

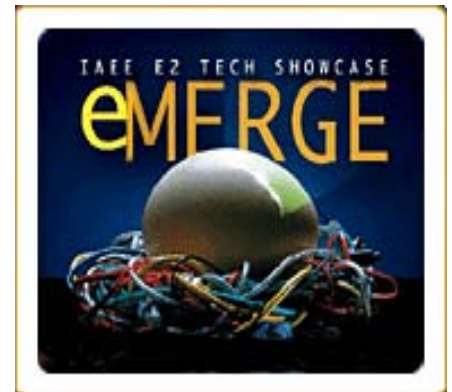
# Glaxosmithkline Cosumer Healthcare Ltd Nabha

## ENERGY CONSERVATION MEASURE IMPLEMENTED IN 2007-2008

### SUMMARY - SNAPSHOTS

#### 1 EMERGING TECHNOLOGY BASED ENERGY CONSERVATION PROJECTS

- 1.1 Mist cooling system
- 1.2 Automated condenser
- 1.3 Magnetic Flux Conditioner
- 1.4 Pulse Batteries
- 1.5 Submersible Agitators



#### 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

- 2.1 Back Pressure Turbine
- 2.2 Non ODS Screw Chiller
- 2.3 Light Energy Saver
- 2.4 High Wall Fan Coil Unit
- 2.5 Non ODS Air Conditioning
- 2.6 Radiation loss reduction through insulation
- 2.7 T5 Tube lights
- 2.8 Energy efficient pump and motors
- 2.9 VFD installations
- 2.10 Condensate recovery & Soft water
- 2.11 Switching off power transformer
- 2.12 Energy Efficient DG set



#### 3 RENEWEABLE ENERGY BASED ENERGY CONSERVATION PROJECTS



- 3.1 Solar Lamps
- 3.2 Hurricane Fans
- 3.3 Translucent Roof Sheets



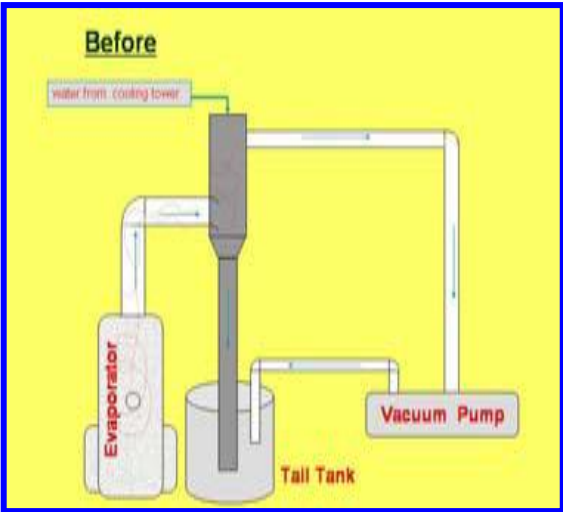
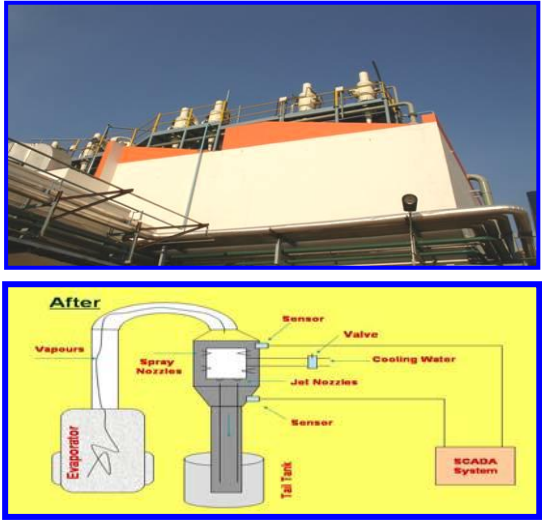
#### 4 PROCESS MODIFICATION BASED ENERGY CONSERVATION PROJECTS

