RUCHI SOYA INDUSTRIES LTD.

HALDIA, WEST BENGAL

PRESENTING

ENERGY CONSERVATION REPORT' 2008

20. A Brief write-up of the unit

i. Unit profile

Ruchi Soya industries ltd. Is the India's largest edible oil processor, established in 1976. Group has manufacturing & trading facilities of soybean production, agriculture business, oil & fats, flat steel, galvanized steel & coal, rolled steel etc.

Company basically based at Indore, it has manufacturing facilities across India and offices in Mumbai, New Delhi, Kolkata, Chennai & other major business centre in the country.

Group has also long exposure in trading of oil, pulses and the agriculture crops. Business turnover of group is 994.3765 Crores on 31st march 2008 with a net worth of 1061Crore.

This plant is located in the vicinity of west Bengal. Industrial development corporation ltd. Haldia about 150 km. from kolkata and at the bank of haldia port.
This plant has a total capacity of refining 1100TPD, vanaspati 300TPD, interesterification 450TPD and 35 TPD Soya chunks manufacturing.
This is the first unit of the group acceleration of ISO:9001,140001,22000 food safety certification products-product of this unit include nutrela soyuum, mahakosh, Ruchi gold, Tulsi gold, Rice fit refined oil & Tulsi, Ruchi no.1 , Nutri gold vanaspati & general bake fat ,bakemo ,Cokemo , Mosmo, Macramé etc. brand of bakery shortening.

Corporate social Responsibility

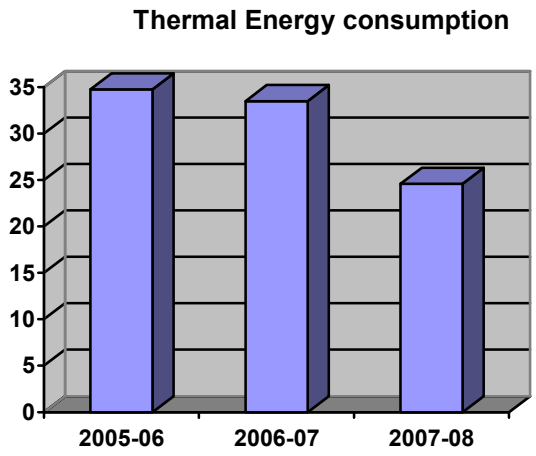
Agriculture plays a vital role in India's social economic development. Similarly the role of farmer is as significant as the role of agriculture itself. As a token of appreciation we have been conducting an awareness campaign on palm plantation for farmers. The program explains the opportunities in the palm sector and updates farmer on the subsidies offer by the government.

From the past seven year of establishment of this unit we are providing relief for flood affected and calamities. The company has dedicated agencies for communities' welfare work in diverse areas such as education, sports, art and culture etc. ironically this organization is moving like an acclivity in the enhancement of Indian economy at the pinnacle and proving excellence in the global world.

ii. Energy consumption:

The energy consumption figures for the last three year is as shown below-

Sl.	Particulars	Unit	2005-06	2006-07	2007-08
1.	L.D.O & F.O	Tonne	985.15	774.13	900.68
2.	Steam coal	Tonne	16012.46	19055.4	34314.34
3.	Electricity	10^5Kwh	96.9	126.2	139.05
4.	Plant specific energy consumption.	Kwh/tcs	34.75	33.5	24.58
5.	Total manufacturing cost	Rs. Crores	27.75	35.94	49.62
6.	Total energy Bill	Rs. Crores	3.59	4.8	5.6
7.	Energy as % of total cost of production	%	6.48	2.62	2.13

