

Unit Profile

Indian Petrochemicals Corporation Limited was incorporated in March, 1969 by the Government of India. IPCL's first Baroda based Aromatics complex was commissioned in 1973. With the discovery of Bombay High reserves in the seventies, a new petrochemical complex, based on associated gases from Bombay High, was conceived in the eighties, and the complex at Nagothane, Maharashtra was commissioned in 1989. This complex produces commodity plastics like PP, LDPE, LLDPE and HDPE and fiber intermediates like ethylene oxide and ethylene glycol. It is also involved in sales of surplus ethylene and propylene feedstock. RIL-NMD also has a fully integrated offsite and utility supply facility that includes a gas turbine based Captive Power Plant with an installed capacity of 85 MW.



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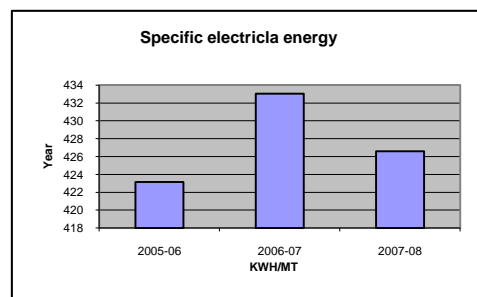
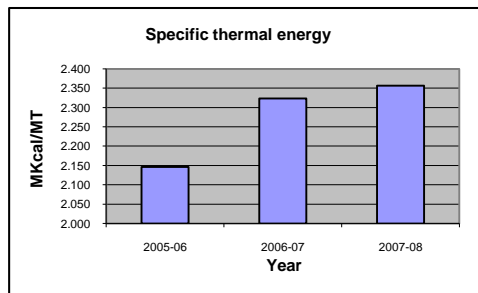
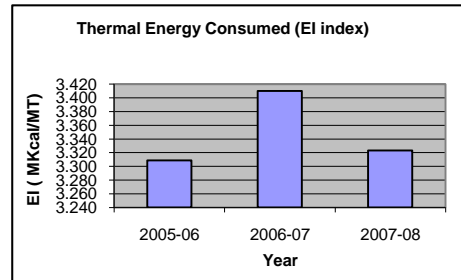
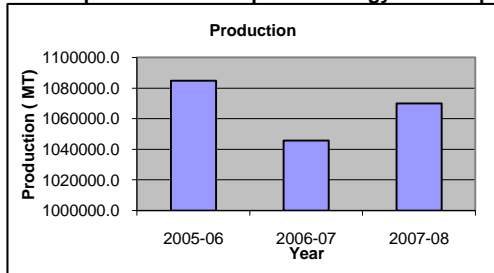
Energy Consumption

The annual energy consumption of IPCL-NC for the year 2006-2007 stands at 3565872 Mkal, with an average hourly consumption of 407 Mkal/hr @ Rs 1005 per Mkal. The presence of commodity plastics manufacturing facility makes this complex a primarily elect

Specific consumption detail:

Year	Production	Electricity consumed by the product	Thermal Energy Consumed (EI index)	Overall specific consumption	Specific thermal energy	Specific electrica energy
Unit	MT	Lakhs KWH	Mkcal	Mkcal/MT	Mkcal/MT	KWH/MT
2005-06	1084772.1	4590.433	2328974	3.309	2.147	423.1702589
2006-07	1045642.0	4527.916	2430038	3.410	2.324	433.0273758
2007-08	1070026.67	4564.52443	2521550	3.323	2.357	426.5804348

