

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 “Condensate Recovery”	Sector ... Refinery
Year to be filled by BEE		Technology.... Waste heat recovery
<p>Description of the energy conservation measure: Condensate recovery scheme is implemented in CPP for recover condensate from steam traps & to recover flash steam from SCAPH condensate.</p> <p><u>Economics:</u></p> <p>Net Energy savings : 3880 Million Kcal.</p> <p>Net cost savings : 66.9 Lakh Rs.</p> <p>Investment : 5 Lakh Rs.</p>		
Picture/ sketch/ drawing before modification (if available)		Picture/ sketch/ drawing after modification

Agency that executed the project (with complete address and email): In house				
Total investment, Rs: 5 lakhs		Year of implementation: 2007-08		
First year energy cost savings, Rs: 66.9 lakhs				
First year other savings, Rs: 0 lakhs				
On annual basis	KWh 000'	Gas Nm ³	Oil (kL)	Other
Energy consumption before			Base	
Energy consumption after			Base – 417.61	
Energy tariff, Rs/ kWh/ Ton/Nm ³ / kL ...			16334.31	
Company complete address: Mangalore Refinery & Petrochemicals Ltd, Kuthethoor post, Mangalore - 575030			We authorize Bureau to use this information for dissemination	
Contact person who could be contacted for more information: Mr. P INDUSHEKARA RAO – 0824 2219501			Signature	
			Date	

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.

Energy Conservation Measure implemented in 2007-2008

(To be filled up separately for each Energy Conservation Measure)

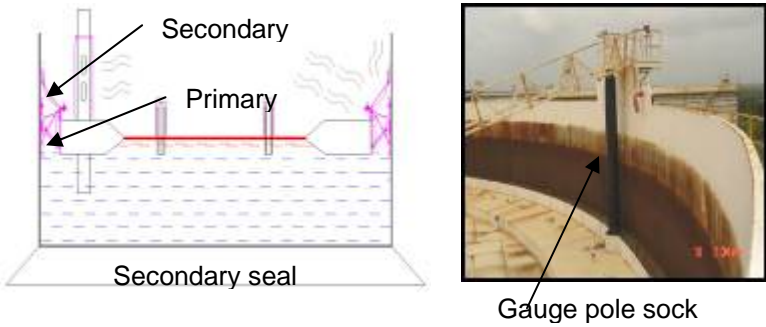
ID to be filled by BEE	Title of the measure “Furnace tube external surface on-line cleaning”	Sector ... Refinery
Year to be filled by BEE		Technology.... Online Cleaning
Description of the energy conservation measure: Furnace tube external surface on-line cleaning was carried out at ph- 2 Crude Distillation Unit Vacuum heater by chemical spraying.		
<u>Economics:</u> Energy Savings : 9920 Million Kcal Cost saving due to Energy reduction: 174 Lakh Rs. VGO yield improvement : 16848 MT Cost saving due to higher yield : 910 Lakh Rs. Total cost savings : 1084 Lakh Rs. Investment : 77 Lakh Rs. Net savings : 1007 Lakh Rs.		
Picture/ sketch/ drawing before modification (if available)		Picture/ sketch/ drawing after modification

Agency that executed the project (with complete address and email): In house				
Total investment, Rs: 77 Lakh			Year of implementation: 2007-08	
First year energy cost savings, Rs: 174 lakhs				
First year other savings, Rs: 910 lakhs				
On annual basis	KWh 000'	Gas Nm ³	Oil (kL)	Other
Energy consumption before			Base	
Energy consumption after			Base – 1068	
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...			16334.31	
Company complete address: Mangalore Refinery & Petrochemicals Ltd, Kuthethoor post, Mangalore - 575030			We authorize Bureau to use this information for dissemination Signature Date	
Contact person who could be contacted for more information: Mr. P INDUSHEKARA RAO – 0824 2219501				

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.

