

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Reduction of No. of Running Pumps in Pump House – 09		Sector Iron & steel		
Year to be filled by BEE			Technology		
Description of the energy conservation measure: Pump House-09, Group-I Pumps supplies water to Secondary side of Plate Heat Exchangers and other miscellaneous units of SMS and 3 (three) pumps. The water requirement is met through running 3 nos of pumps of 1750 M <sup>3</sup> / hr. capacity at a pressure 4.5 kg / cm <sup>2</sup> . These pumps are driven by 280 KW motor. These pumps are operated continuously. An heat load calculation was done and it is observed that flow through two pumps is sufficient to meet cooling requirement. Accordingly, one pump is stopped and resulted in energy savings of 280 KW.					
<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): PH-09					
Total investment, Rs.: - Nil -			Year of implementation: 2007 - 08		
First year energy cost savings, Rs.: 52.49 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Lakh Nm <sup>3</sup>	Oil (kL)	Other Mcal/t
Energy consumption before	2085				
Energy consumption after	- Nil – (Stopped)				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.518				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: MV Rao <b>Designated Energy Manager</b>				We authorise Bureau to use this information for dissemination  Signature  Date	

**Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008.**

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Energy Conservation in Lighting System at Pump House – 09 of WMD		Sector Iron & steel		
Year to be filled by BEE			Technology		
Description of the energy conservation measure: The roof of pump pit for Pump House-09 is fitted with 45 nos of 400 Watts Mercury Vapour lamps for illumination. This lighting system has been modified and 18 nos of 250 W sodium vapour lamps are installed at 3.5 meter level. Installation of these measures reduced electricity consumption.					
<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): In-house efforts					
Total investment, Rs.: 62,000/-			Year of implementation: 2007 - 08		
First year energy cost savings, Rs.: 1.485 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Lakh Nm <sup>3</sup>	Oil (kL)	Other Mcal/t
Energy consumption before	78.840				
Energy consumption after	19.710				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.518				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: MV Rao <b>Designated Energy Manager</b>				We authorise Bureau to use this information for dissemination  Signature  Date	

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**Energy Conservation Measure implemented in 2007-2008**  
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ID to be filled by BEE	Title of the measure Recycling of Tar sludge in to coke ovens		Sector Iron & Steel			
Year to be filled by BEE			Technology Thermal			
<p>Description of the energy conservation measure:</p> <p>During Coke making process, volatile matter present in the coal becomes coke oven gas. While cooling coke oven gas, tar present in the gas is condensed in hydraulic main, Primary Gas Cooler &amp; Electro Static Precipitator. In tar storage tank, sludge settles down and deposited at the bottom. The tar sludge was dumped beyond tar plant boundary, which is causing land degradation. Since it contains carbon, it can be used in coke oven along with coal charging. Tar sludge is dumped near Yard-2 conveyor. The Yard-2 conveyor charges coal into coke oven. A connection was made to Yard-2 conveyor with inclined conveyor. Tar sludge is charged to the inclined conveyor, which feeds to the yard – 2 conveyor carrying coal. About 3029 tons of Tar sludge is recycled in to coke oven batteries and replaced coking coal to the extent of 3029 tons</p>						
Picture/ sketch/ drawing before modification (if available).			<b>Picture/ sketch/ drawing after modification</b>			
Agency that executed the project (with complete address and email): In house efforts						
Total investment, Rs.:			Year of implementation: 2007			
First year energy cost savings, Rs.: 157 Lakhs						
First year other savings, Rs.:						
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other	
Energy consumption before		3029				
Energy consumption after		0				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL /Kg...		5.193				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorize Bureau to use this information for dissemination  Signature  Date		

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Recycling of Benzol muck, coke dust, crude benzol sludge, ASP sludge and MBC sludge in to coke ovens		Sector Iron & Steel			
Year to be filled by BEE			Technology Thermal			
