

Indian Rayon Veraval
Implementation Of Energy Conservation Measures For The Year 2003 -
2004

Scheme – 1

Energy saving by installing Lighting Transformer for plant & ADM lighting.

Brief Particulars Of Scheme :

Energy saving by installing low volt low loss Lighting Transformer for plant & ADM lighting.

The details of energy savings & investment are given below :

Saving :

Power Consumption with Conventional Transformer	=	1140 kWh / day
Power Consumption with lighting transformer	=	930 kWh / day
Saving by installing lighting transformer	=	210 kW / day
Working days / year	=	360 days
Net kWh saving per year Year	=	75600kWh /
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs 244944	=	Rs.

(Approx. Rs. 2.45 Lakh)

Investment :

Cost Of Implementation	=	Rs. 2.0 Lakh
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**Implementation Of Energy Conservation Measures For The Year 2003 -
2004**

Scheme – 2

**Energy Saving By Changing Conventional Lighting System
To
High Efficient Lighting System.**

Brief Particulars Of Scheme :

Energy saving by changing conventional lighting system to high efficient lighting system :

Replacing conv. 36 watt twin tube by Asian E + 28 W retrofit model energy efficient tube lights.

The details of energy savings & investment are given below :

Saving :

Power Consumption of Conventional T/L	=	1.2 kWh / day
Power Consumption of Asian E+ T/L	=	0.96 kWh / day
Saving by 100 Nos. Tube lights	=	24 kWh/ day
Working days / year	=	360 days
Net kWh saving per year	=	8640 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 27993

(Approx. Rs. 0.28 Lakh)

Investment :

Cost Of Implementation	=	Rs. 0.40 Lakh
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**Implementation Of Energy Conservation Measures For The Year 2003 -
2004**

Scheme – 3

**Energy Saving By Changing 250 watt HPSV Lighting System
To
70 watt HPSV Lighting System.**

Brief Particulars Of Scheme :

Energy Saving By Changing 250 watt HPSV Lighting System to 70 watt HPSV Lighting System.

The details of energy savings & investment are given below :

Saving :

Power Consumption of HPSV Lighting 250 Watt (Earlier) day	=	118 kWh /
Power Consumption HPSV Lighting 70 Watt (New)	=	98 kWh / day
Saving by 40 Nos. HPSV Lighting 70 Watt day	=	20 kWh/
Working days / year	=	360 days
Net kWh saving per year	=	7200 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 23328

(Approx. Rs. 0.23 Lakh)

Investment :

Cost Of Implementation = Rs.0 .28 Lakh

Implementation Of Energy Conservation Measures For The Year 2003 - 2004

Scheme – 4

Energy saving by installing Auto star-delta Current controller on Salt unloading conveyor

Brief Particulars Of Scheme :

Earlier Salt unloading conveyor was operated through conventional Starter. By installing Auto star-delta Current controller, saving achieved is 15 kWh/day .

The details of energy savings & investment are given below :

Saving :

Power consumption with conventional Starter	=	95 kWh/day
Power consumption with Auto star-delta Current controller kWh/day	=	80
Power Saving / day	=	15 kWh / day
Working days / year	=	360 days
Net kWh saving per year Year	=	5400 kWh /
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 17496

(Approx. Rs. 0.175 Lakh)

Investment :

Cost Of Implementation = Rs. 0.10 Lakh

Implementation Of Energy Conservation Measures For The Year 2003 - 2004

Scheme – 5

Energy saving by installing Auto star-delta Current controller on Hydrogen Compressor 41 K01-B

Brief Particulars Of Scheme :

Earlier Hydrogen Compressor was operated through conventional Star delta Starter . By installing Auto star-delta Current controller, saving achieved is 25 kWh/day .

The details of energy savings & investment are given below :

Saving :

Power consumption with conventional Star delta Starter	=	300 kWh/day
Power consumption with Auto star-delta Current controller	=	275 kWh/day
Power Saving / day	=	25 kWh / day
Working days / year	=	360 days
Net kWh saving per year	=	9000 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 29160

(Approx. Rs. 0.29 Lakh)

Investment :

Cost Of Implementation = Rs. 0.10 Lakh

Implementation Of Energy Conservation Measures For The Year 2003 - 2004

Scheme – 6

Energy saving by installing Vapour Absorption System in place of Freon Refrigeration system for chilled water

Brief Particulars Of Scheme :

Earlier Plant was operated with Freon compressor for Chilled water to Liquefy Compressed Cl₂ Gas . VAM Unit is Installed in Place of Freon Compressor for Chilled water to liquefy Compressed Cl₂ Gas.

