


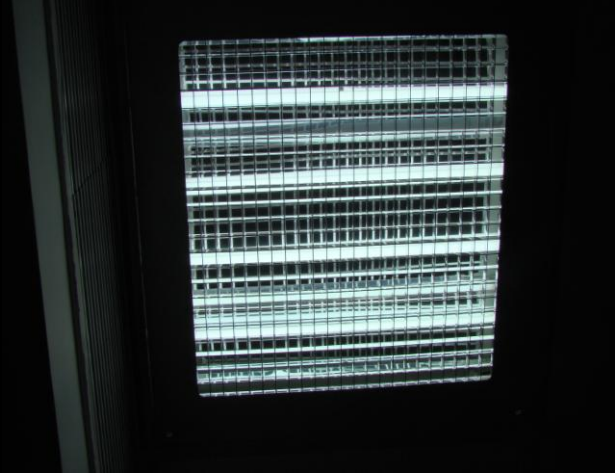



## Annexure B: Energy Conservation Measure implemented in 2007-2008

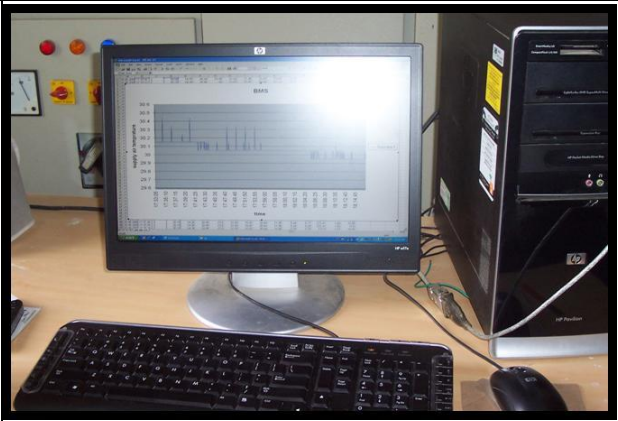
ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>1. Construction of Green Building</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
<p>Our new QA block is constructed as Green Building as per the U.S. Green Building Council norms. This building will save approximately 36.4% of energy cost as compared to conventional building. Most of the material used in constructing this building was eco-friendly and recyclable. The building is energy and water efficient and has better indoor air quality, better ambience, and natural delight. The building is ready and the report is submitted to USGBC for Green Building category award. This is going to be the first green building in Gujarat.</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Construction: L&T Construction Divn (ECC)					
Total investment, Rs.:			Year of implementation: 2007-08		
First year energy cost savings, Rs.:					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	<b>The details of individual and combined measures taken in this building are given separately in next pages.</b>				
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...					
<b>Company complete address:</b> Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510 Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	


ID to be filled by BEE	<p align="center"><b>Title of the measure</b></p> <p align="center"><b>1.1 Green Building – Lighting</b></p> <p align="center"><b>A: (Natural Lighting)</b></p>	Sector : General
Year to be filled by BEE		Technology .....
<p><b>Description of the energy conservation measure:</b></p> <p>We have made full use of natural light by using sandwitched type window and wall glasses having high U value so that the natural light is available without heat ingress in the building.</p>		
<p><b>Picture/ sketch/ drawing before modification</b> (if available)</p>	<p><b>Picture/ sketch/ drawing after modification</b></p>	
		


ID to be filled by BEE	<b>Title of the measure</b> <b>1.1 Green Building – Lighting</b> <b>B: (Installation of sensors for lighting control)</b>	Sector : general
Year to be filled by BEE		Technology .....
<b>Description of the energy conservation measure:</b> <p>We have installed motion sensors to sense the occupancy of the rooms and make the lights automatic switch on and off. We have also used daylight sensors with dimmable lights to reduce the light intensity coming from light fittings in presence of the daylight.</p>		
<b>Picture/ sketch/ drawing before modification</b> (if available)	<b>Picture/ sketch/ drawing after modification</b>	
		

