

First Prize

General Category
(Subsectors of EC Award)

DIRECTORATE OF LOCAL BODIES
DEPARTMENT OF LOCAL SELF GOVERNMENT
Government of Rajasthan (Jaipur)

Unit Profile

The **Department of local self Government (LSG)** is the controlling Department of all municipalities for all administrative purposes. It also performs monitoring and co-ordination function at the state level for all the 190 municipal bodies of the state. This Department has a directorate to look after the day to day functioning of all these Urban Local Bodies.

The energy saving project is being undertaken by LSG in all the urban areas of Rajasthan covering all the 190 ULBs. This project is prepared and under implementation by one officer-Superintendent Engineer cum Dy. Commissioner (Elect.) who is Nodal Officer for this LED street lighting project.



Street Light National Program Dashboard:

It updates the daily progress of LED street lights in all the states. Total 14,40,161 Nos. LED street lights installed in India out of which 5,41,000 Nos. in Rajasthan only. Rajasthan is the state where highest quantity of LED Street light provided and the first state where LED SLNP is implemented in whole state area.



Energy Saving Measures:

Government of Rajasthan has decided to save electrical energy in the field of street lighting hence a project prepared to reduce electric consumption of conventional type street lights and to increase illumination level on the street of urban areas in Rajasthan. LED Street lights with latest technology have highest energy efficiency, gives maximum lighting output with less energy consumption energy consumption and less maintenance. **LED street lights has been selected to replace with existing conventional type sodium lights and tube lights.**

Highlights of the Project:

ESCO Concept:-

The firm will design, finance, implement, operate & maintain the project and then transfer the project after completion of project to ULBs.

LED lights (Light Emitting Diode):-

- These are latest Technological, energy efficient and maximum light emitting type lights.
- Life of LED is much more i.e. above 10 years, maintenance is very less and heat emission is very low in comparison to conventional lights.

- With use of energy efficient street light (LED light) reduces electric consumption by at least 50% and intensity of lighting level (Lux level) of road increases as compared with conventional type (Sodium Light /Tube Light)
- LED light emits maximum light out so increases brightness and color rendering on streets with reduced electric consumption.
- LED technology is best option to conserve energy and to reduce electric consumption.

Concept of Project

- Saving of electricity without reducing illumination level on the streets/roads
- Use of energy efficient street lights (LED) in place of conventional street light - sodium/tube light
- Reduction in electrical consumption of street light by at least 50%.
- Deduction in electricity bill payments to Electricity Companies.

Agreement Term

- The term of agreement will be for 7 years.

Illumination (LUX Level) on various Roads:-

- Illumination (LUX) Level should not be less than existing LUX Level with conventional lights as purpose of the project is not only to save energy but also to increase illumination level up to optimal level.

Dimming Provision:-

- There is provision of automated Dimming during late night hours i.e. 5 hours (00 hours to 05 hours)
- Illumination level should be decided by Municipality and EESL jointly.

Third party inspection provision:-

- REIL has been appointed as third party inspection agency of the project for measurement of LUX Level and energy saving before and after the project implementation.

Finance of The Project

- No separate fund required for implementation of the project.
- Cost of the project shall be recovered from the financial savings in the electricity consumption bills amount paid to Electricity companies.

Benefit to ULB

- No additional expenditure in implementation of the project is required.
- Illumination level on streets/roads will increase around three times.
- Reduction in electricity consumption bill by around 50-60%.
- New LED lights will be installed in place of sodium/ tube light.
- Maintenance cost will be reduced.

Project Implementation in Rajasthan

State Government has signed an MOU with Energy Efficiency Services Limited (A joint venture company of Govt. PSUs) Noida on 23rd January, 2015 to implement energy saving project in Rajasthan.

Present Status of Project

• Total no. of ULBs	190 ULBs
• MoU signed for all ULBs	190 ULBs
• EESL Project Cost of Rajasthan	Rs.1500 Crores
• Work Completed -34 + 1 (Jhalawar)	35 ULBs
• LED Project work under progress	49 ULBs
• Total no. of LED Street Light Points in Rajasthan	- 12.5 Lakhs
• Installation Completed in 2015-16	- 11 ULB's
• Name of ULBs	- Jaipur, Ajmer, Pushkar, Dholpur Bhiwadi, Ratangarh, Ratannagar, Pali, Churu, Mount Abu, Udaipur

