

ABOUT EXCEL INDUSTRIES LIMITED

Excel Industries Limited, is a pioneer in the field of manufacturing industrial chemicals, intermediates, speciality chemicals, agricultural chemicals, Organic soil conditioner since 1941.

We have two manufacturing sites at Roha & Lote Parshuram.

Roha site was started in 1975

EHS Code of Conduct, MEP, ENCON, 5S are the integral parts of our operation.

Our present turnover is crores

-We have received

IS/ISO 9001-2000 Certification on 31st October 2003

IS/ISO14001-2004 Certification on 2nd January 2006

IS18001- 2000 Certification on 20th February 2006

We are one of the few companies who have signed Responsible Care in 1992

WHAT IS ENERGY CONSERVATION

Energy Conservation is best defined as reduction of energy consumption, measured in physical terms.

Energy Management programme is defined as strategy of adjusting and optimising energy, using systems & procedures to reduce energy requirements per unit of output while reducing total cost of production.

Any good Energy Conservation & Energy Management Programme includes:

1. Improvement in specific energy consumption without affecting output, consumption or comfort levels.
2. Optimum utilization of existing assets & energy resources.
3. Promoting R&D, transfer & use of technologies and practices for environmentally sound systems, including new & renewable energy sources.

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4. Demand management through greater conservation of energy, optimum fuel mix.
 5. Efficient generation, transmission.
 6. Minimisation of energy cost/waste/environmental system.
 7. Reusing & recycling energy by cascading.
 8. Procurement of energy at lowest possible cost.
 9. Commitment & involvement of whole organization.
 10. Targeting, measuring, verifying, monitoring, analysing the use of energy.

Combination of managerial & technical skills/knowledge is must for successful implementation of Energy Conservation & Management Programme.

WHY ENERGY CONSERVATION

1. To Achieve Sustainable Development, ie. Development that meets the needs of the present without compromising the ability of future generations to meet their own needs by eliminating unsustainable actions.
2. To ensure energy security ie. Reduction in dependency on imported energy sources & enhancing the life of available energy resources.
3. To protect environment against global warming, green house effect.
4. To achieve desired growth of GDP at 6 to 7% will impose an increased demand of 9 to 10.5% on Energy sector.
5. To improve the bottom line of the business.
6. To eliminate the wastages of energy sources.

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8. Since energy prices are undervalued, energy wastages are neglected.
 9. The challenges faced by the world community in the Energy sector are multifarious & there is ever growing need to tackle these challenges through innovative ways & means.
 10. As environmental degradation affect all mankind on a global scale - without regard to any particular country, race, religion or region, rich or poor.

ENCON POLICY

EXCEL INDUSTRIES LIMITED

ENERGY MANAGEMENT POLICY

We, at Excel Industries Limited, are committed to conserving energy and natural resources in all our processes and activities:

We shall accomplish it through:

- Enhancing awareness of all members of Excel family towards energy and resource conservation and building competence to conserve through appropriate training.
- Maintaining Energy Conservation Cell to coordinate Encon activities:
 - Through review of monitoring and reporting systems and modifications.
 - Providing common platform for information sharing, comparing energy consumption norms within the organisation, with neighbours and with international norms.
 - Considering substitution with renewable energy sources where appropriate.
 - Ensuring management participation and budgetary support to energy management activities.
 - Setting targets for reduction in specific energy consumption and developing action plans to achieve them.
- Seeking and exploring energy conservation opportunities through activities like energy balance studies, monitoring of utility equipments, evaluation of specific energy consumption of processes and experimental changes in energy sources.

04 September 2004

S. R. POTDAR
EXECUTIVE DIRECTOR

You will find our ENCON Policy covers all aspects of Energy Management & ENCON

ENCON MANAGEMENT SET-UP AT ROHA

Executive Director Corporate

- Strategic Guidance
- Encon proposals approval & budget sanctioning
- Periodic review of energy consumption, ENCON activities