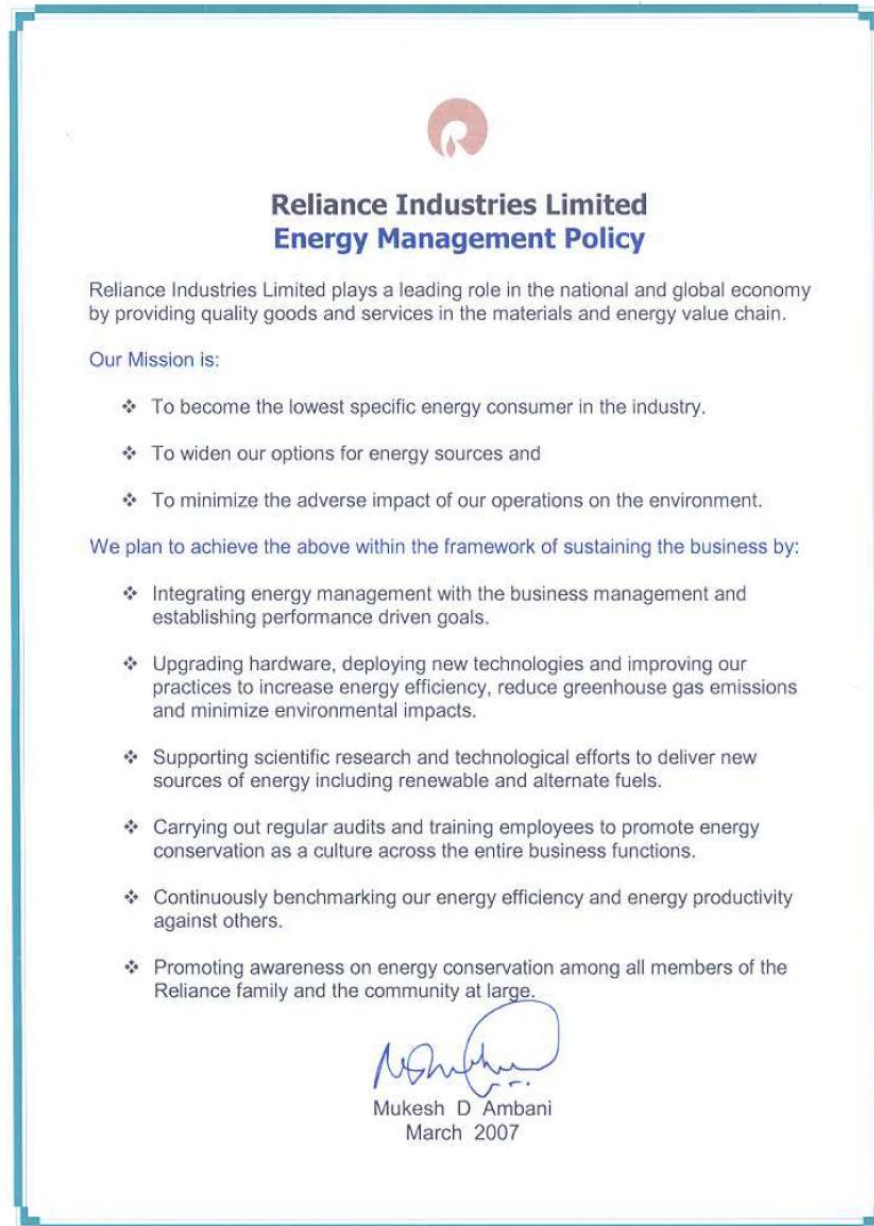
Graphical Representation of Specific Energy Consumption



Energy Conservation Achievements:

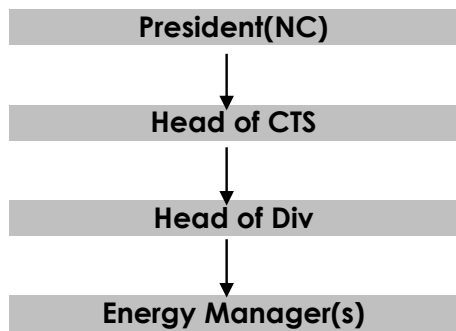
RIL-NMD was awarded the first prize in petrochemicals sector during National Energy Conservation Award for 1997 and also in 1998. In the year 1999 it was awarded the Certificate of Merit. RIL-NMD also was awarded GAIL's 'ENCON Award for efficient use of N

- (iii) **Energy Conservation Commitment, Policy and Organizational Set up**
(Please include a photo copy of unit's Energy Conservation Policy, if decided)
The Energy conservation Policy of RIL is attached)



Energy Conservation Cell set up at IPCL, Nagothane was initiated quite early after commissioning and stabilisation of the Cracker and few downstream plants, the Cell has been playing a very vital role for the organization. The Cell is headed by General Mg

ORGANISATION STRUCTURE RIL-NMD



(iv)

Energy Conservation Achievements

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RIL, Nagothane has implemented various schemes big and small, some of them quite innovative and thereby had been successful every year in reducing the Specific Energy Consumption. The year 2007-08 had been quite successful on Energy front. Revenue Saving due to various measures carried out during the year is Rs.129.56 Lakhs.

Major Energy Conservation Projects implemented during the 2007-08 are as under :

1. Aerator stoppage in IWWTP during Monsoon period.

In IWWTP Plant BOD in the effluent water is reduced in aeration tank by aerobic digestion. Aeration tank has two compartments each of 5125 M3 capacity. There are six aerators in each compartment. Each aerator consumes 40 HP of electricity.