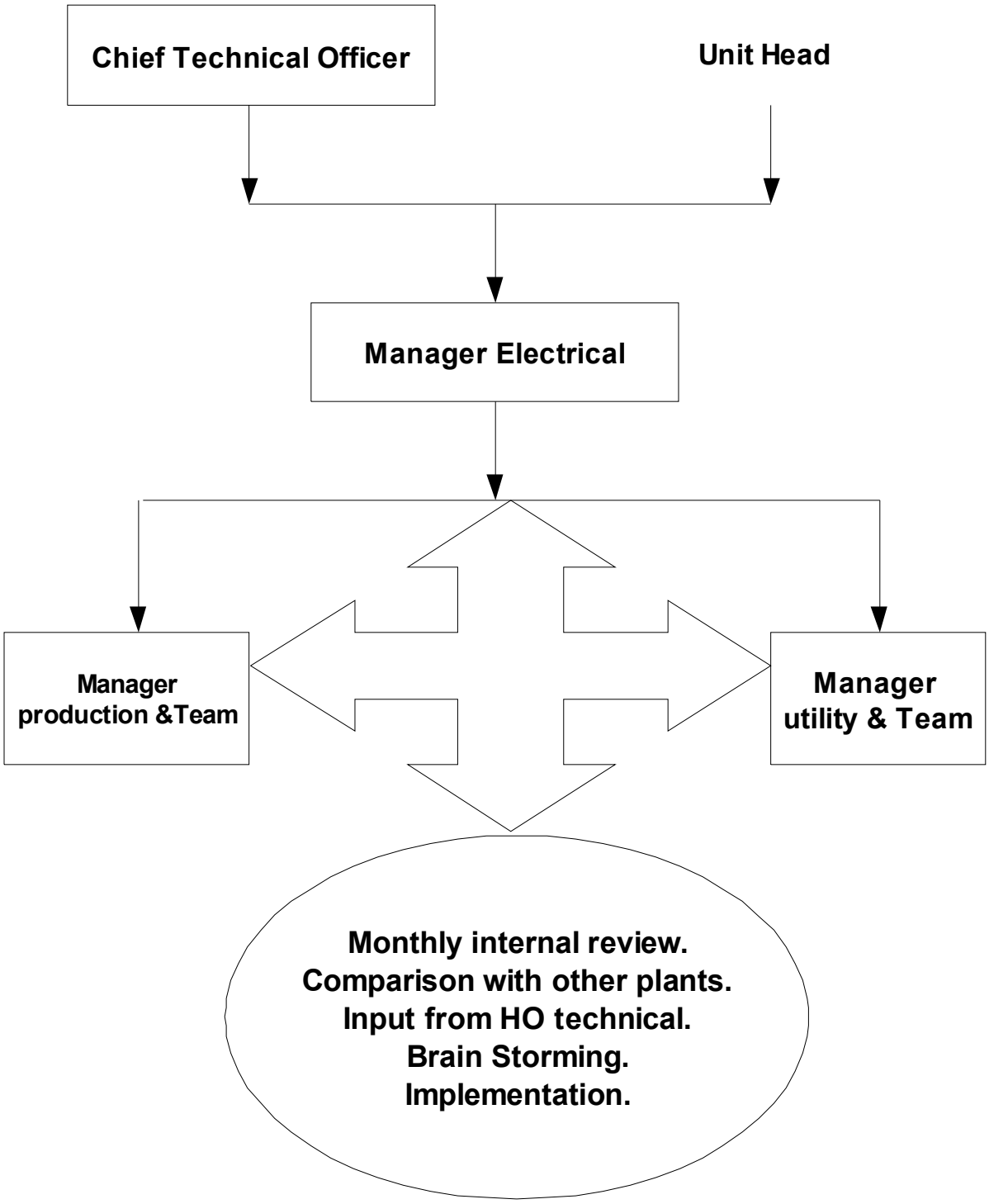


iii. Energy conservation commitment, policy and setup- environment friendliness, sustainability competitiveness, customer satisfaction is at the core of every business. RSIL is of the view that supply of fuel is limited to a great extent and carbon-di-oxide emission must be minimum. Hence energy conservation has great importance .We are mainly focusing on the efficient use of energy. Its recovery and waste utilization have been designed.

