers in Ammonia, SPG and Urea Plant has been recycled to Cooling Tower.

5. Various awareness programmes are being organized for children, ladies and employees to educate the real situation of water crises and measures to be taken to overcome this problem.
6. Self-declaration forms have been invited after filling the required information and steps to be taken in line with water conservation from each resident of township.
7. Strict vigilance and monitoring is enforced to stop the misuse and wastage of precious water.
8. About 200-240 M³/day raw water has been saved by implementing the scheme of using surface drain water for Green Belt Development.
9. 40 nos. of push cap valves for washbasins are installed in Bagging plant to reduce the water consumption.
10. 60 nos. of sensor based flushing system have been installed in the toilets of to reduce the water consumption. This has resulted a saving of about 2150 m³/month of water.
11. Use of wastewater in kitchen gardens in the colony has saved not only raw water but also increased the amount of recycle of effluent.
12. Overhead tanks were installed on each houses in the colony and the water supply timing was reduced. This has reduced in energy saving in pumping and water saving under natural resource conservation.
13. A study was carried out by experts of IIT team and various points were selected for recharging wells through which rainwater will be allowed to percolate down the well to increase the ground water level. We have already started work in phased manner and have completed 2 nos. of recharging well till this year.
14. An anicut of 3.0 meter height has been constructed on river Kalisindh to harvest the rain water to ensure the availability of water through out the year. This has resulted into increase of ground water level in surrounding areas. Also a new eco-system has developed in upstream of anicut.