

EXCEL INDUSTRIES LIMITED ROHA, RAIGAD (MAHARASHTRA)

UNIT PROFILE

EXCEL Industries Limited, ROHA was started in 1975. EXCEL is a pioneer in the field of manufacturing industrial chemicals, intermediates, specialty chemicals and agricultural chemicals. Though Excel has a much diversified range in chemical manufacturing, their main strength lies in chlorine & phosphorous based chemicals. Presently EXCEL Roha unit is ISO 9001, ISO 14001 and IS 18001 certified, a signatory of ICC's RESPOSIBILITY CARE programme.

Energy Conservation was given a managerial stature and origination structure long ago Energy policy as a guiding document and a Management Commitment was adopted. Teams have been working across the organization in all manufacturing locations with a strong bond, linkage and exchange of ideas innovations and finally information. Annual plans, duly sanctioned budgets, periodic monitoring and performance measurement and finally, suitable rewarding system were all fully institutionalized. Year on year remarkable results have been achieved.

Excel's continual improvement policy has been embedded in its manufacturing Excellence programme since August 2003.

Energy Conservation is an important part of our manufacturing Excellence Programme, cross functional teams are formed to take specific projects aimed at Energy Conservation.



Energy is taking a central place for economic development and social progress of nation.



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 organization, with neighbors 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



Eliminate variable-pitch pulleys.

Energy Conservation Measure implemented in 2006-2007

	<p style="text-align: center;">Title of the measure</p> <p style="text-align: center;">Installation of Ammonia Screw Compressors in place of Reciprocating Compressors in Brine & CHW Refrigeration Unit with Evaporative Condenser</p>	<p>Sector :- Chemical</p>
		<p>Technology: - Replacement/Installation / Modernization of old and inefficient existing equipment and systems</p>
<p>Description of the energy conservation measure:</p> <p>At our Roha site, previously we had Reciprocating ammonia compressors with shell & tube type condenser to serve production plants refrigeration requirement with brine and chilled water. The energy requirement of refrigeration for Brine as secondary refrigerant was 3.33 KW per TR and Chilled water as secondary refrigerant was 1.31 KW per TR with reciprocating compressors.</p> <p>The Screw compressor with evaporative condenser is an energy efficient technology in Refrigeration field, which requires lesser maintenance. The energy requirement of refrigeration with screw compressor for Brine as secondary refrigerant comes out to be 2.01 KW per TR at $- 22^{\circ} \text{C}$ temperature and the energy requirement of refrigeration with screw compressor for Chilled water as secondary refrigerant comes out to be 1.22 KW per TR at $+ 5^{\circ} \text{C}$. We replaced reciprocating ammonia compressors with Screw compressors with Evaporative Condensers to reduce the cost of refrigeration.</p>		
<p>Picture/ sketch/ drawing before modification (if available)</p>	<p>Picture/ sketch/ drawing after modification</p>	
		
<p>Agency that executed the project (with complete address and email): Excel Industries Limited, Roha in house and M/S Systems And Components, 110, Goutam Udyog Bhavan, LBS Marg, Bhandup, Mumbai – 78 email: syscomp@bom3.vsnl.net.in</p>		

Total investment, Rs.: 10000000		Year of implementation: 2006-07			
First year energy cost savings, Rs.: 7491348					
First year other savings, Rs.: - 320000 (Reduction in Maintenance Expenditure)					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	3708	-	-	-	-
Energy consumption after	1470	-	-	-	-
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	4.13				
Company complete address: EXCEL INDUSTRIES LIMITED Plot No.112, 20/1- OS-2, M.I.D.C.Area At-Po: Dhatav, Tal: ROHA, Dist: RAIGAD, MAHARASHTRA PIN: 402116 Contact person who could be contacted for more information: Mr. P.P. Dhamangaonkar, General Manager - Roha Site				We authorise Bureau to use this information for dissemination Signature Date:	