Our main focus is moving following points:-

a. Benchmarking of the processes and sub processes identification of gaps.
b. Process integration
c. Waste heat recovery
d. Regenerative heat recovery
e. Automation through instrumentation & Electrical
f. Monitoring of parameters

Energy Conservation Team Structure



Note: the organization set-up for energy conservation has been documented in 13c of the application.
The energy policy of the organization has been documented in 13e of this application.

iv. *Activities taken up to promote energy conservation & awareness-*

1. Detailed analysis of monthly energy consumption & reported to chief technical officer, unit heads& department heads for necessary action to improve energy consumption and specific energy consumption reduction.
2. Sharing of energy consumption improvement & reduction report of all plant in the through HO and adoption of best practices on monthly basis.
3. 'Annual conclave' on knowledge sharing, energy consumption on yearly basis.
4. Energy audit from time to time for improvement
5. Inter department weekly meeting, discussion, evaluation & implementation assessment of various energy related initiative.

ENERGY CONSERVATION ACHIVEMENT

Energy Conservation achieved through introduction of new technologies, optimization of operational practices and process intensification during the Three years are:
1. Environmental Management system was modifying as per ISO-14001 standards and was streamlined with ISO-9001.
2. Lowest Manufacturing Cost of Vanaspati.
3.VAM Installed in Placed of Superchiller
4. Reduction of big capacity of Motors in low capacity & VFD Installed
5. Heat Exchanger installed in boiler for heating
6. Find out the ways to improved the Power factor from 0.94 to 0.99

v. *Energy conservation Plans & Targets:*

1.Install Energy saver Transformer for Lighting, Voltage reduce 245V to 210V
2. Used low capacity power light switch T-56 Watt instead of 250 Watt Light system
3. Reduction of big capacity of Motors in low capacity & VFD Installed
4. Introducing PLC operated Boiler System for efficent Energy & coal consumption

vi. *Environment & Safety*:

1. Health and Safety

For Fire Safety

Total Plant is covered by Fire Hydrant ring main system, which is maintained pressurized 24 hrs. At 7.5 kg / cm2, which is driven by one 125 HP main pump and the pressure is maintained by a jockey pump of 30 HP.
One Diesel Engine Operated Pump of 125 Hp kept ready for use in case of power failure.
Total No. of Hydrant Points: 60
Water Monitors: 06 Nos.
Hose Reel Hose: 40 Nos.

Fire Extinguisher: 220 Nos.
Sprinkler: 478 Nos.
Maintaining all the rules as per the rules of the factories act 1948
Total inside of plant and warehouse is covered by First aid fire fighting equipments, like as extinguisher, fire bucket and hose reel hose.

2.Health

Health of Each and Every employee is checked once in half yearly and whiles any new person is joining then his health is checked before joining.

3.Pollution

All precautionary and preventive measures taken for reducing the effect of pollution on the environment, and all the statutory norms are maintained as per the rules.
Periodically
Boiler stack, DG stack is being checked.
Effluent checked in our lab before draining it to the green belt canal.
Ambient air is checked periodically.
Working Environment Illumination checked..
Noise Level Tested