Aeration tank is designed for 410 M3/hr of water flow and 2500 Kg/Day of BOD load. Actual flow rate of water flow rate as well as BOD load in non-monsoon season remains much less than the design value.

One compartment of the aeration tank was already taken out of operation during non-monsoon period.

Proposal:

Six number of aerators (3 aerator from each compartment) of the aeration tank was taken out of operation during monsoon period.

Impact of implementation

Energy saving

Stopping 6 aerators will result in 180 KW saving of power. Considering monsoon period of five months and price of electricity at Rs 2.3 per KWH, this will result in saving **of Rs 9.8 lakhs per annum.**



2. Corrocoat coating of Pumps.

3 pumps are used for cooling water and DM water make up

Proposal

Coating of impeller and casing of one cooling water makeup pump with corrocoat coating

Impact of implementation

Annual Saving: 0.6 Lakhs KW

Annual Saving : Rs. 1.1 Lakhs

3. Replacement of 13 ID fans of cooling tower (CT-01 & CT-02)

The two seven-cell cooling towers at RIL-NMD employ hollow bladed FRP fans of 10 m diameter powered by 75 KW motors. These fans are designed to deliver air at the rate of 38242.5 cum per min. running continuously throughout the year. A measurement of current consumption showed that the fan motors consume 49 KW to 52 KW power (85A to 90A against a full load rated current of 130A), meaning that the fans are loaded only 65-70%. In addition to this, all the fans are required to run continuously to deliver the required supply temperature of cooling water. This results not only in a time crunch for preventive maintenance, but also results in higher power consumption and loss in operating efficiency

Proposal:

As an energy saving measure, it was planned to replace existing metallic blade of CT-01 and CT-02 by aerofoil design high efficiency FRP hollow blade fans.

Impact of implementation

Energy saving

The replacement of ID fans will result in 15.6 lakhs KW/Annum saving of power with annual saving of 29.5 Lakhs. .



4. Replacement of existing Halogen lamps and fixtures

Impact of implementation

Annual Saving: 0.7Lakhs KWH

Annual Saving : Rs. 1.3 Lakhs

5.Replacement of H 10 & H 11 furnace ID fans

Annual savings : 7833.6 MMKCal

Annual Saving : 68.1 Lakhs

6. Stopping of degassing fans of storage & off grade silos.

Annual savings : 0.5 MMKCal

Annual Saving : 0.9 Lakhs

7. Replacement of conventional ballast with Electromagnetic ballast.

Replacement of conventional ballast with Electromagnetic ballast in PP service building.

Impact of implementation

Annual Saving: 0.9 Lakhs KWH

Annual Saving : Rs. 1.6 Lakhs

(v) **Energy Conservation Plans and Targets**

RIL-NMD has a few ENCON schemes and operational practices planned for the current year. A programme has been launched to replace normal TFL fixtures with energy efficient CFL lighting and replacements have already been effected in cable tunnels of the complex.

The Energy audit by external agency is planned in year 2008-09.

Major future plans for energy conservation are as under :

1. Cooling water modification of CG compressor 1st, 2nd and 3rd stage after coolers
2. Wash water injection to CG compressor
3. Replacement of H 14 furnace ID fans
4. The corrocoated anti corrosion Coating of Cooling water circulating pumps
5. Provision of Steam coils instead of electric coils in Hot water tank (70-V-25) of DM plant
6. Installation of solar water heating system in hostel, guest house & central kitchen at NC.
7. Provision of Solar power for the Triangular garden in the Township

(vi) **Environment and Safety**

RIL-NMD firmly believes in the concept of sustainable development and through capacity based planning process and using innovative technologies for enhanced material and energy efficiency of production and consumption. There is separate department that oversees all matters pertaining to health, safety and environment and our complex at Nagothane, inclusive of Township and medical facilities is ISO 14000 certified. the following programs are pursued at all the manufacturing sites for enhancing safety at the workplace.

1. Comprehensive internal and external auditing system involving national and international safety councils and external auditing organisations.
2. Safety induction training to all contractors' worker at sites.
3. Frequent emergency mock drills.
4. Safety quiz competitions week celebration to create safety awareness among employees.
5. Well-defined team-safety performance appraisal targets.
6. Monthly inter-site safety bechmarking.
7. Risk assesment concept with all work permits.
7. Personal protective Equipment(PPE) compliance at work places.