Energy Saving Observed

• Energy Consumption Before implementation of project (2014-15)	- 399.23 Lakh kWh (Units)
• Energy consumption after implementation of project (2015-16)	- 155.25 Lakh kWh (Units)
• Saving in consumption	- 243.98 Lakh kWh
• Savings in %	- 61%
• Energy Consumption Before implementation of project (2014-15) in Rs.(399.23*8/unit)	- Rs 3193.84 Lakhs
• Energy consumption after implementation of project (2015-16) in Rs.(155.25*8/unit)	- Rs 1242 Lakhs
• Financial Saving in Rs	- Rs 1951.84 Lakhs
• Financial Saving in %	- 61%

After completion of the project in all ULBs total likely energy saving in Rajasthan will be 1515.40 Lakhs Units costing to Rs. 12123.2 Lakhs. (Note: 10 Lakhs= 1 Million)

Certificate of Merit

General Category (Subsectors of EC Award)

HINDUSTAN UNILEVER LIMITED SUMERPUR UNIT Hamirpur (Uttar Pradesh)

Unit Profile

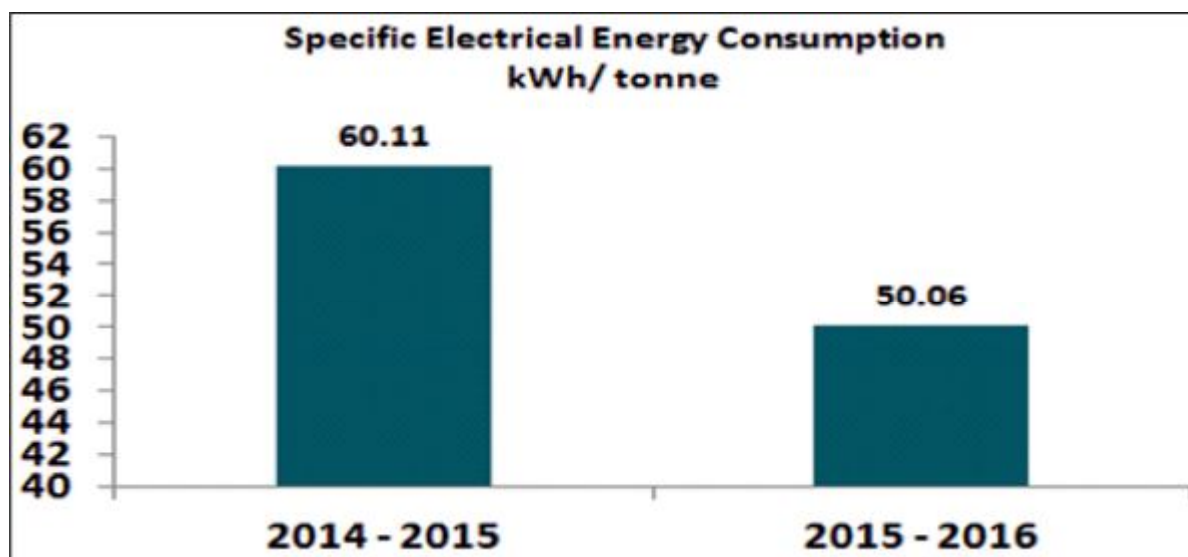
Hindustan Unilever Limited (HUL) is India's largest Fast Moving Consumer Goods Company with a heritage of over 80 years in India . Sumerpur Detergents Factory is located 80 kms south of Kanpur, with a manufacturing capacity of 200,000 TPA. It is the largest Home Care category own factory in South Asia and produced its highest ever 1.68 Lakh tons in 2015. The factory complex includes two units within the factory premises and one co-packer unit near factory (fully managed by and part of Sumerpur factory). The factory is around 27 years old and is one of the most complex sites w.r.t. to the portfolios manufactured. The site manufactures Mass Fabric wash, Premium Fabric Wash & Household care viz. Surf Excel Bar, Wheel Bar, Rin Bar, Wheel Powder and Vim Bar.



Unit 2

Specific Energy Consumption

Year	Product	Specific Energy Consumption. kWh/tonne	% Reduction over 2014 - 2015
2014-2015	Surf Excel, Wheel Powder, Wheel & RIN Bar & VIM Bar	60.11	—
2015 - 2016	Surf Excel, Wheel Powder, Wheel & RIN Bar & VIM Bar	50.06	16.72



Energy Conservation Measures taken in 2015-16

In 2015, it was planned to put a high speed packing lines as capacity expansion project of RIN Bar (40,000 TPA capacity). This expansion brought its own challenges, adversely affecting sustainability parameters, increasing CO2 emissions, As per company’s vision of decoupling growth from environmental foot-print and ensure continuous improvement on energy, Sumerpur explored new ways of arresting CO2 emission through different energy conservation project.