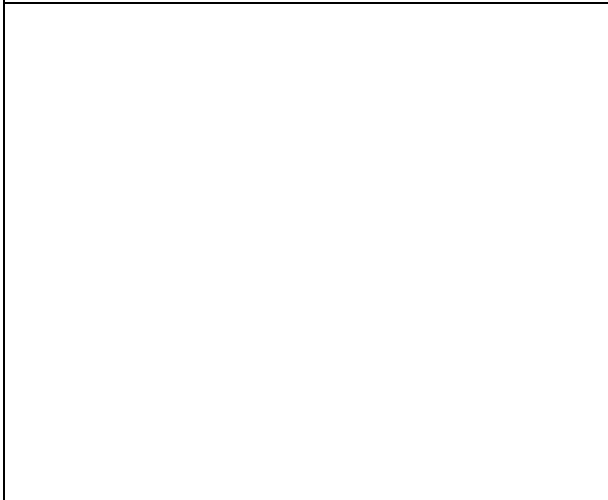

ID to be filled by BEE	<b>Title of the measure</b>		Sector .....		
Year to be filled by BEE	<b>1.1 Green Building – Lighting</b> <b>C: Energy Efficient Lighting</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
We have installed energy efficient T5 Lamp light fittings in major part of the building to reduce the use of energy for lighting purposes.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Supplier of lighting: Bajaj Electricals, Mumbai.					
<b>Total energy saving details of EC measure as described in 1.1 A to 1.1C is as below.</b>					
Total investment, Rs.: 14.8 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 3.04 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	Saving of 0.54 lakhs kwh				
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	


ID to be filled by BEE	<b>Title of the measure</b>  <b>1.2 Green Building – Renewable Energy (Solar PV system)</b>		Sector : General		
Year to be filled by BEE			Technology .....		
<b>Description of the energy conservation measure:</b>					
We are making use of non conventional source of energy by installing 10KW Solar photovoltaic System to share the lighting load in the Green building. This system has no batteries which eliminates the recurring expenses and difficulties in disposal of batteries and lead acid.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Supplier: Tata BP Solar, Bangalore					
Total investment, Rs.: 34 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 0.72 Lakhs					
First year other savings, Rs.: No need to change batteries in whole life					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	Saving of 0.128 lakhs kwh				
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	


ID to be filled by BEE	<b>Title of the measure</b> <b>1.3 Green Building – HVAC Chiller</b>	Sector : General.
Year to be filled by BEE	<b>A: BMS Controlled HVAC</b>	Technology .....
<p><b>Description of the energy conservation measure:</b></p> <p>We have installed Building Management System for auto control of HVAC system to monitor the energy used in the building so that HVAC can be controlled efficiently and effectively.</p>		
<b>Picture/ sketch/ drawing before modification</b> (if available)	<b>Picture/ sketch/ drawing after modification</b>	
		
Agency that executed the project (with complete address and email): Supplier: L&T Electrical Group		


ID to be filled by BEE	<b>Title of the measure</b>		Sector .....		
Year to be filled by BEE	<b>1.3 Green Building – HVAC Chiller</b>		Technology .....		
<b>B: Use of Natural Gas based Central Air Conditioning System</b>					
<b>Description of the energy conservation measure:</b>					
<p>We have installed natural gas based Vapour Absorption machine for HVAC instead of electrical operated compressor type chiller. It reduces the total CO2 load indirectly as compared to screw type chillers.</p> <p>We are using modulating burner and inverter controlled refrigerant flow in VAM chiller which will operate based on the heat load in the building and control the use of fuel accordingly. In addition, we are using VFDs in all the pumps and AHU motors of HVAC system.</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Supplier: Thermax, Pune					
<b>Total energy saving details of EC measure as described in 1.3 A to 1.3B is as below.</b>					
Total investment, Rs.: 30.50 lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 7.23 Lakhs					
First year other savings, Rs.: Less Co2 generation					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	Energy saving 1.29 lakhs kwh				
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510				We authorise Bureau to use this information for dissemination	
Contact person: Mr S.H.Desai –Sr Deputy General Manager				Signature	
				Date	