Energy Conservation Measure implemented in 2006-2007

	Title of the measure	Sector :- Chemical
	Installation of Screw Compressors for Compressed Air in place of in-efficient Reciprocating Air Compressors	Technology:- Replacement/Installation / Modernization of old and inefficient existing equipment and systems
Description of the energy conservation measure:		
<p>At our Roha site, previously we had 3 no of Reciprocating air compressors to serve production plants process requirement until January – 2007. The volumetric efficiency of these air compressors was reduced by 30% and maintenance frequency was also increased. The energy requirement of compressing air with reciprocating compressors was 0.138 KW per Nm3/ Hour compressed air flow rate and with 686.56 Nm3 per hour capacity of each compressor.</p> <p>So it was decided to replace reciprocating air compressors with Screw air compressors to reduce the energy requirement of compressed air in January 2007</p> <p style="padding-left: 40px;">The Screw air compressor requires less energy and lesser maintenance. The energy requirement of air compression with screw compressor comes out to be 0.106 KW per Nm3/ Hour of compressed air flow. The capacity of screw air compressor is 898.81 Nm3 per hour of each compressor. So there was reduction of 0.032 KW per Nm3/ hour</p>		
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification	
		
<p>Agency that executed the project (with complete address and email): Excel Industries Limited, Roha in house and M/S Airkom Agencies (I) Pvt. Ltd., 111, amit Industrial Estate, 61, Dr. S.S. Rao Road, Parel, Mumbai, 12 email: airkom@mtnl.net.in</p>		

Total investment, Rs.: 2000000		Year of implementation: 2006-07			
First year energy cost savings, Rs.: 725193					
First year other savings, Rs: 412167 (Saving due to Reduction in Maximum Demand charges and benefit of zonal unit tariff rate of electricity supplied by public utility)					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	750	-	-	-	-
Energy consumption after	582	-	-	-	-
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	4.13			-	
Company complete address: EXCEL INDUSTRIES LIMITED Plot No.112, 20/1- OS-2, M.I.D.C.Area At-Po: Dhatav, Tal: ROHA, Dist: RAIGAD, MAHARASHTRA PIN:402116				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: Mr. P.P. Dhamangaonkar, General Manager - Roha Site				Signature Date	

Energy Conservation Measure implemented in 2006-2007

	Title of the measure	Sector :- Chemical
	Using KAIZEN Technique for Energy Conservation.	Technology: - Process Monitoring and Controls

Description of the energy conservation measure:

There were some unaccounted wasteful activities in our DETC, EDTA, Glytech and CODEX plants in year 2005 -06. This was contributing towards specific energy consumptions of product.

We employed KAIZEN technique to improve productivity, product quality improvements and elimination of wasteful, non-value adding activities to reduce energy consumptions.

Following were the results showing reduction in SECs of major products:

Product	2005-06	2006-07
	SEC/ MT	SEC/ MT
DETC	1275 kWh & 5.42 MT	1220 kWh & 4.96 MT
EDTA	427 kWh	299 kWh
Glytech	4.46 MT	2.56 MT
CODEX	1.79 MT	1.41 MT

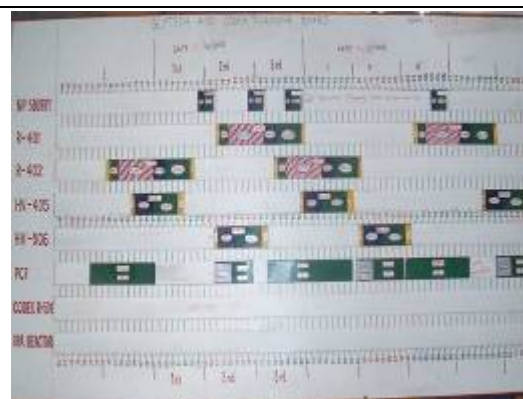
Main job was the co-ordination of all these equipment for elimination of wastages.

This was achieved through daily planning of activities by KAIZEN technique.