- 4.1 BioComposting



## 1 EMERGING TECHNOLOGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>1.1 Mist Cooling System- Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Emerging Technology			
Description of the energy conservation measure:					
<p>The site, has installed Mist Cooling System in place of conventional seven cooling towers exhibiting its belief in innovation and exploring energy efficient technology to the extreme. The mist cooling system includes intensive atomization. Mist cooling system was installed to eliminate use of cooling towers for cooling process hot water being used for generation of vacuum for food processing.</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>CONVENTIONAL COOLING</b>			<b>COOLING BY MIST COOLERS</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: INR 6087000			Year of implementation: Year 2007-08		
<b>First year energy cost savings, Rs.:</b> INR 1800000					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	372000	NA	NA	NA	NA
Energy consumption after	* Saving f 372000 units/ annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



# 1 EMERGING TECHNOLOGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	<b>1.2 Automated Condensers for single effect evaporators.(14 nos.) - Completed</b>	Technology ... Emerging Technology			
Description of the energy conservation measure:					
<p>Evaporation is one of the key operations in Horlicks manufacturing. In old condensers vacuum is generated in second stage evaporator with help of 7.5 HP vacuum pump. The new auto condenser system is a technological innovation in terms of higher energy efficiency and cost effectiveness. Vacuum is generated by jet nozzles without use of any vacuum pump. The entire working is based on the co current concept. Condenser is connected to common SCADA system where all parameters like cooling tower water inlet temp, pressure, flow, tail water temp and vacuum is monitored online.</p>					
Picture/ sketch/ drawing <b>Before</b> modification		Picture/ sketch/ drawing <b>After</b> modification			
					
<b>CONVENTIONAL VACCUM PUMP CONDENSER</b>		<b>AUTO CONDENSER SYSTEM</b>			
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 2903000		Year of implementation: Year 2007-08			
First year energy cost savings, Rs.: <b>INR 2255000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	466000	NA	NA	NA	NA
Energy consumption after	* Saving of units 466000/ annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 1 EMERGING TECHNOLOGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	<b>1.3 Magnetic Flux Conditioners for multiple effect evaporators- Completed</b>	Technology ... Emerging Technology			
Description of the energy conservation measure:					
<p>"Magnetic flux conditioners (26 in numbers)" are installed for avoiding scale formation at different locations of Multiple Effect Evaporator at 5L plant. High Mineral content in food, results in the crystallization of mineral compounds that form deposits as the temperature increases. Heat sources promote scale formation by increasing the collision rate of oppositely charged particles. Magnetic flux conditioner generates high strength magnetic fields that alter the reaction between scales forming due to repulsion between the particles and thereby reduction in scaling.</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
LINE WITHOUT MAGNETIC CONDITIONER			LINE WITH MAGNETIC CONDITIONER		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 764000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: Project resulted in cleaning/ down time reduction & productivity increase					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	NA	NA	NA	NA	NA
Energy consumption after	* Saving of units 0/ annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



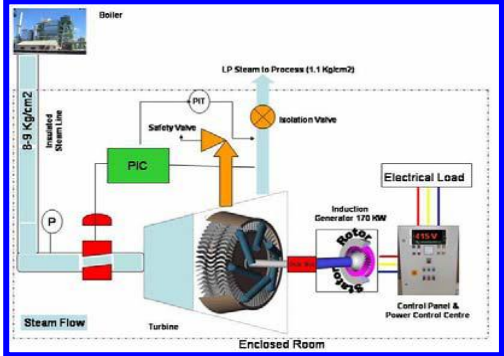
# 1 EMERGING TECHNOLOGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>1.4 Pulse Batteries - Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Emerging Technology			
Description of the energy conservation measure:					
<p>The Diesel Generator sets are earlier equipped with conventional Acid Lead batteries for initial start up. These conventional batteries consume more power and required dedicated battery charger. In addition, these batteries are hazardous as explosion may occur due to gas pressure, maintenance intensive and having a life cycle of 2 years at the maximum. 8 new <b>Pulse</b> batteries have been installed as a replacement for conventional batteries in DG room to start the generators.</p>					
Picture/ sketch/ drawing <b>Before</b> modification			Picture/ sketch/ drawing <b>After</b> modification		
					