ID to be filled by BEE	<p align="center"><b>Title of the measure</b></p> <p align="center"><b>1.4 Green Building – HVAC System</b></p>	Sector: General
Year to be filled by BEE	<p align="center"><b>A: Use of Energy Recovery wheel in Central Air Conditioning System</b></p>	Technology .....
<p><b>Description of the energy conservation measure:</b></p> <p>Energy recovery wheels are used to recover the coolness which otherwise going waste in exhaust air. This coolness is being transferred to the fresh air coming in.</p>		
<p><b>Picture/ sketch/ drawing before modification</b> (if available)</p>	<p><b>Picture/ sketch/ drawing after modification</b></p>	
		
<p>Agency that executed the project (with complete address and email): Supplier: Bry Air through Purvi Engineers Surat</p>		


ID to be filled by BEE	<p align="center"><b>Title of the measure</b></p> <p align="center"><b>1.4 Green Building – HVAC System</b></p>	Sector: General
Year to be filled by BEE	<p align="center"><b>B: Use of Variable Air Volume boxes in Central Air Conditioning System</b></p>	Technology .....
<p><b>Description of the energy conservation measure:</b></p> <p>Variable Air Volume (VAV) boxes are installed in place of normal dampers. These boxes modulates based on the static pressure and based on the CO2 level in the particular zones of the building. Change in static pressure is then sensed and VFDs settings are automatically changed to change the speed of AHUs.</p>		
<p><b>Picture/ sketch/ drawing before modification</b> (if available)</p>	<p><b>Picture/ sketch/ drawing after modification</b></p>	
		
<p>Agency that executed the project (with complete address and email): Supplier: L&amp;T Electrical Group</p>		


ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>1.4 Green Building – HVAC System</b>		Technology .....		
<b>C: Use of heat resistant paint on to reduce AC load</b>					
<b>Description of the energy conservation measure:</b>					
<p>We have applied heat resistant paint on terrace of the building and created roof gardens on Green Building to minimize the heat ingress into building and to reduce the air-conditioning load of the building.</p> <p>All the above measures implemented in Green Building have contributed to saving of 36.4% of energy cost (Rs. 12,36,000/- per annum) and reduction of 30% of water use.</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Construction: L&T Construction Division (ECC)					
Total investment, Rs.:			Year of implementation:		
First year energy cost savings, Rs.:					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before					
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...					
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	


ID to be filled by BEE	<b>Title of the measure</b>		Sector .....		
Year to be filled by BEE	<b>1.4 Green Building – HVAC System</b>		Technology .....		
<b>D: Use of Variable Frequency Drives in Central Air Conditioning System</b>					
<b>Description of the energy conservation measure:</b>					
Complete HVAC system in Green building is controlled through BMS and VFDs are provided to change the speed of water pumps and AHUs to save energy.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Supplier: L&T Electrical groups					
<b>Total energy saving details of EC measure as described in 1.4 A to 1.4D is as below.</b>					
Total investment, Rs.: 23.2 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 2.10 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	Saving of 0.374 Lakhs KWH				
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...					
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510				We authorise Bureau to use this information for dissemination	
Contact person: Mr S.H.Desai –Sr Deputy General Manager				Signature	
				Date	


ID to be filled by BEE	<p align="center"><b>Title of the measure</b></p> <p align="center"><b>1.5 Green Building – Water Conservation</b></p> <p align="center"><b>A: Fittings</b></p>	Sector .....
Year to be filled by BEE		Technology .....
<p><b>Description of the energy conservation measure:</b></p> <p>We have put Water less urinals, dual flush WC and low velocity fittings having auto sensing mechanism to minimize the use of water and hence reducing the pumping and use of water.</p>		
<p><b>Picture/ sketch/ drawing before modification</b> (if available)</p>	<p><b>Picture/ sketch/ drawing after modification</b></p>	
		
<p>Agency that executed the project (with complete address and email): Construction: L&amp;T Construction Divn (ECC)</p>		