Corporate ENCON Co-ordinator

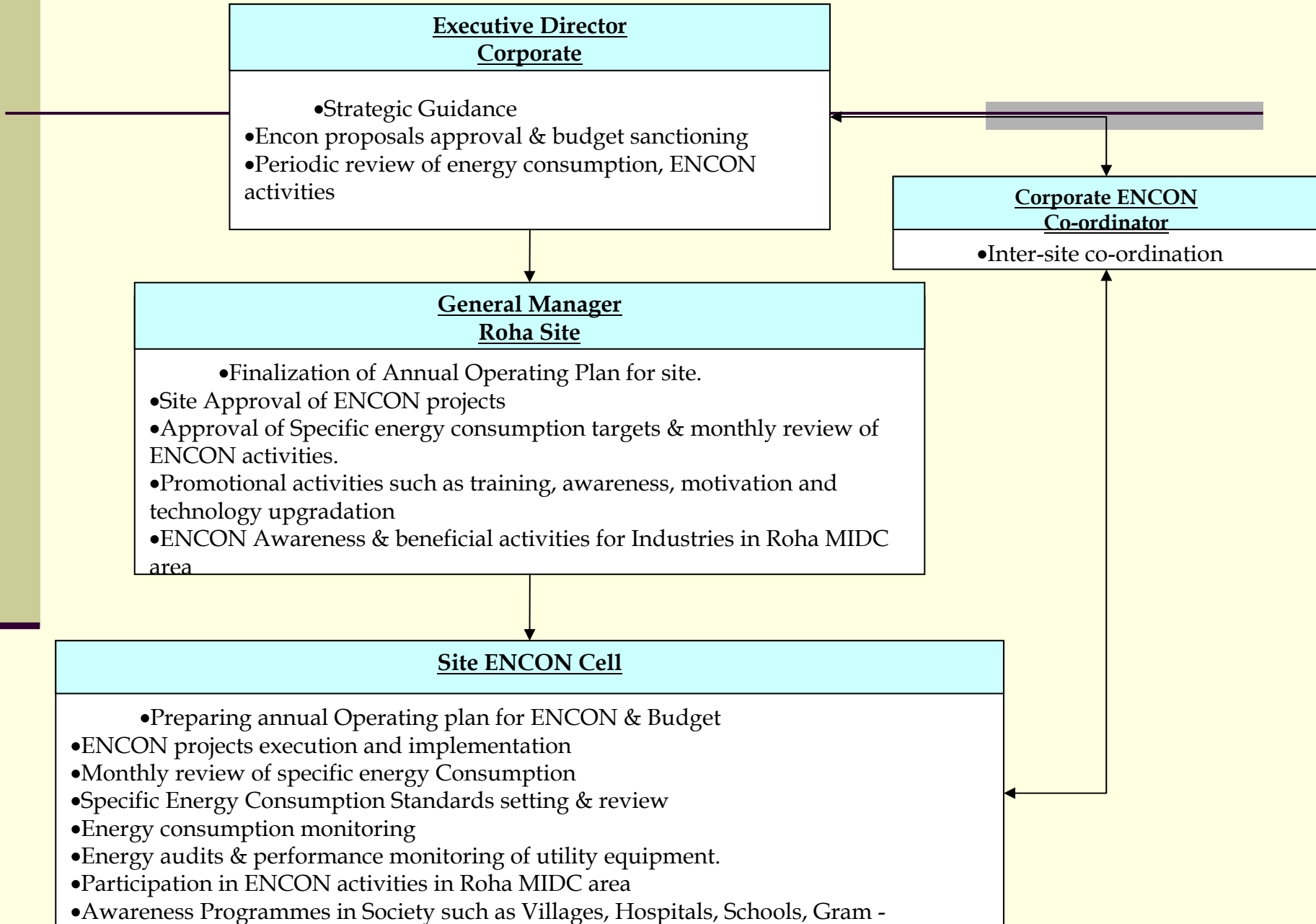
- Inter-site co-ordination

General Manager Roha Site

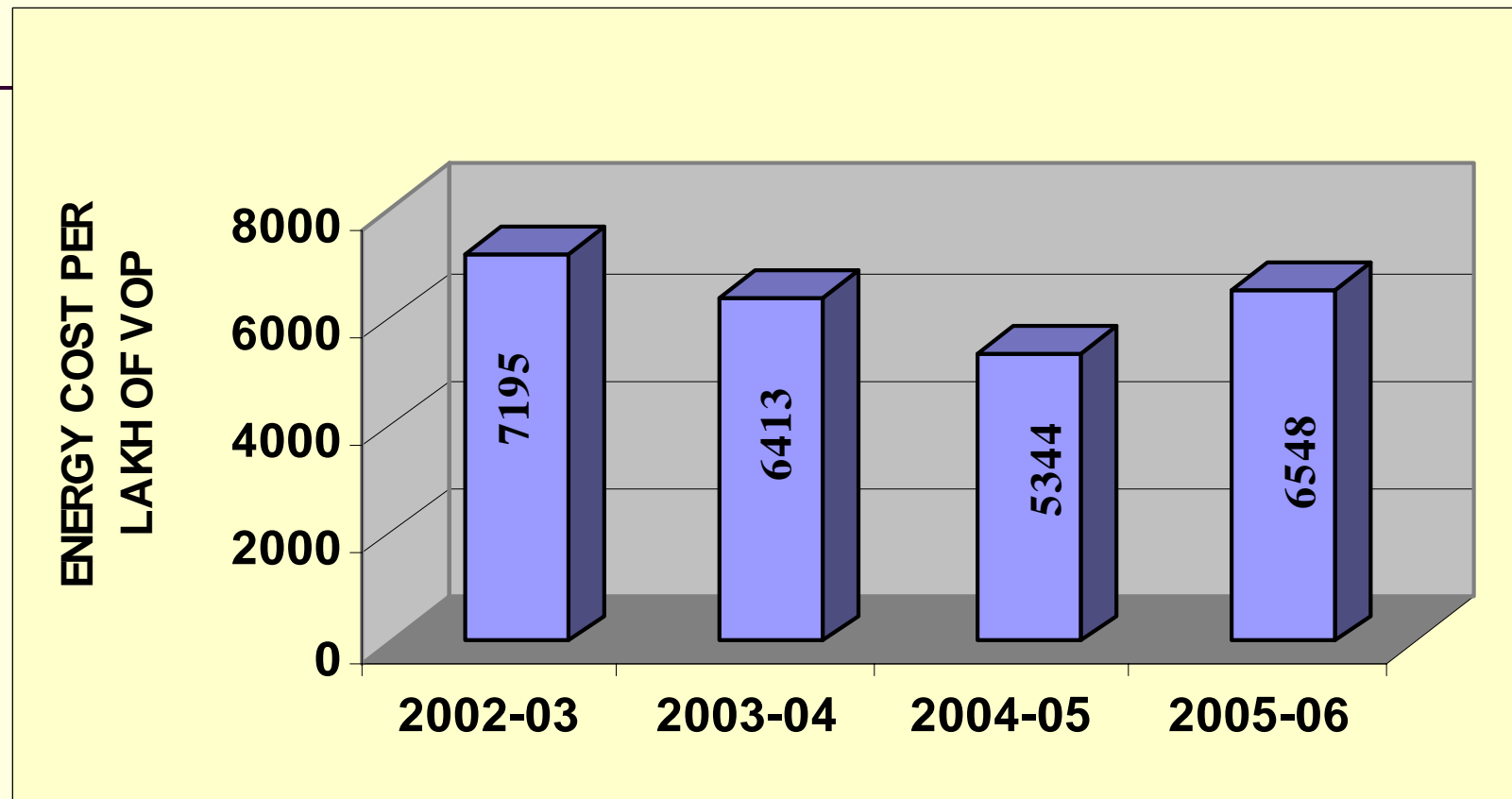
- Finalization of Annual Operating Plan for site.
- Site Approval of ENCON projects
- Approval of Specific energy consumption targets & monthly review of ENCON activities.
- Promotional activities such as training, awareness, motivation and technology upgradation
- ENCON Awareness & beneficial activities for Industries in Roha MIDC area

Site ENCON Cell

- Preparing annual Operating plan for ENCON & Budget
- ENCON projects execution and implementation
- Monthly review of specific energy Consumption
- Specific Energy Consumption Standards setting & review
- Energy consumption monitoring
- Energy audits & performance monitoring of utility equipment.
- Participation in ENCON activities in Roha MIDC area
- Awareness Programmes in Society such as Villages, Hospitals, Schools, Gram -