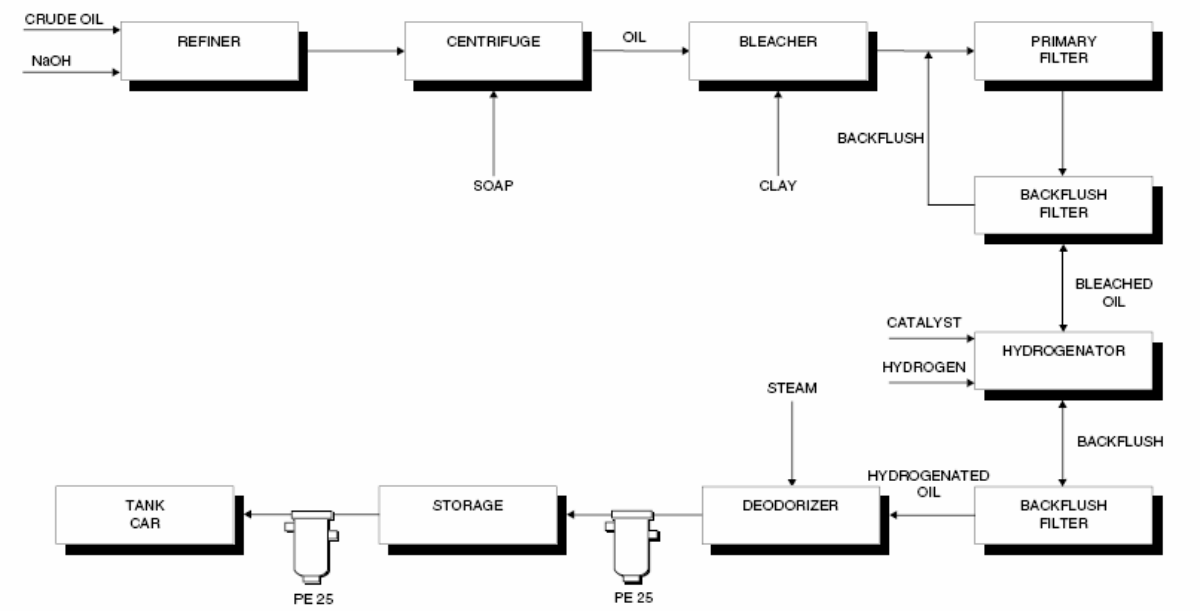
21. Whether any dispute pertaining to statutory requirements of safety and pollution control is pending with any Government Agency. If yes, give details:

NONE.

7. *Production & Capacity Utilization &Details*

year	Product	Unit	Installed Capacity(A)	Actual Capacity(B)	**%Capacity utilization(B/A)**
2005-06	Refine Oil & Vanaspati	MT	2,10,000	1,26,158.37	60
2006-07	Refine Oil & Vanaspati	MT	3,60,000	1,63,359.32	45
2007-08	Refine Oil & Vanaspati	MT	3,60,000	2,25,551.33	63

8. Schematic Diagram Showing Production Process of Entire Unit is shown below.



- For refining the oil, there are three basic processes in the refinery. First process is neutralizing the oil in the neutralizer to remove the Free Fatty Acids (FFA) by adding caustic soda. Oil is heated up to about 60°C by thermic fluid coils and oil is stirred by stirrer. Then soap stock formed due to chemical reaction is allowed to settle at the bottom of the neutralizer from where it is taken out into soap pan.
- Neutralized oil is drawn into the second vessel called bleacher where color of oil is removed by bleaching process with aid of chemicals such as carbon black and bleaching earth. Oil is generally heated up to 110°C by thermic fluid coils. Stirring is also continued. Bleaching process is done under vacuum.
- Bleached oil then goes to the filter press where bleaching earth and chemicals are separated and clean bleached oil is then drawn to deodorizer where oil is heated above 110°C through thermic fluid coils and then live steam is given to the oil from the bottom steam nozzles and temperature of oil is raised up to 200 to 220°C through thermic fluid coils. Entire process is done under high vacuum. Thus smell is removed from the oil in the deodorizer. Then it goes to cooler where water circulating coils take away heat and oil is cooled. Again it goes to second filter press where completely refined and transparent color less oil is obtained.
- Thermic Fluid Boiler, Vacuum Pump, Barometric Condenser, Catchalls, Steam Generator etc. play their role in the refining process. So these equipments are part of the refinery and connected with the vessels through pipelines.

