

GUJARAT STATE FERTILIZERS & CHEMICALS LTD.

Distt. Vadodara (Gujarat)

Unit Profile

In 1962, GSFC was incorporated as Joint Sector Company with determination of the Government of Gujarat to offer quality products and services to the farmers and now GSFC is a leading manufacturer of various Fertilizers & Chemicals.

Ammonia production unit started in 1967 followed by Urea and then diversified to industrial products like Caprolactam, Nylon-6, Melamine, Argon and Methyl Ethyl Ketone (MEKO) etc. GSFC installed three nos. of Cogeneration plants in phase wise manner. GSFC also produces various fertilizers like Di-Ammonium phosphate (DAP), Ammonium phosphate sulphate (APS) and Ammonium sulphate (AS) along with industrial acids like Sulphuric acid and Phosphoric acid.

GSFC has also put up plants for manufacture of Urea phosphate and has developed various water soluble fertilizers through R&D centre with complete in-house engineering.



GSFC has Central library, Training institute, online farm advisory services, well-equipped static and mobile laboratory for soil and water testing facilities. GSFC has invested Rs. 711 Crores to install various wind mill stations of total 123 MW capacity.

GSFC has trained 574 employees in last financial year in the field of energy conservation at the cost of ~Rs. 2 lacs. GSFC also organizes various seminars to impart technical knowledge pertaining to Energy conservation / Green technology to faculty students and professors of various universities. GSFC has Suggestion Appraisal Committee to have valuable suggestions from employees to reduce energy consumption.

The company also organizes farmer-training programs in consultation with Agriculture University. GSFC also shares its advance knowledge and resource in agri input through publication of bi-lingual agriculture magazine "KRISHI JIVAN". GSFC has been cornering glory by treading the five-fold path of Excellence, Ethics values, Dedication, Management excellence and Enhanced social responsibility.

Energy consumption per MT of Ammonia for the year 2010-11 is 7.389 Gcal/MT, which is in lowest bracket.

Energy Conservation Projects commissioned during the year 2010-11

Sr. No.	Project Description	Electricity Lacs kWh	Total Savings in Rs. (Lacs)	Investment Incurred on the Project Rs. (Lacs)
1	Operation of Turbine driven BFW pump for Process requirements, A-III plant. MP Steam generated in A-III plant used to drive turbine driven pump, in place of motor driven pump to save power.	8.00	30.00	2.93
2	Supply of CW from A-I Cooling Tower to A-III plant to reduce power consumption. CW supply from CT, commonly used for A-I and Urea plants, started to A-III plant also, in place of using dedicated CT for A-III plant to save power.	3.60	13.50	41.10

Sr. No.	Project Description	Electricity Lacs kWh	Total Savings in Rs. (Lacs)	Investment Incurred on the Project. Rs. (Lacs)
3	<p>Trimming of Semi lean solution pumps (P-0301B/R & P0302/R) impeller, at A-IV plant. The pumps were developing higher head than required. The impeller of the pumps trimmed to the extent possible to save power.</p>	9.79	36.73	1.00
4	<p>Optimization of power generation unit operation, at A-IV plant. About 20 MTPH of LPS venting, due to non functioning of power generation unit (TG), was noticed. Additional MPS generated at CoGen plant and with proper ratio of MPS to LPS, TG started, after carrying out major overhauling. Additional power generation on account of LPS could be realized.</p>	120.00	450.00	20.30
5	<p>Stoppage of dedicated CW pump for MEKO plant. Supply of CW to MEKO plant started by interconnecting CW supply header to Capro-1 plant and dedicated CW pump, being operated for MEKO plant, was stopped to save power.</p>	2.40	9.00	0.75
6	<p>Stoppage of dedicated CW pump and Cooling tower (CT) for Zone-40 section of Lactam plant, Capro-1. Separate CT and CW pump were operated to maintain AC in LC crystal production unit and Bagging section (Zone-40)</p>	1.78	6.60	0.20

Sr. No.	Project Description	Electricity Lacs kWh	Total Savings in Rs. (Lacs)	Investment Incurred on the Project. Rs. (Lacs)
	of Lactam Plant. Supply of CW to AC Unit of Zone 40 was started by interconnecting CW header of the AC Unit to the main cooling water header. It resulted in to power saving.			
7	<p>Judicial running of Refrigeration compressor at Capro-1. Operation of HX Plant, a major consumer of refrigeration load, was reviewed and production level of HX was adjusted such that it will run at full load with two compressors in line to built up the inventory and then will run at lowest possible load with only one compressor. This operational strategy resulted into stoppage of one refrigeration compressor for many days. This resulted in to substantial power saving.</p>	44.00	165.00	0.50
8	<p>Optimization of CW pumps operation at Nylon-6 plant. Depending upon the margin available in CW pumps, used for Continuous section, CW supply started to Batch section also. Dedicated CW pump for Batch section is now operated only for ~4 hrs/day, in place of 24 hrs/day, to meet CW requirement during specific operation only. The change in the operation strategy resulted in to power saving.</p>	0.30	1.13	0.50