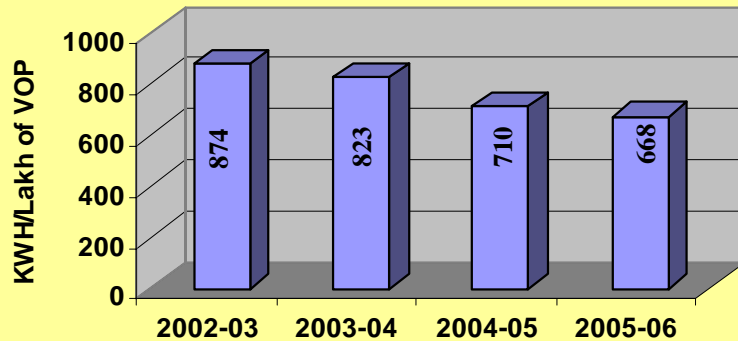
RESULTS OF OUR ENCON EFFORTS IN LAST FOUR YEARS



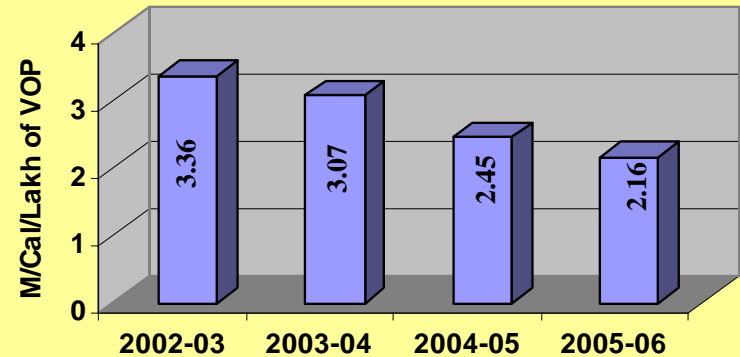
	2002-03	2003-04	2004-05	2005-06
Electricity Rs/KWH	3.7	3.67	3.42	3.50
Furnace Oil Rs./Ltr.	11.3	13.3	11.4	18.2
Diesel Rs/Ltr.	22	23	28	36

Energy Consumption in absolute terms/lakh of VOP for last four years

ELECTRICAL



THERMAL



Major ENCON/Energy Management Works in last three years

Boiler	Purchase and use of DMCC By Product Steam for plant processes.
	Boiler Efficiency Improvement by improving Steam to Fuel Ratio from 13.1 to 13.6 by maintaining excess air consumption in flue gases
	Audit of Steam Traps installation and Replacement of TD Traps by Float type Traps, wherever applicable: Total 61 no of traps replaced
	Steam Condensate Recovery at 50%
Thermic Fluid Heaters	Use of Furnace Oil in place of LDO by necessary modfn in burner & increased preventive maintenance
Cooling Towers	Provision of Temperature Controller for Cooling Tower Fan: 1 no
	Replacement of 5 no of Induced draft cooling towers by Natural draft cooling towers
Electrical Systems	Reduction in Effective rate of electricity by Load side Management
	Replacement of Electrical preheating with steam preheating: 9 KW X 2 no
Electric Lighting	Optimizing Electricity Consumption in Plant Lighting System by using CFL Lamps
	Use of transparent sheets for Roofing for Natural Day lighting: 52 watt x 8 no
Compressed Air System	Replacement of V-Belts drives with Flat Belts

HVAC & Refrigeration	Replacement of Vapor Absorption Chilling Unit by Vapor Compression Unit
	Replacement of Reciprocating Ammonia Compressors with Screw Compressors in Refrigeration Unit
Pumps	Provision of Mechanical Seals for Cooling water transfer pumps in place of gland packing
	Optimization of Energy in Pumping System by optimizing of flow & head & replacing lower efficiency pumps by higher efficiency pumps
Fans & Blowers	Use of Submerged Aerators in Bio-Reactors for Effluent Treatment
Technology, Process Up-gradation, Process Fine Tuning & Energy used by process	Use of Molten Sulphur in P2S5 plant
	Elimination of Distillation Furnace in P2S5 plant by using Undistilled in P2S5
	Use of S.S. Jacketed Chlorinator in place of Glass lined Jacketed Chlorinator in DETC plant
	Glytech Production by New process & Implementing "KAIZEN"
	Replacement of low efficiency worm reduction gear boxes with high efficiency helical gear boxes

LOAD SIDE MANAGEMENT

Reduction effective rate of electricity by implementing Load Management Scheme

- When MSEDCL, our electricity supply utility, introduced electricity tariff structure based on Time of Day (TOD) and PF incentives, Excel, Roha took this as a opportunity, to reduce our cost of electricity by taking benefits of incentives & improving demand side management.