Picture/ sketch/ drawing before modification

(if available)

Picture/ sketch/ drawing after modification



Agency that executed the project (with complete address and email): Excel Industries Ltd. (In House)

Total investment, Rs.: 500000

Year of implementation: 2006-07

First year energy cost savings, Rs.: 7736410

First year other savings, Rs: -- Improvement in productivity & manpower efficiency.					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (KL)	Other
Energy consumption before	5552	-	-	2400	-
Energy consumption after	5267	-	-	1981	-
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / KL ...	4.13			17574	
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Energy Conservation Measure implemented in 2006-2007

	Title of the measure	Sector :- Chemical
	Reduction in Effective rate of Electricity by Load Side Management	Technology: - Retrofitting/Minor Modifications of existing equipment

Description of the energy conservation measure:

The objective of power supply utilities behind introducing incentives in present tariff structure is to promote efficient utilization as well as avoiding surges in demand in peak hours.

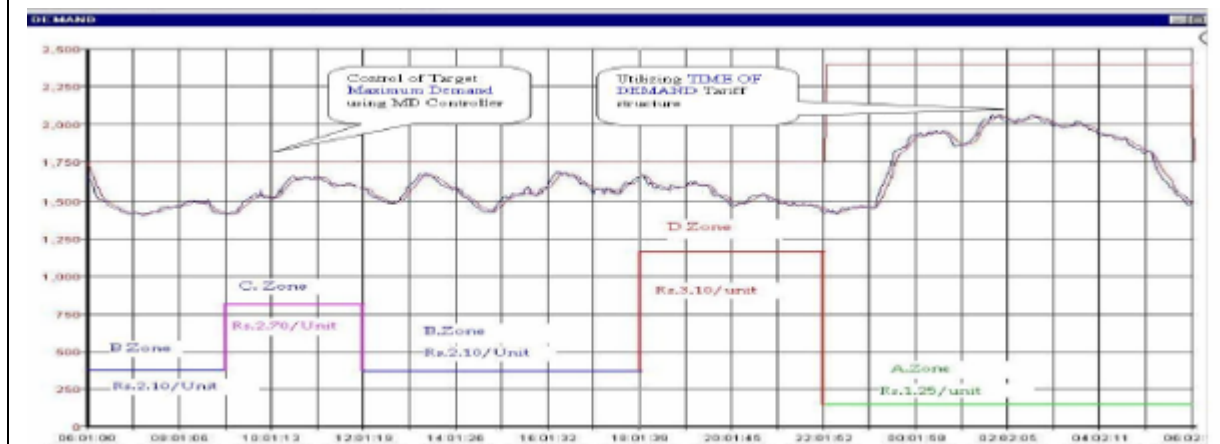
We reduced the effective rate of electricity purchased from public utility by implementing some load side management measures and continuously monitoring the results.

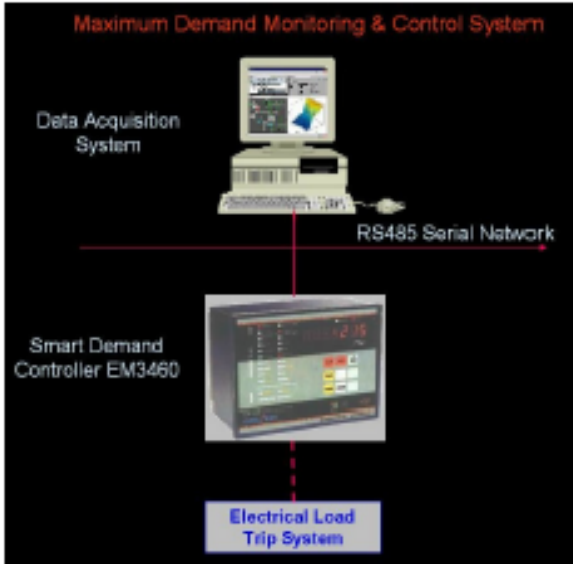
In accordance with this, we have taken continuous efforts in this regard, thereby earning the incentives which resulted into maintaining in effective tariff rate at Rs. 4.10/ unit in 2006-07.

Some of the efforts taken are as follows:

- Proper production scheduling (Eliminating certain plant operations in the peak hours)
- Carrying out less energy intensive routine operations (e.g. Filter cleaning, washing, packaging, etc) during peak hours
- Maintaining the power factor at unity.
- Rescheduling & co-coordinating certain activities to reduce Maximum Demand
- Optimizing the load of plant & street-lighting.