Description of the energy conservation measure: Benzol is recovered by absorbing it in solar oil in the Benzol scrubber, where solar oil is circulated counter current to coke oven gas flow. Benzol is separated from solar oil by steam stripping and de-benzolised oil is recirculated to Benzol scrubber. During this process lot of muck is generated which is separated in the decanter. Benzol muck is highly polymerized material in slurry form. Crude benzol sludge, ASP sludge and MBC sludge are generated at various process. These wastes pose various hazards and it need to be treated separately. As these materials contain carbon, it can be recycle into coke oven battery. Recycling of waste material into coke oven batteries and reduce coking coal requirement. Due to slurry nature of the muck, it cannot be added to coal. Benzol muck was mixed with coke dust and then added on coal carrying conveyor Y-2. To reduce the oil content in the muck, separate muck drying beds (3Nos) were made and the muck was allowed to dry for a period of one week. After removal of oil, the muck was taken to Y-2 conveyor area, mixed with coke dust, and charged on Y-2 conveyor along with coal. 4541 tons of benzol muck and coke dust sludge, ASP sludge and MBC sludge was recycled in to coke oven batteries and replaced coal to the extent of 4541 tons						
<b>Picture/ sketch/ drawing before modification (if available).</b>			Picture/ sketch/ drawing after modification			
Agency that executed the project (with complete address and email): In house efforts						
Total investment, Rs.:			Year of implementation: 2007			
First year energy cost savings, Rs.: 235.8 Lakhs						
First year other savings, Rs.:						
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other	
Energy consumption before		4541				
Energy consumption after		0				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...		5.19				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorise Bureau to use this information for dissemination  Signature  Date		

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Installation of Variable Frequency drives in Coke Ovens	Sector Iron & Steel			
Year to be filled by BEE		Technology Electrical			
<p>Description of the energy conservation measure: Coke Ovens is one of the major consumer of electrical energy and having 42 motors of 6.6 KV capacity and 2570 motors of 415 V. Electricity is used in mill fans and hammer crushers and pumps of water supply. Coke ovens division installed variable frequency drives for following equipment and reduced electricity consumption by 310 KW as part of energy conservation measure during the year 2007-08.</p>					
SL No	Name of Equipment	Motor rating KW	Quantity		
1	Charging car-1 Travel	110	2		
2	Door Extractor-1 Travel	55	1		
3	Door Extractor-1 DE RAM	55	1		
4	Conveyor-Y-8	200	1		
5	CDCP ventilation fans	160	4		
6	CSP DE Fans	160	3		
7	Battery -3 Skip Hoist	30	1		
Picture/ sketch/ drawing before modification(if available).			Picture/ sketch/ drawing after modification		
Agency that executed the project (with complete address and email): Inhouse efforts					
Total investment, Rs.:			Year of implementation:2007		
First year energy cost savings, Rs.: 90.14 lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	15768				
Energy consumption after	12185				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.5				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> <b>Designated Energy Manager</b>				We authorise Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Reducing Nitrogen consumption at Coke Ovens		Sector Iron & Steel		
Year to be filled by BEE			Technology Electrical		
<b>Description of the energy conservation measure:</b> Nitrogen is consumed in Coke Dry cooling plant chambers and ammonium sulphate. The process requirement at CDCP chambers and ammonium sulphate plant have been optimized by regulating the pressure and flow. The make up Nitrogen consumption in CDCP chambers have been reduced by reducing leakages in Circulation fan system. With implementation of above measures, the flow of nitrogen is reduced from 4300 Ncum/hr to 4010 Ncum/hr during the year 2007-08.					
Picture/ sketch/ drawing before modification(if available).		Picture/ sketch/ drawing after modification			
Agency that executed the project (with complete address and email): In house efforts					
Total investment, Rs.:		Year of implementation: 2007			
First year energy cost savings, Rs.: 6.396 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	3767				
Energy consumption after	3513				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.5				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
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ID to be filled by BEE	Title of the measure Reducing Nitrogen Consumption at BF		Sector ...Iron & steel...		