- This effective reduction could be achieved due to:-
 - Fixing a target for electrical as well as production department and bringing awareness to the actual users about rising electrical costs.
 - Scheduling production schedules & rearranging our process loads to take the benefit of TOD.
 - Scheduling operations to optimum capacity to reduce M.D.
 - Improvement in Power Factor from 0.94 to 1 and reduction in cable losses by adding capacitors at the load end.

- Regular analysis & monitoring of electrical consumption.
- Optimizing plant capacities using KAIZEN technique.
- Reduction in wastages / non-value adding activities.

Results of the Project :

Year	2003 - 04	2004 - 05	2005 – 06
KWH Consumption	1,14,43,287	1,37,35,600	1,17,38,670
Load Factor	0.68	0.72	0.74
Power Factor	0.96	1	1
T.O.D. Rebate	0.22	0.19	0.23
Effective Rate of Electricity	3.67	3.42	3.48
Ave. FOCA during year	0.13	0.16	0.29
Electricity Rate based on FOCA in 2003-04		3/39	3.32
Net Savings		38,45,968	41,08,535

➤ Effective Electricity Rates in neighboring Industries in Roha M.I.D.C. Area in 2005 - 06.

Industry	KWH Consumption	Electricity Rate
A	17118	3.62
B	13454	3.54
C	6884	3.77
D	6355	3.74
Excel Industries	11738000	3.49

PURCHASING STEAM FROM M/S. D.M.C.C. LTD

- DMCC were having steam about 100 MT of steam un-utilised from the plant.
- The option was to use the same for power generation by using condensate type turbine.
- But this would have been last option as condensate turbine works at% efficiency.
- Due to continuously increasing prices of F.O. Excel was also worried about rising energy bills.
- Both the parties decided if Excel, Roha, can purchase 100 MT of steam; DMCC was willing to sell at a price formula worked on F.O. price.
- Since this was beneficial to both and more importantly resulting into F.O. substitution, a joint project was designed, implemented, operated in which steam was transported to Excel, from DMCC plant at a distance of about 1500 mts and supplied to Excel at 7 Kg/cm².

- The result of the project :

Year	Qty. of steam purchased	Equivalent Savings in F.O
2001-02	7735 MT	570 KL
2002-03	29770 MT	1455 KL
2003-04	17592 MT	1300 KL
2004-05	15436 MT	1135 KL
TOTAL		4460 KL

- The project resulted into WIN-WIN situations as DMCC got better appreciation of surplus steam, Excel got steam at cheaper rate compared to own generation and combinely saved 4460 KL import of Furnace Oil.

AKSHAY POWER SCHEME FOR ROHA MIDC

Implementation of " AKSHAY" Electricity Power scheme in MIDC area, in co-operation with MSEDCL - Year : 2005-06

BEFORE IMPLEMENTATION: During the year 2005-2006, there was acute power shortage in all over State of Maharashtra due to increased demand of electrical power by various sectors of economy.

MSEDCL was forced to cut the power & impose load shading during peak hours i.e. From 6.00 AM to 10.00 AM in day time and 6.00 PM to 10.00 PM in night time.

At first, domestic and commercial consumers were affected by these power cuts. But as the electricity demand was further increased in the month of December - 2005.

The schedule of power cuts was also applied to Industrial sector.

There was total power cut off on one day in week for 16 hours in Roha industrial area.

During this period, industries had to run their captive power generating sets. But it was evident that, this captive power was very much costlier than the MSEDCL power as most of the captive power plants were running on High Speed Diesel fuel.

AFTER IMPLEMENTATION: Excel Management took the initiative through the local Industrial Association's Forum. We established a committee of Electrical Engineers from nearby companies.

We prepared a scheme to be presented to the MSEDCL in which it was proposed to cancel the load shadings by the MSEDCL in industrial area by following self load shadings during peak hours. A certain amount of load was kept off by each company so as to reduce the electricity demand during peak hours. This was supervised by the committee to check prompt implementation of the scheme.

This proposal was agreed by the MSEDCL and from 11th February 2006 onwards there were no load shading imposed by MSEDCL

SAVINGS:

1. Proposed Scheduled Power cuts by MSEDCL in February, March, April & May -2006. = 15 Days x 16 Hrs
 2. Diesel requirement by our D.G.Sets @ 370 Ltrs per Hour = 88,800 Liters
 3. Cost of Diesel = Rs.36.59 per Liter
- Total Saving in year 2005-06 = Rs.32, 49,192/-

Apart from cost savings in diesel cost, production and productivity of Excel & all industries in Roha MIDC Area was not hampered due to load shading; while MSEDCL also met their requirement of load shading & earned revenue.