Energy Conservation Measure implemented in 2007-2008

ID to be filled by BEE

Title of the measure

Replacement of Oil Fired Heater

TO Coal Fired Thermofluid heater

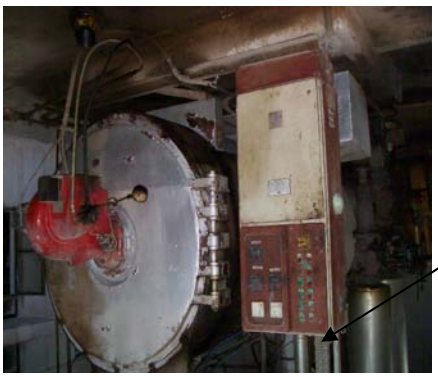
Sector: Edible oil

Year to be filled by BEE

Technology:

Description of the energy conservation measure:

For Oil company Heat Exchange is very common Way to rise and fall of temperature. In Deodorization section , Distillation required input oil with very high temperature for the separation of free fatty acid and refined oil. Thermic fluid boiler to run on husk/coal i.e. replacement for f.oil Fired boiler. Thus using this concept cost has been reduce by 3 Times.



BEFORE

AFTER

Agency that executed the project (with complete address and email): Thermax Ltd.

Total investment, Rs.:125 lakhs

Year of implementation: 2007

First year energy cost savings, Rs.:123.5 lakhs

First year other savings, Rs.:

On annual basis	**kWh000'**	**Coal(Tons)**	**Oil(KL)**	**Other**
Energy consumption before				
Energy consumption after				

Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL

Company complete address:
Ruchi soya industries Ltd.,Haldia-721602
Telephone:03224-253886
Contact person who could be contacted for more information:
Mr. J.Ram , Head of Electrical Department
Email:haldiaprj@ruchigroup.com

We authorise Bureau to use this information for dissemination

Signature : J.Ram

Date

ID to be filled by BEE

Year to be filled by BEE

Title of the measure

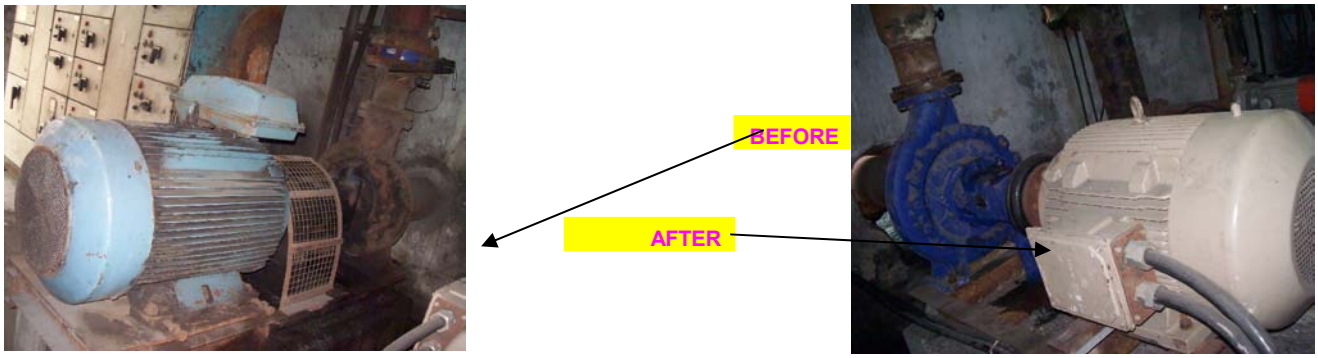
Conversion of 100 HP Motor by 60 HP in Cooling Tower Pumps at Refinery -2 & Vanaspati

Sector: Edible oil

Technology:

Description of the energy conservation measure:

In cooling tower basically hot water outcome of booster and ejector had to be cool and than transfer to boiler for steam Generation for the propose of vacuum system. When Cooling system of the plant designed it needed 100HP motor for the Cooling of 10Kg/cm2 of used steam. But on practice it was found that same cooling we got by 60 HP motor and the concept Outcome up to 40% saving of Electrical Energy.