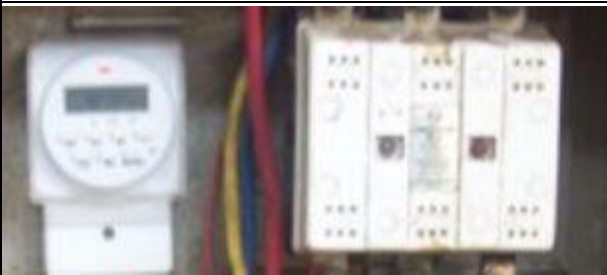
ID to be filled by BEE	<b>Title of the measure</b> <b>1.5 Green Building – Water Conservation</b> <b>B: Rain Water Harvesting</b>		Sector .....		
Year to be filled by BEE			Technology .....		
<b>Description of the energy conservation measure:</b> Hazira works Installed Rain water harvesting system in the Green building to minimize the use of water in the building and to re-charge the ground water level.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Construction: L&T Construction Divn (ECC)					
<b>Total energy saving details of EC measure as described in 1.5 A to 1.5B is as below.</b>					
Total investment, Rs.: 7 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 0.40 Lakhs					
First year other savings, : Saving in water					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	Saving of 0.07lakh s kwh				
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs. 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

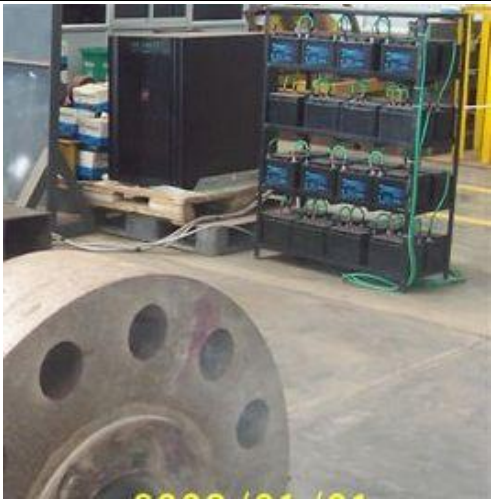
ID to be filled by BEE	<b>Title of the measure</b> <b>2. Use of LED based aviation lights in lighting mast in place of incandescent lamps.</b>	Sector .....			
Year to be filled by BEE		Technology .....			
<b>Description of the energy conservation measure:</b> <p>LED lighting is most energy efficient lighting available today in the market. We have introduced LED based aviation lights in high mast in place of 2 nos. of 100W incandescent lamps. Currently we are using 13 nos. LED based high mast at various places in the unit.</p> <p>Savings = 9,015 KWH = Rs.50,486/- per annum</p> <p>Investment: = Rs. 48,000/-</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Supplier: Bajaj Electricals					
Total investment, Rs.: .48 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 0.50 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	9490				
Energy consumption after	474				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs. 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	


ID to be filled by BEE	<b>Title of the measure</b> <b>3. Use of E28 Tube lights</b>		Sector : General		
Year to be filled by BEE			Technology .....		
<b>Description of the energy conservation measure:</b>					
<p>Hazira works has Installed 250 nos. of E28 the slimmest tube light (28W) in all the newly built offices. In addition to saving energy, this gives the same light output as compared to normal 40 W tubelight and has longer life.</p> <p>Saving = 6000 KWH = Rs.33,600/- per annum</p> <p>Investment = Rs. 12,500/-</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Supplier: Bajaj Electricals, Mumbai					
Total investment, Rs.: 0.12 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 0.34 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	27000				
Energy consumption after	21000				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs. 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510				We authorise Bureau to use this information for dissemination	
Contact person: Mr S.H.Desai –Sr Deputy General Manager				Signature	
				Date	


ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>4. Energy efficient Fullwave welding machines</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
Sub-Contractors working in our plant were using conventional diode rectifier welding machines. We persuaded them to use energy efficient welding machines. We have replaced 150 welding machines with energy efficient thyristor based full wave type or inverter based welding machines through sub-contractors.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Suppliers: Various supplier e.g.L&T Mumbai, Memco Mumbai, Quality etc.					
Total investment, Rs.: Nil (Owned by Contractors)			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 18,90,000					
First year other savings, Rs.: Nil					
On annual basis	kWh	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	1687500				
Energy consumption after	1350000				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.60				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	


ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>5. Hightech Inverter based Power source for Submerged Arc Welding machines</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
<p>We were using conventional diode and thyristor based powersource for Submerged arc welding machines. Our team studied and sourced the high tech Invertor based powersource which are energy efficient and consumes less power during load as well as during no load as compared to the conventional powersources.</p> <p>Saving = 2,56,030 KWH = Rs.14,33,768/- per annum</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Lincon, USA					
Total investment, Rs.: 5Lakhs (Diff.)			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 14.34 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	622170				
Energy consumption after	366140				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs.5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510				We authorise Bureau to use this information for dissemination	
Contact person: Mr S.H.Desai –Sr Deputy General Manager				Signature	
				Date	


ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>6. Introduction of programmable timer</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
<p>In our workshops where any activity is not taking place in third shifts, a programmable timer is introduced to switch off the overhead lights after the end of second shift.</p> <p>Saving: 3024 KWH or Rs.16,934/- per annum</p> <p>Investment: Rs. 2,000/-</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Inhouse development					
Total investment, Rs.: 2000 /-			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 17,000/-					
First year other savings, Rs.:					
On annual basis	kWh	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	3024				
Energy consumption after	0				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs. 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

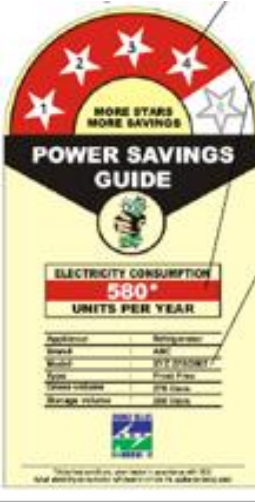
ID to be filled by BEE	<b>Title of the measure</b> <b>7. Use of UPS in place of DG set</b>		Sector : General		
Year to be filled by BEE			Technology .....		
<b>Description of the energy conservation measure:</b>					
We normally use D.G sets to meet the requirement of uninterrupted power for special purpose welding machines. We are using UPS in place of DG set which saves the costly HSD. This initiative has saved almost Rs. 3,45,000/- for us per annum					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Inhouse implementation					
Total investment, Rs.: 0.5 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: Nil					
First year other savings, Rs.: 3.45 Lakhs					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before					
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

ID to be filled by BEE	<b>Title of the measure</b>		Sector .....			
Year to be filled by BEE	<b>8. Natural Gas based 1.1 MW Generating set</b>		Technology .....			
<b>Description of the energy conservation measure:</b>						
<p>Hazira works has switched over to natural gas for generation of power from D.G sets to meet increasing demand of power at Hazira works because of massive expansion of production capacities. We have installed second 1.1 MW natural gas engine based power generating plant to meet additional requirement of power. Switching to natural gas will help in reduction of HSD consumption which otherwise would have been consumed in DG sets. Since the running cost of this plant is lower than the grid power cost, it is economical to run the set rather than buying power from state electricity company. It saves Rs 1.5 per unit of power generated which resulted in total saving of Rs 52.50 Lacs per annum as compared to grid power cost.</p>						
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>			
						
Agency that executed the project (with complete address and email): Make: Caterpillar. Supplied by GMMCO Limited, Chennai						
Total investment, Rs.: 180 Lakhs			Year of implementation: 2007- 08			
First year energy cost savings, Rs.:						
First year other savings, Rs.: 52,50,000 (Being the difference of Grid power cost and generated power cost)						
On annual basis		kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before		Grid Power was used				
Energy consumption after		Generated power is used				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...		Rs.5.60				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager					We authorise Bureau to use this information for dissemination  Signature  Date	