This was the Unique Scheme Implemented in ROHA MIDC Area.

PUMPS EFFICIENCY IMPROVEMENT

Optimization of Power Consumption in Pumping Systems

BEFORE IMPLEMENTATION: After careful study & audit of our cooling water systems, it was observed that the centrifugal pumps were not operated at the desired efficiency levels.

Typical graphical demonstration of actual & estimated efficiencies is shown along with.

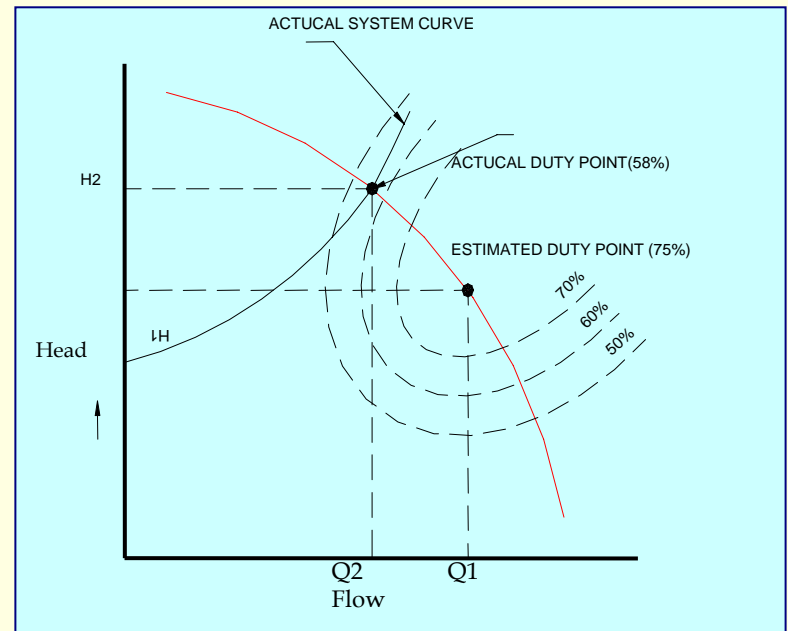
After auditing the system, it was observed that estimated duty point defers from the actual duty point in most of the cases. This might have happened due to one of the following reasons:

- Either system curve is not plotted or there are substantial errors in the system curve calculations.
- Actual cooling water circuit is altered from the time of system curve calculations. This may be due to addition / deletion of equipment in the circuit or throttling of valves for process requirement.

AFTER IMPLEMENTATION:

To optimize our pumping system, we adopted following strategy:

- Acquire actual duty point by measurement of flow & head
- Calculate the present pump efficiency
- Procure & Install the pump having highest possible efficiency for the given duty point.



SAVING:

Pump Description	KW Before pump replacement	KW after pump replacement	Savings in KW
CW Pump for 160 TR Ref Unit	33.75	30.26	3.3
CW Pump for VAR Unit	34.90	34.90	0
CW Pump for OPA Plant	31.00	11.60	19.4
CW Pump for Aqueous Re-boiler	68.09	27.35	20.5
CW Pump for Codex Plant	11.05	04.94	6.1
CW Pump for HCl Scrubber	18.16	10.99	7.2
Chilled Water Circ Pump for DETC-I	24.40	21.50	2.9
Total Savings in KW			59.40