Year to be filled by BEE			Technology ...Thermal		
Description of the energy conservation measure: Nitrogen is used in Blast Furnace for cooling of Paulwarth Gear Box. The Gear box has to be maintained at a temperature of 39 <sup>0</sup> c and the high pressure nitrogen will be supplied at the rate of 12000 ncum/hr per furnace. The cooling system has been optimized and reduced the nitrogen requirement from 23930 Ncum/hr to 22920 Ncum/hr in year 2007-08					
<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): In house efforts					
Total investment, Rs.:			Year of implementation: 2007		
First year energy cost savings, Rs.: 15.68 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Lakh Nm <sup>3</sup>	Oil (kL)	Other Mcal/t
Energy consumption before	20700				
Energy consumption after	20077				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.5				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Reduction of BF Gas bleeding		Sector Iron & Steel			
Year to be filled by BEE			Technology Electrical			
<b>Description of the energy conservation measure:</b>						
<p>In an Integrated steel plant, Blast Furnace gas is generated as by product of reduction process in Blast Furnace. The iron ores and other ferrous content materials are reduced by using coke which supplies melting energy. The typical blast furnace generates about 1700 cum per ton of hot metal in iron making, the calorific value of this gas is 700-720 kcal/nm<sup>3</sup>, it is consumed in coke oven batteries, sinter plant and Blast Furnace stoves and Thermal power Plant. Since the volume of gas generated are in the order of 8,00,000 nm<sup>3</sup>/hr, distribution of these gases poses difficult problem. The gas is distributed using Supervisory control and Data Acquisition system. The SCADA monitors these gases and ensures that optimum distribution of by product gases. The bleeding of BF Gas occurs due to frequent variation in Blast Furnace operating parameters, non availability of consumer for short duration, delay in change over of BF Stoves from gas mode to blast mode, difficulty in changeover from coal firing to gas firing at TPP boilers for short duration etc. The following measures are taken to reduce bleeding.</p> <ol style="list-style-type: none"> <li>1) Ensured consistent availability to TPP boilers</li> <li>2) Optimum distribution of gas at Energy Center closely and continuously</li> <li>3) Delay in changeover of BF Stoves is reduced.</li> </ol>						
Picture/ sketch/ drawing before modification(if available).			Picture/ sketch/ drawing after modification			
Agency that executed the project (with complete address and email): In house efforts						
Total investment, Rs.:			Year of implementation: 2007			
First year energy cost savings, Rs.: 378.75 Lakhs						
First year other savings, Rs.:						
On annual basis	kWh 000'	Coal (Tons)	Gas MNm <sup>3</sup>	Oil (kL)	Other	
Energy consumption before			332.47			
Energy consumption after			218.09			
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...						
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorize Bureau to use this information for dissemination  Signature  Date		

**Energy Conservation Measure implemented in 2007-2008**  
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ID to be filled by BEE	Title of the measure Improving LD Gas CV from 1781 to 1847 Kcal/Ncum at SMS LD Converter	Sector Iron & Steel			
Year to be filled by BEE		Technology Thermal			
<p>Description of the energy conservation measure:</p> <p>During the process of Steel making at LD Converter, the hot metal is blown with oxygen for decarburizing the hot metal. During the process, by product gas is generated and recovered. The calorific value of LD gas is 1781 Kcal/Ncum. Lesser calorific value of LD gas results in decreased rate of heat utilization in reheating furnaces. The following measures were taken to improve calorific value</p> <ol style="list-style-type: none"> <li>1. Skirt pressure was maintained with less variation by regular cleaning of the header. In case of more variation of skirt pressure alternative header was connected.</li> <li>2. Simultaneous opening of both the bottom gate was avoided in order to reduce puffing as well as air ingress.</li> <li>3. Selection of proper lance weight and required oxygen flow rate depending upon chemical composition of hot metal</li> <li>4. Ensured constant lance weight for better CO formation.</li> <li>5. Oxygen flow rate was also not be varied very frequently, oxygen flow rate in the range of 400 - 420 m<sup>3</sup>/min was maintained for good CO formation with present blowing lances.</li> <li>6. Lance height correction was done regularly to achieve uniformity.</li> </ol> <p>All these parameters improved calorific value from 1781 Kcal/NCum to 1847 Kcal/Ncum resulting in better heat utilization in reheating furnaces.</p>					
<b>Picture/ sketch/ drawing before modification(if available)</b>			<b>Picture/ sketch/ drawing after modification</b>		
Agency that executed the project (with complete address and email): In house efforts					
Total investment, Rs.:			Year of implementation: 2007		
First year energy cost savings, Rs.: 88.5 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000 <sup>7</sup>	Coal (Tons)	Gas Lakh Nm <sup>3</sup>	Oil (kL)	Other Mcal/t
Energy consumption before		7122			
Energy consumption after		0			
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...					