CONVENTIONAL BATTERIES FOR DG			PULSE BATTERIES		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 168300			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 46409</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	9893	NA	NA	NA	NA
Energy consumption after	* Saving of units 9893/ annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 1 EMERGING TECHNOLOGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>1.5 Submersible Agitator for IBT - Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Emerging Technology			
Description of the energy conservation measure:  We have replaced conventional surface mounted agitators of 5.5kWx2 numbers with Submersible mixers of 0.75 kWx4 numbers, for Ice bank tank. The desired temperature is met by these innovative submerged mixers as the quality of mixing water is highly effective due to uniform wave formation inside the tank.					
Picture/ sketch/ drawing <b>Before</b> modification			Picture/ sketch/ drawing <b>After</b> modification		
					
CONVENTIONAL SURFACE AGITATOR			SUBMERSIBLE AGITATOR		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 276121			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 161000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	33328	NA	NA	NA	NA
Energy consumption after	* Saving of units 33328/ annum	NA	NA	NA	Addressed ergo risk & reduced complexity
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>2.1 Back Pressure Turbine - Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Energy Efficient Technology			
<p>Description of the energy conservation measure:                  Currently steam is generated at the pressure of 9 kg/ sq. cm from the boilers and the required steam pressure in the plant is 1kg/sq cm. A back pressure steam generator is now installed in place of pressure reducing station and is producing 120kW/hr by reducing the steam pressure from 9 kg/cm<sup>2</sup> to 1kg/ cm<sup>2</sup>. The turbine is capable of operating at optimum efficiency at varying steam loads.</p>					
<b>Picture/ sketch/ drawing Before modification</b>	<b>Picture/ sketch/ drawing After modification</b>				
	 				
<b>STEAM FLOW CONTROL BY VALVE</b>	<b>STEAM UTILISATION BY BP TURBINE</b>				
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 11745000	Year of implementation: Year 2007-08				
First year energy cost savings, Rs.: <b>INR 4060000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	NA	NA	NA	NA	NA
Energy consumption after	NA	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	NA	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	<b>2.2 Replacement of ammonia based chiller with non ODS screw chiller- Completed</b>	Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
Energy efficient R-134a based screw compressors 150 TR (2X75 TR) capacity equipped with fully Microprocessor based controlled panel are installed in place of refrigeration plant employing R-22 & ammonia based reciprocating screw compressors.					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>AMMONIA BASED CH RECIPROCATING CHILLER</b>			<b>NON ODS SCREW CHILLER</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 5252000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 291156</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	291156	NA	NA	NA	NA
Energy consumption after	* Saving of units 291156/ annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA

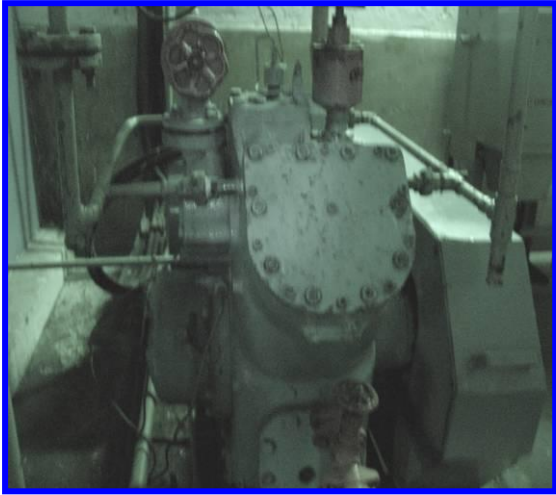

## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>2.3 Light Energy Saver- Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Energy Efficient Technology			
Description of the energy conservation measure:  All light appliances in admin block are operated at 240 volts whereas the rated voltage is 220 volts, this voltage is required by the arc discharge lamps only at the time of starting. To ensure continued running, a much reduced voltage 205 volts is also sufficient to deliver appropriate illumination level and ensuring saving of 12% in electricity.					
<b>Picture/ sketch/ drawing Before modification</b>		<b>Picture/ sketch/ drawing After modification</b>			
					