Agency that executed the project (with complete address and email): Flow serve and ground Foss

Total investment, Rs.: 5.2 lakhs

Year of implementation: 2007

First year energy cost savings, Rs.: 23 lakhs

First year other savings, Rs.:

On annual basis	**kWh000'**	**Coal(Tons)**	**Oil(KL)**	**Other**
Energy consumption before				
Energy consumption after				

Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL

Company complete address:

Ruchi soya industries Ltd.,Haldia-721602

Telephone:03224-253886

Contact person who could be contacted for more information:

Mr. J.Ram , Head of Electrical Department

Email:

We authorize Bureau to use this information for dissemination

Signature: J.Ram

Date

ID to be filled by BEE

Year to be filled by BEE

Title of the measure

Installation of variable Frequency Drive in pumps at various Location of Plant.

Sector: Edible oil

Technology:

Description of the energy conservation measure:

Variable Frequency Drive are being used in the controlling of RPM of various Pumps running on different loads. Measure of the concept of VFD clear the power saving of 30% of power.

BEFORE

AFTER

Agency that executed the project (with complete address and email): ABB

Total investment, Rs: 7.75 Lakhs

Year of implementation: 2007

First year energy cost savings, Rs: 20.7 Lakhs

First year other savings, Rs.:

On annual basis	**kWh000'**	**Coal(Tons)**	**Oil(KL)**	**Other**
Energy consumption before				
Energy consumption after				

Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL

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Signature: J.Ram

Date

ID to be filled by BEE

Title of the measure

Replacing the Super Chiller by VAM in Refinery Unit-I

Sector: Edible oil

Year to be filled by BEE

Technology:

Description of the energy conservation measure:

After installation of Heat Reclaimer in 215TR Vaccum Absorbtion Machine efficiency was increased giving 6'C chilled water. Super chiller running with 150HP motor consuming more power to VAM. Comparatively Maintenance and operation of VAM is easy than Super chiller.

BEFORE

AFTER

Agency that executed the project (with complete address and email): Thermax Ltd.

Total investment, Rs.:

Year of implementation: 2007

First year energy cost savings, Rs.: 23.6 lakhs

First year other savings, Rs.:

On annual basis	**kWh000'**	**Coal(Tons)**	**Oil(KL)**	**Other**
Energy consumption before				
Energy consumption after				

Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL

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Date

ID to be filled by BEE

Year to be filled by BEE

Title of the measure

Introduction of new de fusser system for cooling in cold room for Vanaspati

Sector: Edible oil

Technology:

Description of the energy conservation measure:

Introduction of new De fusser system like we increase the numbers of de fusser system but descend the power Consumption. Instead of using 3 system of 4HP we used 6 System of 1HP. And we have total 4 cold rooms. Thus it contributes to 30% of Saving.

Agency that executed the project (with complete address and email):

Total investment, Rs.: 15 lakhs

Year of implementation: 2007

First year energy cost savings, Rs.:4.7 lakhs

First year other savings, Rs.:

On annual basis	**kWh000'**	**Coal(Tons)**	**Oil(KL)**	**Other**
Energy consumption before				
Energy consumption after				

Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL

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Date

ID to be filled by BEE

Title of the measure

New concept to reuse Ejector steam

Sector: Edible oil

Year to be filled by BEE

Technology:

Description of the energy conservation measure:

Waste Steam from Deodorization Ejectors vessel is condensed in hot well tank. Cooling tower efficiency is increased be Reducing the steam. By reducing the Steam in cooling tower, power consumed has been very low for the water Temperature. Hot well tank temperature is utilized in crude Oil tanks for rising the temperature by 8-10'C. By using reuse

Steam we saved Steam and thus Energy.

Agency that executed the project (with complete address and email): Thermax Ltd.

Total investment, Rs.: 2 lakhs

Year of implementation: 2007

First year energy cost savings, Rs.: 21.7 lakhs

First year other savings, Rs.:

On annual basis	**kWh000'**	**Coal(Tons)**	**Oil(KL)**	**Other**
Energy consumption before				
Energy consumption after				

Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL

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