ID to be filled by BEE	<b>Title of the measure</b> <b>9. Edge Breaking Furnace</b>		Sector : General		
Year to be filled by BEE			Technology .....		
<b>Description of the energy conservation measure:</b>					
For edge breaking of steel plates, earlier entire plate was to be kept in the furnace. This was consuming more gas and entire furnace was occupied. We developed the furnace in-house where only edges of the plates will be heated not entire plates. This saves tremendous amount of natural gas which is fired in furnaces.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Inhouse					
Total investment, Rs.: 3 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 25.59 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before			367500		
Energy consumption after			144935		
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...			Rs 11.5		
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510				We authorise Bureau to use this information for dissemination	
Contact person: Mr S.H.Desai –Sr Deputy General Manager				Signature	
				Date	

ID to be filled by BEE	<b>Title of the measure</b> <b>10. Modular Furnace for LSR</b>		Sector : General		
Year to be filled by BEE			Technology .....		
<b>Description of the energy conservation measure:</b>					
For Local Stress relieving of steel vessels, earlier entire vessel was to be kept in the furnace or electrical heating was used. This was consuming more energy. We developed inhouse the modular furnace which is portable and can be used at any location. This saves substantial amount of natural gas which is fired in furnaces.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Inhouse					
Total investment, Rs.: 6 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 3.19 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before			157500		
Energy consumption after			129750		
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...			Rs 11.5		
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>11. Grid Power for Modular Fabrication Facilities</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
Some part of our MFF division was running on D.G.sets, consuming natural resources and polluting environment. We have installed a separate substation running on grid power to meet this requirement and abolished the use of D.G.sets. This saved Rs 7 per unit of electricity which amounts to Rs 392 Lacs per annum. This called for an investment of Rs 150 Lacs.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Inhouse					
Total investment, Rs.: 150 Lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.:					
First year other savings, Rs.: 392 Lakhs					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before					Dg set was used
Energy consumption after					Grid power is used
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>12. Use of BEE energy labeled Air conditioners</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
As a policy, we have started using BEE approved 3 star and 4 star labeled Air-conditioners and refrigerators at our plant and offices.					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
					
Agency that executed the project (with complete address and email): Inhouse					
Total investment, Rs.:			Year of implementation: 2007-08		
First year energy cost savings, Rs.:					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before					
Energy consumption after					
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510  Contact person: Mr S.H.Desai –Sr Deputy General Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

ID to be filled by BEE	<b>Title of the measure</b>		Sector : General		
Year to be filled by BEE	<b>12. Use of Vacuum packaging of welding electrode</b>		Technology .....		
<b>Description of the energy conservation measure:</b>					
<p>Moisture in welding electrodes causes many defects in finished welds. Therefore welding electrodes are baked in oven at 250-3000 C for 2 hrs in main store before transferring to shop stores. Welding electrodes are maintained at 100 - 1100 C in shop stores before being issued to welders in portable ovens. This process used to take long time and consumes precious energy.</p> <p>We have introduced Vacuum packing process in which electrodes are vacuum packed after baking for 2 hours at 250-3000 C in main stores. These packs are given directly to the welders. This eliminates the need for heating in shop stores and keeping in portable ovens by the welders.</p> <p>Considering 2 nos. of 5KW each ovens having ON time of 10 hours in 24 hours cycle, energy consumed= 2x 5 x 10 x 365 = 36500 units per year  Saving: Rs.204400/- per annum</p>					
<b>Picture/ sketch/ drawing before modification</b> (if available)			<b>Picture/ sketch/ drawing after modification</b>		
Agency that executed the project (with complete address and email): Inhouse					
Total investment, Rs.: 3 lakhs			Year of implementation: 2007-08		
First year energy cost savings, Rs.: 2.04 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	36500				
Energy consumption after	0				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	Rs 5.6				
Company complete address: Larsen & Toubro Limited Hazira Works Surat (Gujarat) - 394510				We authorise Bureau to use this information for dissemination	
Contact person: Mr S.H.Desai –Sr Deputy General Manager				Signature	
				Date	