<b>PANELS WITHOUT ENERGY SAVERS</b>		<b>ENERGY SAVER LIGHTING PANELS</b>			
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 103328		Year of implementation: Year 2007-08			
First year energy cost savings, Rs.: <b>INR 58000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	12000	NA	NA	NA	NA
Energy consumption after	* Saving of units 12000/ annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>2.4 High Wall Fan Coil unit- Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
<p>ODS based Air Conditioning units - 6 numbers and old outdated conventional type Fan Coil Units -2 numbers have been replaced with high wall Fan Coil Units - 8 numbers. The New High wall Fan Coil Units are equipped with 3 way motorized valves for efficient temperature control, cordless remote control, 3 speed fan control and thermostat</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<div style="border: 1px solid red; background-color: #e0e0ff; display: inline-block; padding: 2px 10px;">CONVENTIONAL FAN COIL UNIT</div>			<div style="border: 1px solid red; background-color: #e0e0ff; display: inline-block; padding: 2px 10px;">HIGH WALL FAN COIL UNIT</div>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 184097			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 114800</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	23719	NA	NA	NA	NA
Energy consumption after	* Saving of units 23719 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	2.5 Non ODS efficient technology at Air Conditioning Plant- Completed	Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
<p>Energy efficient R-134a based screw compressors 150 TR (2X75 TR) capacity equipped with fully Microprocessor based controlled panel are installed in place of refrigeration plant employing R-22 &amp; ammonia based reciprocating screw compressors.</p> <ul style="list-style-type: none"> <li>• Reduction in CO<sub>2</sub> Emission - 123 Ton/Annum</li> <li>• Non ODS energy efficient refrigerant plant</li> <li>• Reduction in R-22 (ODS) refrigerant by 190kg</li> <li>• Reduction in Ammonia (Toxic &amp; Hazardous refrigerant) storage by 150kg</li> <li>• Reduction in sound level from 90dB to 70 dB measured at 1 meter distance</li> </ul>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
ODS RECIPROCATING COMPRESSOR FOR AC			NON ODS SCREW COMPRESSOR FOR AC PLANT		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 4856000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 984000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	146960	NA	NA	NA	NA
Energy consumption after	* Saving of units 146960 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>2.6 Radiation loss reduction through insulation</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
Heat loss through hot pipe line and surfaces takes place through radiation also. Radiation losses are Major part of total thermal losses. They can be reduced by proper insulation of hot surfaces. In order to reduces these losses , insulation were provided over steam lines which led to following benefits;					
1 Reduction in radiation losses. 2 More condensate recovery. 3 Reduction in soft water consumption.					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>Line without insulation</b>			<b>Line with insulation</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 150000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 397000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	NA	46.308	NA	NA	NA
Energy consumption after	NA	Saving of units 46.3 T / annum	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	NA	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	<b>2.7 T5 tube lights installation- Completed</b>	Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
<p>A T8 tube light consumes more power as compared to T5 tube lights. In view of that it has been decided that all T8 tube lights will be replaced by T5 tube lights in phase manner. Moreover the T5 fittings would be installed along with electronic ballast in place of conventional copper ballast. In Phase 1 130 numbers T8 tubelights were replaced by T5 tubelights.</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>Conventional T8 Tube Fitting</b>			<b>Energy Efficient T5 Tube Fitting</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 277144			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 179000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	37065	NA	NA	NA	NA
Energy consumption after	* Saving of units 37065 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	<b>2.8 Energy Efficient pump and motors - Completed</b>	Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
<p>There are old inefficient motors and pumps in plant operating at poor efficiency. Hence it was decided to replace the inefficient pumps and motors with modern efficient pumps and motors. Few pumps and motors have been replaced with efficient ones.</p>					
Picture/ sketch/ drawing <b>Before</b> modification			Picture/ sketch/ drawing <b>After</b> modification		
					