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Reduction of specific power consumption at ASP	Sector ...Iron & steel.			
Year to be filled by BEE		Technology Electrical			
<p><b>Description of the energy conservation measure:</b></p> <p>In air separation plant, oxygen, Nitrogen and argon are separated by processing air. The ASP is equipped with Feed air compressors of 105000 Ncum/hr air handling capacity. The total power consumption is around 925 MWH/day(average) out of which Oxygen compressors consume around 20% of the total power consumed i.e. approximately 170 mwh/day. The oxygen is consumed in steel making process at LD converter and oxygen enrichment of cold blast. The demand of oxygen is varying based on requirement at SMS and BF. Normally 3 Oxygen compressors will be running to cater the oxygen demand to SMS, BF enrichment and other autogenic needs all over the plant. The discharge pressure is varying due to varying demand at SMS &amp; BF. During two converter operation, due to low demand, it is resulting in higher discharge pressure and concomitant increase in gas temperature . It is also observed that anti surge valve is opened frequently. The following activities were taken out at ASP for reducing power consumption.</p> <ol style="list-style-type: none"> <li>i. Optimised distillation process and reduced feed air compressor discharge pressure from 6.2 kg/cm<sup>2</sup> to 5.9 kh/cm<sup>2</sup>.</li> <li>ii. The suction and discharge pressures of oxygen compressors were adjusted as per the demand of SMS and BF</li> <li>iii. Maintained optimum intercooler temperatures of all centrifugal compressors</li> <li>iv. Diverted 40 kg/cm<sup>2</sup> nitrogen into 9 kg/cm<sup>2</sup> header in auto mode when nitrogen splashing compressor is in recirculation.</li> <li>v. Periodic cleaning of heat exchangers.</li> <li>vi. Installed Load Manager for better monitoring of electricity.</li> </ol> <p>All these measures improved Oxygen Yield at ASP from 14.42% to 16.25%</p>					
Picture/ sketch/ drawing before modification			Picture/ sketch/ drawing after modification		
Agency that executed the project (with complete address and email): In-house efforts					
Total investment, Rs.:			Year of implementation: 2007		
First year energy cost savings, Rs.: 172.6 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	338911				
Energy consumption after	332054				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.5				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorize Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Installation of Electronic Controllers in ESPs of Boilers		Sector Iron & Steel		
Year to be filled by BEE			Technology Electrical		
Description of the energy conservation measure: Electrostatic precipitators are envisaged in Thermal Power Plant circuit. Normally, the thyristors are charged every half cycle alternatively. This is called as charge ratio 1:1. This will be continuous charging and it consumes more energy .In this place, an electronic controller namely BAPCON has been installed. The principle of operation of BAPCON controller is that the high voltage DC fed to the precipitator field is controlled using back to back connected thyristors on the primary set of Transformer sets. The thyristors are fired based on the feed back signals of current in the ESP field and sparking. This controller is able to skip some of the half cycles thus charging fields intermittently. BAPCON controller provides suitable coronal discharge by giving high peak voltages during the fired half cycle and the average current can be kept below back corona levels by setting the charge ratio. This controller can provide charge ratio of 1:159. The advantages of BAPCON controller are reduction in outlet emissions and corona power consumption. It is installed in ESPs of Boiler 3 & 4 and reduced specific power consumption during the year 2007-08					
Picture/ sketch/ drawing before modification(if available).		Picture/ sketch/ drawing after modification			
Agency that executed the project (with complete address and email): In house efforts					
Total investment, Rs.:		Year of implementation: 2007			
First year energy cost savings, Rs.: 11.33 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	3750				
Energy consumption after	3300				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.50				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorize Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Replacement of Fluorescent lamps with CFL		Sector Iron & Steel		
Year to be filled by BEE			Technology Electrical		
Description of the energy conservation measure: The Control rooms of Thermal Power plant are envisaged with lighting system. It consists of 2 fluorescent tube lights of 65 W each. As energy conservation measure, these lighting systems were replaced with energy efficient lights of 2 nos of 35 W each. This has been done after conducting lighting survey in all control rooms. About 400 No of energy efficient lamps were installed in the above control rooms and the illumination levels were not reduced after this modification. Implementation of above measured reduce lighting energy consumption.					
