

Gujarat State Fertilizers Chemicals Ltd Gujarat

Energy Saving Achievement – Schemes implemented during the year 2004-05

1.0 Power Saving at Ammonia Storage Plant

As per design, only one cooling water pump was required to be operated with one refrigeration compressor in operation. Second pump was to start only when second higher capacity screw compressor becomes operative. During actual operation, only higher capacity screw compressor was remaining in operation. With this mode of operation, both the cooling water pumps were kept on. It was proposed to stop one of the pumps when only higher capacity screw is in line and to start second pump only when refrigeration load is more in cases like loading – unloading of liquid ammonia from road / rail tankers. Subject trial was taken when cooling water flow was adjusted, which has enabled operation of only with one pump. This has resulted in average power saving of 0.87 lacs units per year. There was no cost involved as trials were with existing system.

Annual Saving	0.87 Lacs Units
Investment	NIL

2.0 Provision of bypass across FCV 501 located at nitrogen compressor discharge in Ammonia – IV plant

During normal operation of the plant, it was observed that the control valve opening was remaining almost 80%. Discharge pressure of nitrogen compressor was remaining higher than values specified in the specification. To eliminate limitation of control valve and hence to reduce compressor discharge pressure 6" dia. bypass valve for FCV 501 with check valve was provided. This resulted in reduction in discharge pressure and hence reduce power consumption by approximate 13.78 lacs unit per year. Cost of the modification involved was Rs. 0.7 lacs.

Annual Savings	13.78 Lacs Units
Cost of Modification	0.7 Lacs.

3.0 Reduction in discharge pressure of high pressure boiler feed water pump in Ammonia-IV plant.

Boiler feed water pump was driven by turbine using 37 Kg/Cm²g steam and exhausting steam at 5.5 Kg/Cm²g. Steam flow to turbine was controlled as per pressure setting of boiler feed water at discharge of the pump. During operation, it could be observed that the control valve openings at various consumers were remaining very low. Considering this, the pressure setting at pump discharge was reduced to bring control valve openings in normal ranges. This resulted in reduced consumption of steam to the tune of 1600 MTPY. No cost was involved in the above modification.

Annual Saving	1600MT Steam
Cost of Modification	NIL

4.0 Power saving By Stoppage of Cooling Water Pump/Fan at Cogeneration Plant.

We have three Cogeneration plants-15 MW, 25 MW and 50 MW operated as per requirement. All three are provided with different Cooling Towers. All three are not operated at a time and two plants are provided with Condensing Turbine which is not operated as power cost would be high. By existing integration and optimization of water

flows one pump and one Fan could be stopped. Resulting annual power saving is 36 Lacs units.36 Lacs

Annual Saving
Cost of Modification **NIL**