This resulted in effective use of electricity and electricity tariff structure of public utility to minimize effect of continuously increasing tariff of electricity supply.



Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification					
Not Available						
Agency that executed the project (with complete address and email): Excel Industries Ltd. (In House)						
Total investment, Rs.: NIL			Year of implementation: 2006-07			
First year energy cost savings, Rs.: 480550						
First year other savings, Rs:- NIL						
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other	
Energy consumption before	-	-	-	-	-	
Energy consumption after	-	-	-	-	-	
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	-			-		
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Improve oxygen trim control.


Energy Conservation Measure implemented in 2006-2007

	Title of the measure Achieving Constant Temperature of Chlorination in DETC plant by Auto Temperature Controller.	Sector :- Chemical
		Technology: - Process Monitoring and Controls
Description of the energy conservation measure: In our DETC plants, It was observed that, due to manual operating of chlorine feed valves into chlorinators; the temperature of chlorination is not constant resulting in increased time cycle & decrease in product yield. We decided to install Auto Temperature Controllers to all 5 no of Chlorinators; which will sense the reaction mass temperature and control the feed rate of chlorine through pneumatic control valve. This resulted into reduction of chlorination time cycle by around 1 hour and improvement in production yield by 100 kg.		
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification	
		
Agency that executed the project (with complete address and email): Excel Industries Ltd. (In House)		
Total investment, Rs.: 1430000		Year of implementation: 2006-07
First year energy cost savings, Rs.: 135678		
First year other savings, Rs:- 14598441.8		
On annual basis	kWh 000'	Coal (Tons)
Energy consumption before	423.43	-
Energy consumption after	409.45	-
		Gas Nm ³
		Oil (kL)
		Other Raw Material for process
		P2s5: 760 kg/MT SDS: 880 kg/MT Cl2: 580 kg/MT NaOH: 450 kg/MT
		P2s5: 740 kg/MT

					SDS: 760 kg/MT Cl2: 555 kg/MT NaOH: 420 kg/MT
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	4.13			-	P2s5:Rs.37/ kg SDS:Rs.19.65/ kg Cl2:Rs.4.49/ kg NaOH:Rs.8.44/ kg
<p>Company complete address: EXCEL INDUSTRIES LIMITED Plot No.112, 20/1- OS-2, M.I.D.C.Area At-Po: Dhatav, Tal: ROHA, Dist: RAIGAD, MAHARASHTRA PIN: 402116</p> <p>Contact person who could be contacted for more information: Mr. P.P. Dhamangaonkar, General Manager - Roha Site</p>				<p>We authorise Bureau to use this information for dissemination</p> <p>Signature</p> <p>Date</p>	

Optimise the tariff structure with utility supplier

Energy Conservation Measure implemented in 2006-2007

	Title of the measure	Sector :- Chemical
	Use of Natural Day Light instead of Artificial Lighting	Technology: - Energy substitution/switching measures
<p>Description of the energy conservation measure:</p> <p>In several departments such as engineering stores, refrigeration units, godowns there were common practice to have lights on during day time. We decided to take advantage of natural sun light during day time to illuminate the space and to switch off lighting load.</p> <p>Replace two or four roof A.C. sheets in engineering stores, refrigeration units and godowns with transparent F.R.P. corrugated sheets.</p> <p>So, natural day light was available for illumination with no need to switch on lighting except in night hours.</p>		
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification	
Not Available		
Agency that executed the project (with complete address and email): Excel Industries Ltd.(In house)		
Total investment, Rs.: 8400	Year of implementation: 2006-07	
First year energy cost savings, Rs.: 28547		

First year other savings, Rs: -- NIL					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	13.82	-	-	-	-
Energy consumption after	6.91	-	-	-	-
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	4.13			-	
Company complete address: EXCEL INDUSTRIES LIMITED Plot No.112, 20/1- OS-2, M.I.D.C.Area At-Po: Dhatav, Tal: ROHA, Dist: RAIGAD, MAHARASHTRA PIN:402116 Contact person who could be contacted for more information: Mr. P.P. Dhamangaonkar, General Manager - Roha Site				We authorise Bureau to use this information for dissemination Signature Date	