Methodology Used:

The team followed TPM 12 step approach for thorough study of energy consumption. Data was collected for the entire unit on weekly & monthly basis and an inventory of action points was made based on, Why-Why analysis, energy audit, brain storming, TPM circle meetings, 4M analysis etc, Team majorly work in 3 direction **A. Improve the efficiency** (reduction of FO consumption in boiler, processing time reduction, conveyor interlock, moved from constant speed to variable speed process through VVFD etc), **B. Use proven Technology** (screw compressor for refrigerator unit

and air compressor, use of LED light etc) **C. Use Non Conventional source of energy** (complete admin building converted to solar light, solar water heater for canteen & other lighting)

The energy conservation initiative in details as listed below:

Project Summary								
Project No.	Description	Year of Implementation	Total Cost saving yearly Rs (000)	Investment in Rs (000)	Pay back period in year	Saving in KWH	Saving in GJ	Saving in CO2 (T/Y)
1	130TR Screw Chiller for NMB	2015-16	2319	4000	1.72	331930	1193.12	302.38
2	Replacement of CFL Lights by LED Light fitting at shop floor.	2015-16	486	704.00	1.45	29057	104.63	26.52
3	Powder BCT reduction	2015-16	497	1000.00	2.01	66377	239.02	60.58
4	Air Purging line modification & timer replacement & optimization of air screw compressor	2015-16	2060	1000.00	0.35	332834	1198.54	303.76
5	Replacement of Reciprocating Compressor with Screw Compressor	2015-16	2620	5000	1.91	349272	1267.73	318.76
6	VVFD For NSD Mixer	2015-16	1026	1600.00	1.56	136800	492.62	124.85
7	Energy Efficient Motors In Process plant	2015-16	877	2000.00	2.28	108636	391.21	99.15
8	Header air pressure reduction by providing boosters - segregation of high pressure and low pressure line.	2015-16	283	500.00	1.77	37800	136.12	34.50
9	Use of DM water line for Boilers in place of soft water.	2015-16	135	200.00	1.48	17988	64.77	16.42
10	Running of single cooling tower for the Unit-2 plant.	2015-16	472	400.00	0.65	63000	226.86	57.50
11	NMB Batch Cycle Time reduction.	2015-16	382	200.00	0.52	51000	183.65	46.54
12	NSD Batch Cycle Time Reduction (Processing time).	2015-16	1487	1200.00	0.81	198333	714.20	181.01
13	FO saving from Boiler	2015-16	143	200.00	1.40	35483.56	127.78	32.38
			13587	18004	1.39	1757913	6330	1604

Other energy saving initiatives in 2015:

- Increase in Avg. speed of the Packing Machines, by reducing minor stoppages.
- Significant productivity improvement.

Safety and Environment

The factory continues to have good safety record, inculcating zero tolerance behavior on safety among employees as well as contract employees, along with meeting all the Environmental parameters' targets for the current year. There is always positive involvement of all categories working inside factory to achieve target of injury free site

Certificate of Merit

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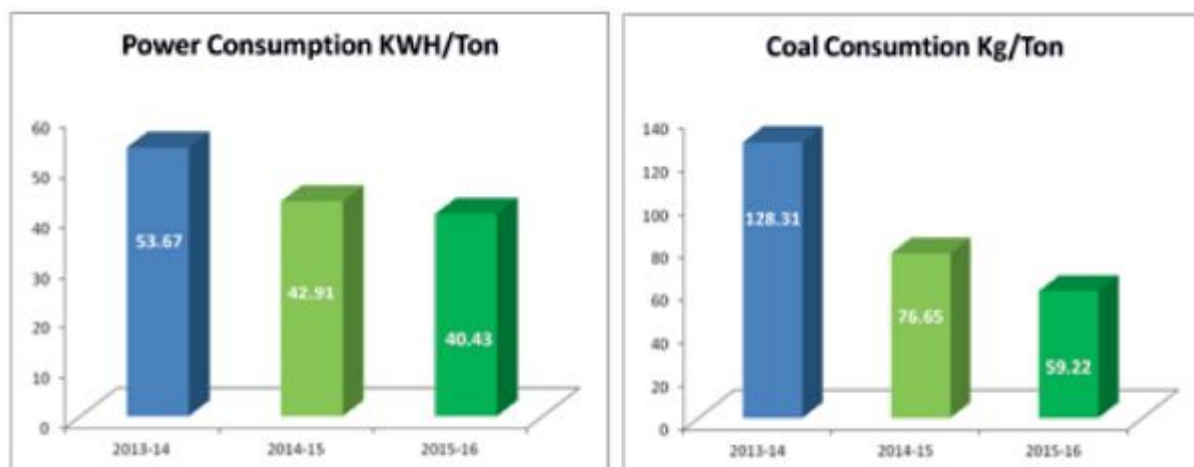
RUCHI SOYA INDUSTRIES LIMITED