Sr. No.	Project Description	Electricity Lacs kWh	Total Savings in Rs. (Lacs)	Investment Incurred on the Project. Rs. (Lacs)
9	<p>Use of Hollow FRP blades at Nylon-6 plant. Solid aluminum blades of 3 NOs. of fans of Cooling tower replaced by Hollow-FRP blade to reduce power consumption.</p>	0.60	2.25	2.50
10	<p>Power conservation in various pumps at Capro-II plant. Various tactics viz. supply of material by gravity, installation of higher size impeller to avoid running of two pumps, direct supply of product to avoid double pumping, use of common pump for product withdrawal and reflux, installation of smaller capacity pump, trimming of impeller etc. adopted in different pumps to reduce power consumption.</p>	6.40	24.00	2.00
11	<p>Installation of VAHP-2 in HAS plant, Capro-II plant. While considering sizing of stand by VAHP unit, installation of higher capacity unit is carried out to take load of ANONE AHU having 162 TR capacity operating on electric power. This resulted into stoppage of power consumption for running A.C. unit making use of excess low pressure steam. It resulted in to power saving.</p>	12.00	45.00	195.00
	Total	208.85	783.21	266.78

Thermal Energy

Sr. No.	Project description	Gas Lacs kWh SM ³ (MTOE)	Total Savings in Rs. (Lacs)	Investment Incurred on the Project. Rs. (Lacs)
1	Utilization of LP Steam of A-IV plant in Co Gen-III plant Deaerator. Up till now, MPS (14 K) steam was used in Cogen-III plant Deaerator, operated at ~2K pressure. LPS (4.5K) at A-IV plant is in excess and therefore either vented or used in TG to produce power. LPS of A-IV plant fed to Cogen-III Deaerator in place of PS at rate of ~5 MTPH. MPS generated in boilers and exported to A-IV to maintain power generation rate constant. As less amount of MPS is required in place of LPS to produce power, there was less steam requirement and ultimately it resulted into less NG consumption at boilers. It resulted in to net NG saving with constant power generation rate.	9.80 (816.83)	117.00	15.80
2	MP steam generation from HP condensate blow down at A-IV plant. Blow down of HP condensate was carried out in LP Flash drum. As LPS (5K) is in excess, it was vented. Scheme implemented to carry out flashing of HP condensate first to produce MPS (37K) and then LPS. This resulted into additional MPS generation and equivalent reduction in NG consumption, used for steam generation at boiler, realized.	13.60 (1133.56)	163.00	13.20
	Total	23.40 (1950.39)	280.00	29.00

1. MP steam generation from HP condensate blow down at A-IV plant.

Blow down of HP condensate was carried out in LP Flash drum. As LPS (5K) is in excess, it was vented. Scheme implemented to carry out flashing of HP condensate first to produce MPS (37K) and then LPS. This resulted into additional MPS generation and equivalent reduction in NG consumption, used for steam generation at boiler, realized. Net NG saving realized is 13.6 lacs SM³/year (Rs. 163 lacs/year). Cost of modification is Rs. 13.2 lacs with payback period of 1 month.



VAHP unit of Voltas make.

Energy Conservation Commitment, Policy and Set Up

GSFC has adopted energy conservation as major corporate objective. Advisor (project & Corporate Planning), with assistance of designated Energy Manager, coordinate the activities of energy conservation and cost reduction. GSFC has dedicated energy cell comprising members from Operation, Electrical, Maintenance and Design Department to discuss, evaluate and encourage energy conservation ideas from each plants and departments. Energy conservation ideas are also received from all employees in form of suggestion through Suggestion Appraisal Committee. **GSFC is the first Fertilizer company to obtain certificate in Energy Management system - BS-EN-16001 and have incorporated it in Integrated Management System (IMS).**

Environment and Safety



INTEGRATED MANAGEMENT SYSTEM POLICY

(COVERING RESPONSIBLE CARE, QUALITY, ENVIRONMENT, OCCUPATIONAL HEALTH, SAFETY AND ENERGY)

We, at Gujarat State Fertilizers & Chemicals Ltd (GSFC), engaged in the business of fertilizers, chemicals and industrial products are committed to customer satisfaction, guiding principles of Responsible Care and continual improvement in our Integrated Management Systems and performance.

To achieve this, we commit ourselves to:

- Comply with all applicable legislation and other requirements to which we subscribe;
- Conserve natural resources in particular water, raw materials and promote the development of green surroundings;
- Incorporate suitable technologies & methods for quality improvement, energy efficiency, prevention of injury, ill health and pollution;
- Eliminate, minimize or control the environmental aspects as well as occupational health and safety (OHS) hazards and risks;
- Provide high degree of safety promotion and encourage safe behavior among all;
- Proactively monitor the incidents, unsafe conditions, unsafe acts, hygiene as well as promptly report and act on such conditions;
- Ensuring availability of information and all necessary resources to achieve objectives & targets
- Comply work procedures with self discipline and hold everyone accountable for their responsibility;
- Promote usage of renewable energy, wherever feasible;
- Strengthen awareness, skills and competence of employees and contractors' workmen and also foster dialogue with vendors, customers and community;
- Periodically review the adequacy, suitability and effectiveness of Integrated Management Systems;

We shall communicate this policy to all personnel working with or on behalf of GSFC and to interested parties on demand.



GROWING GREEN

Date : 15th May, 2010
 Place : VADODARA



H. V. PATEL, IAS
 MANAGING DIRECTOR

GUJARAT STATE FERTILIZERS & CHEMICALS LIMITED
 ISO 9001, ISO 14001 & OHSAS 18001 Certified Company Promoted by Govt. of Gujarat
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