The details of energy savings & investment are given below :

Saving :

For freon system Power required kwh / day	=	1728 kwh/day
Power for VAM unit (Steam in terms of Power)	=	272 kwh/day
Power Saving / day	=	1456 kWh / day
Working days / year	=	360 days
Net kWh saving per year	=	524160 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 1698278

(Approx. Rs. 16.98 Lakh)

Investment :

Cost Of Implementation = Rs. 28.00 Lakh

Implementation Of Energy Conservation Measures For The Year 2003 - 2004

Scheme – 7

Energy saving by installing 105 TPD Cl₂ compressor in place of 55 TPD Cl₂ compressor

Brief Particulars Of Scheme :

Earlier Plant was operated with 2 Nos of 55 TPD Cl₂ Compressors for 105 MT of Liquid Chlorine Production & Power consumption was 108 KWH /MT. BY Installing 105 TPD Compressor, power consumption reduced to 82 KWH/ MT . (Only one compressor is operated for 105 MT Liquid Chlorine Production)

Saving :

Earlier Power Consumption / MT of Liquid Cl ₂ (With 2 Nos of Cl ₂ Compressors)	=	108 kWh
Power Consumption After Installing 105 TPD Cl ₂ Compressor (One Compressor)	=	82 kWh
Power Saving /MT of Liquid Chlorine	=	26 kWh
Power Saving / day (@ 105 TPD Cl ₂)	=	2730 kWh / day
Working days / year	=	360 days
Net kWh saving per year	=	982800 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh

Saving Per Year in Rs = Rs. 3184272
(Approx. Rs. 31.84 Lakh)

Investment :

Cost Of Implementation = Rs. 47.90 Lakh

**Implementation Of Energy Conservation Measures For The Year 2003 -
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Scheme – 8

**Saving of Thermal energy (steam) by operating the plant at greater than
115 TPD**

Brief Particulars Of Scheme :

At 100 MT Plant capacity the steam consumption per MT of Caustic was 320 Kg. By operating the Plant at 115 MT the steam consumption is reduced to 150 kg / MT Caustic .

The details of energy savings & investment are given below :

Saving :

Steam for 100 MT Plant Capacity caustic	=	0.32 MT / MT
Steam for 115 MT Plant Capacity Caustic	=	0.150 MT / MT
Steam Saving (0.32-0.15=0.170*100)	=	17.00 MT / Day
1 MT Steam Cost	=	Rs 610.00
Total Saving	=	Rs 10370 / Day
Working days / year	=	360 days

Net kWh saving per year	=	1152216 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 3733180
		(Approx. Rs. 37.33 Lakh)

Investment :

Cost Of Implementation	=	Nil
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Implementation Of Energy Conservation Measures For The Year 2003 - 2004

Scheme – 9

Energy Saving By providing 2 Nos separate Timers in Plant Lighting System

Brief Particulars Of Scheme :

Earlier entire Plant lighting system was operating through a single timer. Now Entire Plant lighting system is divided in two categories i.e. Out door & Indoor and separate timers are provided. Duration of Plant outdoor lighting has been reduced by 30 minutes ,by that saving of 10 kWh / day has been achieved.

The details of energy savings & investment are given below :

Saving :

Power Consumption with single timer system	=	880 kWh / day
Power Consumption with double timer system	=	870 kWh / day

Saving by 100 Nos. Tube lights	=	10 kWh/ day
Working days / year	=	360 days
Net kWh saving per year	=	3600 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 11664

(Approx. Rs. 0.12 Lakh)

Investment :

Cost Of Implementation	=	Rs. 0.03 Lakh
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Implementation Of Energy Conservation Measures For The Year 2003 - 2004

Scheme – 10

**Energy Saving By Changing Conventional Lighting System
To
CFL Lighting System.**

Brief Particulars Of Scheme :

Energy saving by changing conventional lighting system to CFL lighting system :
Replacing conv. 36 watt twin tube by 20 watt CFL lights (45 nos).

The details of energy savings & investment are given below :

Saving :

Power Consumption of Conventional T/L	=	1.20 kWh / day
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Power Consumption of CFL	=	0.48 kWh / day
Saving by CFL lights 45 nos	=	32 kWh/ day
Working days / year	=	360 days
Net kWh saving per year	=	11520 kWh / Year
Cost of Power	=	Rs. 3.24 / kWh
Saving Per Year in Rs	=	Rs. 37325

(Approx. Rs. 0.37 Lakh)

Investment :

Cost Of Implementation	=	Rs. 0.10 Lakh
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Implementation Of Energy Conservation Measures For The Year 2003 - 2004

Scheme – 11

Energy Saving By Changing of Cooling Tower mist Eliminator for 3 Shell

Brief Particulars Of Scheme :

Previously Cooling tower wooden mist eliminator was used for mist elimination . Due to moist high alga formation in the mist eliminator causing high pressure drop across the mist eliminator and improper mist elimination. In resent technology mist eliminator construction material as well as Design is changed to PVC **Spectra C drift** . By installing the PVC mist eliminator the Alga formation is eliminated by that the mist elimination and pressure drop across the mist eliminator is solved also the energy saving 136 kWh at the running temperature is achieved .

The details of energy savings & investment are given below :

Saving :

Power Consumption with wooden mist eliminator @ 7.0 M/sec	=	11 kW
Power Consumption with PVC mist eliminator @ 8.2 M/sec	=	11 kW

Energy Saving by PVC mist eliminator for 3 fans = 136 kWh/ day
Working days / year = 360 days
Net kWh saving per year = 48960 kWh /
Year
Cost of Power = Rs. 3.24 / kWh
Saving Per Year in Rs = Rs.
158630

(Approx. Rs. 1.59 Lakh)

Investment :

Cost Of Implementation = Rs. 1.0 Lakh