Haldia (West Bengal)

Unit Profile

Ruchi Soya Industries, is India's largest manufacturer of edible oil and , through its subsidiaries, engages in the manufacture and sale of edible oils, vanaspati, bakery fats, and soya food primarily in India. It also offers soya chunks, granules, and soya flour products. The capacity of Haldia plant is 2300 TPD of Edible Oil Refining including Vanaspati & 50TPD Textured Soya Protein Manufacturing from Soya Flakes and Flour, in a Plant spread over approx 30 Acres of land. The plant is equipped with world class equipments and state of art technology.

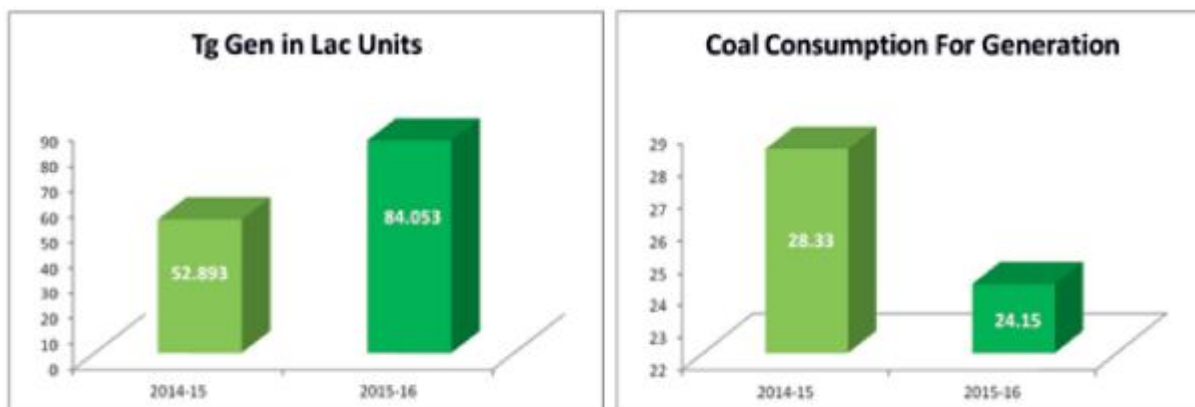
Energy Consumption:



Energy Conservation Projects Implemented

Implemented Energy saving Campaigns with Reward Scheme Under " Small Aspect & Big Impact" Banner and Launched E Folder " Quest" where in all saving Initiatives were collected and Implementation was done.

Project 1: The best Initiative of Utilization of LP steam which was not being used effectively in Production wherein Vacuum System using MP steam was replaced effectively by LP Steam and Combo system with automation was executed earlier per unit steam consumption (including Steam delivered to Production) was 28.33 Kg , which came down to 24.15 Kg. This provided plant to go for enhanced power generation to the tune of 84.053 lakhs Units as compared to previous year generation of 52.893 lakh units.



Project 2:

Background

The capacity of the neutralization was 600 TPD which was insufficient to cope up with the increasing market demand. The idea was to adopt a new technology with increased productivity.

Project :

The technology of water washing was substituted with the new technology of using soap absorbent after the neutralization. The capacity was also increased to 1000 TPD to enable to run entire plant with the full efficiency.

Item	UOM	2015-16	2014-15
Power Consumption in Neutralization	KWH/Day	4600	4600
Capacity	MTPD	1200	600
Specific Power Consumption	Ratio/Ton	3.83	7.67
Soya Oil Processed	Ton	173980	
Total Power saved	KWH	666923.33	
Steam Consumption	Kg/Ton	257	290
Steam Saved	Kg	33	
Fuel Saved	Kg	8.25	
Soya Oil Processed	Ton	173980	
Total Fuel Saved	Ton	1435	

Project 3: Earlier Normal Starter was utilized in the system with Spring Loaded PRV & Control Valves, these were replaced by VFD Driven systems, in turn Electrical savings of 1.34 lakh Unit