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 “Secondary seals & Gauge pole sock to reduce fugitive emission”	Sector ... Refinery
Year to be filled by BEE		Technology.... Secondary seals
Description of the energy conservation measure:		
<p>VOC emission Survey: An elaborate VOC emission Survey was carried out in refinery to detect the leak and Repair. Almost 33000 points including Valves, flanges, seals etc were covered in the survey. Leaks were arrested to major extent & action plans were derived wherever necessary. Total investment – 4.3</p> <p>Double seals: Secondary seals were installed in total 24 floating roof tanks. Expected 50% reduction in Fugitive emission through the seals. Total investment – 130 Lakh Rs.</p> <p>Gauge pole socks: Socks have been provided for the sample poles of 6 floating roof tanks. Expected 90% reduction in fugitive emission through the sample poles. Investment – 20 Lakh Rs. If assumed a net quantity of 0.005% of crude fugitive emission through roof seals & sample poles & 15% reduction in this due to the above modification, then it results in net saving of 937.5 MKCal/year, which is worth of Rs.16.5 Lakh. Payback ~2 years.</p>		
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification	
		

Agency that executed the project (with complete address and email): In house				
Total investment, Rs: 154.3 Lakh			Year of implementation: 2006-08	
First year energy cost savings, Rs:				
First year other savings, Rs:				
On annual basis	KWh 000'	Gas Nm ³	Oil (kL)	Other
Energy consumption before			Base	
Energy consumption after			Base – 101	
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...			16334.31	
Company complete address: Mangalore Refinery & Petrochemicals Ltd, Kuthethoor post, Mangalore - 575030			We authorize Bureau to use this information for dissemination	
Contact person who could be contacted for more information: Mr. P INDUSHEKARA RAO – 0824 2219501			Signature	
			Date	

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.

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 Light reformat stream to optimize Hydrogen consumption”	Sector ... Refinery
Year to be filled by BEE		Technology... Optimization
<p>Description of the energy conservation measure:</p> <p>Light reformat is one of the feed to ISOM unit. Optimizing this feed rate has resulted in reduction of hydrogen consumption (highly energy sensitive product). Here, savings considered due to reduction in hydrogen consumption alone.</p> <p><u>Economics:</u></p> <p>Reduction in Lt.reformat : 10 m3/h</p> <p>Reduction in Hydrogen consumption: 58.5 Nm3/h</p> <p>Net Energy Savings : 18803 Million Kcal</p> <p>Net Cost savings : 330.6 Lakh Rs.</p>		
Picture/ sketch/ drawing before modification (if available)		Picture/ sketch/ drawing after modification

Agency that executed the project (with complete address and email): In house				
Total investment, Rs:			Year of implementation: 2007-08	
First year energy cost savings, Rs: 330.6 lakhs				
First year other savings, Rs:				
On annual basis	KWh 000'	Gas Nm ³	Oil (kL)	Other
Energy consumption before			Base	
Energy consumption after			Base – 2023.8	
Energy tariff, Rs/ kWh/ Ton/Nm ³ / kL ...			16334.31	
Company complete address: Mangalore Refinery & Petrochemicals Ltd, Kuthethoor post, Mangalore - 575030			We authorize Bureau to use this information for dissemination	
Contact person who could be contacted for more information: Mr. P INDUSHEKARA RAO – 0824 2219501			Signature	
			Date	

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.

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 “Optimizing CCR PSA loading to reduce Hydrogen loss”	Sector ... Refinery
Year to be filled by BEE		Technology.... Optimization
<p>Description of the energy conservation measure: The recovery of CCR PSA is ~ 85%. By optimizing hydrogen header purity by routing a part of CCR Net gas to header, bypassing the PSA resulted in precious hydrogen savings. Here, savings considered due to hydrogen saving alone.</p> <p><u>Economics:</u></p> <p>Total Net gas bypassed : 4623.5 Nm³/h Hydrogen savings due to bypass: 624.2 Nm³/h Net Energy Savings : 21037 Million Kcal Net Cost savings : 369.9 Lakh Rs.</p>		
Picture/ sketch/ drawing before modification (if available)		Picture/ sketch/ drawing after modification

Agency that executed the project (with complete address and email): In house				
Total investment, Rs:			Year of implementation: 2007-08	
First year energy cost savings, Rs: 369.9 lakhs				
First year other savings, Rs:				
On annual basis	KWh 000'	Gas Nm ³	Oil (kL)	Other
Energy consumption before			Base	
Energy consumption after			Base – 2264.3	
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...			16334.31	
Company complete address: Mangalore Refinery & Petrochemicals Ltd, Kuthethoor post, Mangalore - 575030			We authorize Bureau to use this information for dissemination	
Contact person who could be contacted for more information: Mr. P INDUSHEKARA RAO – 0824 2219501			Signature	
			Date	

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.