**Annualized Saving
= Rs. 14, 88,326 / -
Investment Made
=Rs. 5, 00,000 /-
Payback
= 4 Months**

EFFORTS DONE IN CREATING/SUPPORTING AWARENESS TO SOCIETY

1.	December 2005	<ul style="list-style-type: none"> • Energy Week Celebration a) ENCON Suggestion Scheme for employees & prizes to best Energy Conservation suggestions. b) Workshop of Energy Efficient Lighting for all Electrical Engineering & Managers in Roha MIDC with M/s. Asian Electronics Ltd., Mumbai.
2.	February - March 2006	<ul style="list-style-type: none"> • Formation of Association of Certified Energy Managers & Auditors in Roha MIDC. • Designing, creating awareness & implementing Akshay Prakash Yojna in Kolad, Tal. Roha, Dist: Raigad. • Designing & implementing Akshay Power Yojana for Roha MIDC & implementing with MSEDCL during worst power crisis in January to May 2006 for continuous power to MIDC. • Workshop on Energy Management of Motors for utility & process engineering in Roha MIDC jointly with MEDA, Pune & International Copper Promotion Council, Mumbai.
3.	August 2006	<ul style="list-style-type: none"> • Workshop on Efficient Generation & utilization of steam for boiler operation of Excel Industries Limited, Roha by Mr. D.S. Thokal, Sr. Manager - Engg. & Certified Energy Auditor.
4.	September 2006	<ul style="list-style-type: none"> • Seminar on 21st & 22nd September 2006 by Confederation of Indian Industries (CII) for all Process, Utility Plant Engineers in Roha MIDC jointly with Roha Industries Association, Roha.
5.	October 2006	<ul style="list-style-type: none"> • "Save Energy" "Save Environment" poster competition for School children. About 125 students participated & prizes were distributed creating awareness in society through advertisement in Diwali issues of local daily, weekly for "Save Energy" & "Save Environment".

APPRECIATION OF OUR WORKS

All our efforts were appreciated by both Government of India & by Government of Maharashtra by awarding :

1. 2nd Prize of National Energy Conservation Award - 2004 by Government of India
2. 2nd Prize of National Energy Conservation Award - 2004 by Maharashtra Energy Development Authority, Pune (MEDA), Government of Maharashtra.
3. 2nd Prize of National Energy Conservation Award - 2005 by Maharashtra Energy Development Authority, Pune (MEDA), Government of Maharashtra.

We firmly believe these awards, as milestones signifying the path, the distance traveled and the miles to be covered while embarking on a journey. These helped us to be on the right course and decide the acceleration levels which will take us to higher destination.

Our plans for ENCON for next two years :

1. To put Captive Power Plant in Roha MIDC
2. Farmer's education.
3. To create an ENCON Idea Bank for Roha MIDC.
4. To help small scale industries to improve energy efficiency

Energy Conservation measures planned for the future, investment planned & expected savings

Energy Conservation Measures (Planned)	Anticipated savings in		Approx. investment (Rs.lakhs)
	Energy Value (Specify units)	Rs. Lakhs	
Installation of Coal Fired Boiler	4270 KL of F. Oil	350	250
Installation of Ammonia Screw Compressors in place of Reciprocating Compressors in Brine & CHW Refrigeration Unit with Evaporative Condensers	4 Lakhs kwh	27	100
Installation of Screw Compressors for Compressed Air in place of in-efficient Reciprocating Air Compressors	1.5 Lakhs kwh	6	20
Installation of additional 3 no Submerged Aerators in Bio-Reactors in Effluent Treatment plant	3.87 Lakhs kwh	17.50	14.00
Installation of 4 Nos. of Solar Street Lights	0.047 Lakhs kwh	0.2	1.0
Use of Natural Day Light instead of Artificial Lighting	0.0179 Lakhs kwh	0.1	0.15
Replacement of Low Efficiency Worm Reduction Gear Boxes with High Efficiency Helical Gear Boxes	0.429 Lakhs kwh	9.80	3.00
Elimination of "Non – Value – Adding Activities", reduction of Waste, Improving Productivity, Elimination of Inconsistencies through Implementation of " KAIZEN" to eliminate Energy Waste in Plants and Operating plants at 90% of rated capacity	9.45 Lakhs kwh	15.66	5.00
Improvement in Boiler Steam Condensate Recovery from 50 % to 75 %	1760 KL of F. Oil	11	1.50

This Presentation is dedicated to :

- 1. Shri K.C. Shroff**, Chairman Emiretus – who created awareness about Energy/Environment in all Excelites.
- 2. Shri A.C. Shroff**, Chairman & Managing Director – For continuous guidance & support.
- 3. Shri S.R. Potdar**, Executive Director – For making us to work focus oriented, systematic & keeping us on right track by correcting our mistakes.
- 4. BEE** – For giving us a single window for total work in Energy Conservation & Energy Management by conducting Energy Auditor/Manager examination.

Thanks to ICC for giving us a chance.

**We learn/improve from criticism than
admiration.**

Please have your valued feedback.