Picture/ sketch/ drawing before modification(if available).		Picture/ sketch/ drawing after modification			
Agency that executed the project (with complete address and email): In house efforts					
Total investment, Rs.:		Year of implementation: 2007			
First year energy cost savings, Rs.: 0.604 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	52				
Energy consumption after	28				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.5				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorize Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Replacement of HP Heaters in Turbo generators		Sector Iron & Steel		
Year to be filled by BEE			Technology Electrical		
Description of the energy conservation measure: The HP Heaters are envisaged in Steam Turbine Regenerative circuit to heat feed water in Thermal Power Plant. The HP Heaters in TG-1 & 2 are taken out of service due to leakages and damaged condition. With the result, the feed water temperature to boiler inlet is 185 <sup>0</sup> resulting in additional fuel input to boilers. The new HP Heaters have been installed and commissioned. Due to this activity, the feed water temperature has been increased from 185 <sup>0</sup> C to 195 <sup>0</sup> C during the year resulting reduced fuel input to the boiler.					
Picture/ sketch/ drawing before modification(if available).		Picture/ sketch/ drawing after modification			
Agency that executed the project (with complete address and email): In house efforts					
Total investment, Rs.:		Year of implementation: 2007			
First year energy cost savings, Rs.: 152 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before		12225			
Energy consumption after		0			
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...		1243			
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorize Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Improving Benzol Yield at Coke Ovens	Sector Iron & Steel			
Year to be filled by BEE		Technology Electrical			
<p><b>Description of the energy conservation measure:</b> The benzol is recovered by absorbing it in solar oil in the Benzol Scrubbers, where solar oil is recirculated counter currently to coke oven gas. Benzol is separated from the solar oil by steam stripping .There were four scrubbers in Benzol plant to scrub the gas. It is observed that the flow through the scrubber is less due to nozzle chokage and deposition. Due to this, the gas handling capacity has been reduced and resulted in lesser Benzol recovery. The scrubber no.4 nozzles were modified and technological cleaning has been carried out with the result, the gas handling capacity has been improved. Due to this modification, the benzol yield improved from 0.58% to 0.60% during the year.</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): In house efforts					
Total investment, Rs.: ----- lakhs			Year of implementation: 2007		
First year energy cost savings, Rs.:28 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy Recovery before				18717	
Energy Recovery after				19362	
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...					