<b>Inefficient pump</b>			<b>Energy Efficient pump</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 468000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: 499000					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	104197	NA	NA	NA	NA
Energy consumption after	* Saving of units 104197 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>2.9 VFD Installation on motors and pumps- Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
<p>Pumps and motors power consumption is major part of total electrical power consumption. Considerable amount of power consumed may be saved by placing VFD on the following :</p> <ol style="list-style-type: none"> <li>1 Oversized pump and motors.</li> <li>2 Variable load .</li> <li>3 Process requirement.</li> </ol> <p>Inspite of power saving VFD installation also leads to increase in productivity, Improvement in quality, better process control.</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>Motor without VFD</b>			<b>Motor With VFD</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 485600			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 387000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	80000	NA	NA	NA	NA
Energy consumption after	* Saving of units 80000 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	<b>2.10 Increase in Condensate recovery &amp; reduction in soft water consumption- Completed</b>	Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
A lot of work has been done in past to increase condensate recovery like extensive leakage arresting , insulation of steam lines, modern traps etc. These all resulted in increased condensate recovery and at the same time lead to reduction in soft water consumption.					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>Corroded Lines</b>			<b>Painted Pipe Lines</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 250000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 100000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	NA	NA	NA	NA	NA
Energy consumption after	NA	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	NA	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure	Sector ...FOOD PROCESSING			
Year to be filled by BEE	<b>2.11 Switching off power transformer- Completed</b>	Technology ... Energy Efficient Technology			
Description of the energy conservation measure:					
<p>Earlier three distribution transformer ( 1 X 2500KVA, 2 X 1250KVA) were sharing the plant load. Then transformer loading was scheduled in such a way that there is no need to operate 1 X 1250 KVA TR3 . So it was switched off which resulted in saving of no load losses.</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>1250KVA Transformer ON</b>			<b>1250KVA Transformer switched off</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 110000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 78013</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	16118.4	NA	NA	NA	NA
Energy consumption after	* Saving of units 16118.4 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



## 2 ENERGY EFFICIENCY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>2.12 Energy Efficient DG Set- Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Energy Efficient Technology			
Description of the energy conservation measure:  New 100 KVA DG set with Acoustic encloser is installed at ETP in place of old inefficient . The DG set is silent in operation and possed following benefits over old DG set. 1 Better yeild KW/Ltr. 2 Less noise level. 3 Less pollution. 4 Easy operation and maintenance.					
<b>Picture/ sketch/ drawing Before modification</b>		<b>Picture/ sketch/ drawing After modification</b>			
					
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 760000		Year of implementation: Year 2007-08			
First year energy cost savings, Rs.: <b>INR 221000</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	NA	NA	NA	NA	NA
Energy consumption after	NA	NA	NA	6.8 KLsaving/ Annum	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	NA	NA	NA	NA	NA



### 3 RENEWEABLE ENERGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>3.1 Solar Lamps for lighting -2 numbers- Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Renewable Energy application			
Description of the energy conservation measure:  Presently the boundary wall lights are illuminated with Electrical power for 10 hours a day on an average in a year. Two solar lamps are installed for implementing usage of renewable energy.					
Picture/ sketch/ drawing <b>Before</b> modification			Picture/ sketch/ drawing <b>After</b> modification		
					
<b>STREET LIGHTS WITHOUT SOLAR</b>			<b>SOLAR OPERATED STREET LIGHTS</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 74600			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 5740</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	1.825	NA	NA	NA	NA
Energy consumption after	* Saving of units 1825 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA



### 3 RENEWEABLE ENERGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure		Sector ...FOOD PROCESSING		
Year to be filled by BEE	3.2 Hurricane Fans (13 in numbers) - Completed		Technology ... Renewable Energy Application		
Description of the energy conservation measure:					
Hurricane ventilator runs on the principle of wind siphoning and centrifugal force created by rotating head of the turbine due to the wind. Hurricane Turbine Ventilators provide efficient and cost effective natural ventilation system employing non conventional renewable wind energy in place of conventional electrical exhaust fans exhaust fans.					
Picture/ sketch/ drawing Before modification			Picture/ sketch/ drawing After modification		
					
EXHAUST FANS FOR TEMPRATURE CONTROL			HURRICANES FOR TEMPRATURE CONTROL		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 651000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: INR 65600					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	99.84	NA	NA	NA	NA
Energy consumption after	* Saving of units 99840 / annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA

## 4 RENEWEABLE ENERGY BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>3.3 Natural Light - Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Renewable Energy Application			
Description of the energy conservation measure:					
<p>In this green building initiative, areas with high lighting were identified &amp; checked for feasibility of natural lighting in those areas. Flexible thinking has been exhibited by providing translucent sheets on roofs, Ventilators in walls &amp; View Glasses in doors. Wide range of areas covered for natural lighting like warehouses, production halls, cleaning bays, Change room corridors etc.</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>ROOFS WITH OPAQUE SHEETS</b>			<b>ROOFS WITH TRANSLUCENT SHEETS</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: 150000			Year of implementation: Year 2007-08		
First year energy cost savings, Rs.: <b>INR 98400</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	5.76	NA	NA	NA	NA
Energy consumption after	* Saving of units 5760/ annum	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs/Unit- 4.84	NA	NA	NA	NA

## 4 PROCESS MODIFICATION BASED ENERGY CONSERVATION PROJECTS

ID to be filled by BEE	Title of the measure <b>4.1 Bio-composting of degradable waste- Completed</b>	Sector ...FOOD PROCESSING			
Year to be filled by BEE		Technology ... Environment Technology			
Description of the energy conservation measure:					
<p>In its constant endeavor for improving the environment, the site has further strengthened its contribution through the development and deployment of 'Bio composting technique'. This technique will not only reduces the environmental pollution through the use of incinerator, but also aim at conserving electrical and natural resources like diesel besides enhancing the community partnership of the company through providing natural manure to the farmers for increasing the yield of the crops.</p>					
<b>Picture/ sketch/ drawing Before modification</b>			<b>Picture/ sketch/ drawing After modification</b>		
					
<b>Operating Incinerator</b>			<b>Bio composting site</b>		
Agency that executed the project (with complete address and email): Internal EC Team					
Total investment, Rs.: INR 30000			Year of implementation: Year 2007		
First year energy cost savings, Rs.: <b>INR 230000 Per Annum</b>					
First year other savings, Rs.: Maintenance Cost etc					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	HSD Oil (kL)	Other
Energy consumption before	NA	NA	NA	NA	NA
Energy consumption after	* Saving of 26332 units / annum	NA	NA	* Saving of 5.475 KL/ annum	NA
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 4.84 / unit	NA	NA	Rs 29.61 / Ltr	NA

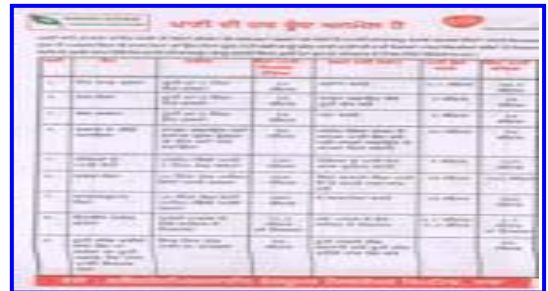
## ENERGY AWARENESS CULTURE

**TV Shows** – TV shows were organized for workmen in canteen during which movies on Global Warming, Water conservation and Environment protection were screened in local language. Such shows created a lot of awareness among workforce toward energy and environment management.



TV Shows on energy for employees.

**Distribution of stickers to workmen** – Stickers and pamphlets on energy and water conservation are distributed. This was done to make employees and common public realize the importance to contribute their share toward energy conservation.



Pamphlet on water conservation

### **Workmen Training on Energy** –

Workmen were trained by M/s Conzerv on Energy Management so that they can contribute towards innovative energy saving ideas generation and implementation. Workers are feeling motivated toward energy efforts and emphasis that these type of programmes should happen frequently.



Workmens training on energy

**Idea Schemes** – To engage the lowest rung of the organization i.e. workmen an idea scheme was launched and held open for a week. It began with pep-talks held with around 200 workmen from different sections. The team received 50 ideas in response to this scheme and each idea was acknowledged by a token gift and best three ideas were rewarded.



**Energy Champs** – Energy Champ is the recognition given to the management & staff cadre personnel for their contribution towards energy saving idea generation & implementation

**PEP Talks** – Pep talks on Water and energy conservation were conducted for the employees to help them understand the scenario of natural resources and pace with which they are depleting.

Company complete address:

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PATIALA ROAD, NABHA (PUNJAB)  
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