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorise Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
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ID to be filled by BEE	Title of the measure Replacement of Gas Recuperator & Air Recuperators in MMSM	Sector Iron & Steel			
Year to be filled by BEE		Technology Electrical			
<p>Description of the energy conservation measure: Medium Merchant &amp; Structural Mill is envisaged to produce structures and angles. The blooms are reheated in reheating furnace. The MMSM mill is envisaged with 2 reheating furnaces of 130 t/hr for reheating of blooms. It is observed that the preheated gas temperature in Furnace 1 and preheated air temperature in Furnace II is lesser by 40 °c due to ineffective heat transfer and resulting in increased fuel consumption. It is observed that heat exchangers (gas recuperators and air recuperators) have been damaged and resulting in reduced heat recovery. These heat exchangers have been replaced with new one during capital repairs. Installation of new gas recuperator in WBF-1 &amp; air recuperator in WBF-2 increased heat recovery and the gas temperature and air temperature has been improved substantially. With implementation of above measures, heat of 1.35 Gcal/hr is additionally recovered and reduced fuel input to the furnace.</p>					
<b>Picture/ sketch/ drawing before modification(if available).</b>			Picture/ sketch/ drawing after modification		
Agency that executed the project (with complete address and email): In house efforts					
Total investment, Rs.: ---- lakhs			Year of implementation: 2007		
First year energy cost savings, Rs.:43.96 lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before		3537			
Energy consumption after		0			
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...		1243			
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorize Bureau to use this information for dissemination  Signature  Date	

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Usage of LD Slag in sinter & Iron making		Sector Iron & Steel			
Year to be filled by BEE			Technology Thermal			
<p>Description of the energy conservation measure: LD slag is produced in the process of steel making .LD slag constitutes useful materials like Cao, Feo and others. As the amount of slag produced is considerable, solid waste management is of crucial importance. Lime stone is used in sinter making as fluxes and requires energy for dissociation. As LD slag contains Cao, it can replace the lime stone and lime fines requirement. Usage of LD slag in Sinter making reduce the energy for dissociation of lime stone.. The LD slag has to be transported to Sinter Plant base mix yard by trucks. About 79573 t of LD slag was recirculated. This has resulted in reduced limestone requirement and also conserved natural resources. Usage of LD slag resulted in annualized energy savings of 67637 Gcals and reduced coke breeze requirement of 9947 tons annual. This project resulted in annualized financial savings of Rs. 516 lakhs for the year 2007-08.</p>						
Picture/ sketch/ drawing before modification (if available).			<b>Picture/ sketch/ drawing after modification</b>			
Agency that executed the project (with complete address and email): In house efforts						
Total investment, Rs.:			Year of implementation: 2007			
First year energy cost savings, Rs.:517 Lakhs						
First year other savings, Rs.:						
On annual basis	kWh 000'	Coke breeze, <small>@CV of 6800 Kcal/kg</small>	Gas Nm <sup>3</sup>	Oil (kL)	Other	
Energy consumption before		9947				
Energy consumption after		0				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...		5.193				
Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032 Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager				We authorise Bureau to use this information for dissemination  Signature  Date		

**Energy Conservation Measure implemented in 2007-2008**  
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Replacement of existing chillers with eco friendly and energy efficient chillers in Chilled Water Plant -3		Sector Iron & Steel		
Year to be filled by BEE			Technology Electrical		
<p><b>Brief description of Project:</b></p> <p>Chilled water Plant is envisaged with nine numbers of chillers of 540 TR each with R-11 is used as refrigerant. The specific power consumption for these chillers is 0.75 kw/TR. As the refrigerant is R-11, which is ozone depleting substance and these chillers to be replaced with eco friendly refrigerant chillers as per Ozone Depleting Substance (regulation) rules. Hence four numbers of chillers of 600 TR with 0.64 KW/TR and operating on refrigerant R-134 A are replaced during 2007-08.</p>					
<b>Picture/ sketch/ drawing before modification (if available).</b>			<b>Picture/ sketch/ drawing after modification</b>		
Agency that executed the project (with complete address and email): In house efforts					
Total investment, Rs.:			Year of implementation:		
First year energy cost savings, Rs.: 58.23 Lakhs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm <sup>3</sup>	Oil (kL)	Other
Energy consumption before	15768				
Energy consumption after	13455				
Energy tariff, Rs/ kWh/ Ton/ Nm <sup>3</sup> / kL ...	2.5				
<p>Company complete address: Rashtriya Ispat Nigam Limited Visakhapatnam Steel Plant Visakhapatnam 530032</p> <p>Contact person who could be contacted for more information: <b>MV Rao</b> Designated Energy Manager</p>				<p>We authorise Bureau to use this information for dissemination</p> <p>Signature</p> <p>Date</p>	