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 “Optimization of steam in ISOM”	Sector ... Refinery	
Year to be filled by BEE		Technology... Optimization	
<p>Description of the energy conservation measure: ISOM unit steam consumption contributes 70% of overall energy consumption in the unit. In order to reduce the steam consumption; stripper, depentanizer and stabilizer columns were optimized.</p> <p><u>Economics:</u></p> <p>Reduction in MP steam : 8.7 MT/h</p> <p>Reduction in LP steam : 4.8 MT/h</p> <p>Energy Savings due to MP steam : 45789 Million Kcal</p> <p>Energy Savings due to LP steam : 22550 Million Kcal</p> <p>Cost savings due to MP steam : 805 Lakh Rs.</p> <p>Cost savings due to LP steam : 396.4 Lakh Rs.</p> <p>Net Energy Savings : 68339 Million Kcal</p> <p>Net Cost Savings : 1201.5 Lakh Rs.</p>			
Picture/ sketch/ drawing before modification (if available)		Picture/ sketch/ drawing after modification	

Agency that executed the project (with complete address and email): In house				
Total investment, Rs: Nil			Year of implementation: 2007-08	
First year energy cost savings, Rs: 1201.5 lakhs				
First year other savings, Rs:				
On annual basis	KWh 000'	Gas Nm ³	Oil (kL)	Other
Energy consumption before			Base	
Energy consumption after			Base – 7355.5	
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...			16334.31	
Company complete address: Mangalore Refinery & Petrochemicals Ltd, Kuthethoor post, Mangalore - 575030			We authorize Bureau to use this information for dissemination	
Contact person who could be contacted for more information: Mr. P INDUSHEKARA RAO – 0824 2219501			Signature	
			Date	

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.

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		Sector ... Refinery																																																								
Year to be filled by BEE	"Steam savings by Trap management"		Technology Trap management																																																								
Description of the energy conservation measure: A separate team is established within Maintenance group, for steam trap Management. Trap management is a committed maintenance service for regular monitoring of traps to reduce the steam loss in the refinery. Following are the statistics for the year 2007-08:																																																											
<table border="1"> <thead> <tr> <th>Description</th> <th>No</th> <th>Description</th> <th>No</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Total surveyed</td> <td>5,873</td> <td>Good traps</td> <td>3,575</td> <td></td> </tr> <tr> <td>Blocked</td> <td>658</td> <td>Low Temp.</td> <td>390</td> <td>Rectified</td> </tr> <tr> <td>Blowing</td> <td>322</td> <td>Leaking</td> <td>928</td> <td>Reconditioned</td> </tr> </tbody> </table>					Description	No	Description	No	Remarks	Total surveyed	5,873	Good traps	3,575		Blocked	658	Low Temp.	390	Rectified	Blowing	322	Leaking	928	Reconditioned																																			
Description	No	Description	No	Remarks																																																							
Total surveyed	5,873	Good traps	3,575																																																								
Blocked	658	Low Temp.	390	Rectified																																																							
Blowing	322	Leaking	928	Reconditioned																																																							
Following is the list of traps replaced:																																																											
<table border="1"> <thead> <tr> <th>SI No</th> <th>Description</th> <th>No</th> <th>Rate, Rs</th> <th>Value, Rs</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>BPT 21 3/4</td> <td>50</td> <td>5941</td> <td>297050</td> </tr> <tr> <td>2</td> <td>MST 21</td> <td>5</td> <td>2000</td> <td>10000</td> </tr> <tr> <td>3</td> <td>BPT 21 3/4</td> <td>7</td> <td>5941</td> <td>41587</td> </tr> <tr> <td>4</td> <td>TD3 1/2 IBR sw</td> <td>105</td> <td>1501</td> <td>157605</td> </tr> <tr> <td>5</td> <td>TD3 3/4 IBR sw</td> <td>45</td> <td>6397</td> <td>287865</td> </tr> <tr> <td>6</td> <td>TD3 1/2 Flanged</td> <td>6</td> <td>1501</td> <td>9006</td> </tr> <tr> <td>7</td> <td>Ball float</td> <td>2</td> <td>12930</td> <td>25860</td> </tr> <tr> <td>8</td> <td>Ft20</td> <td>8</td> <td>25322</td> <td>202576</td> </tr> <tr> <td>9</td> <td>TD62</td> <td>65</td> <td>10559</td> <td>686335</td> </tr> <tr> <td></td> <td>Total</td> <td>293</td> <td></td> <td>1717884</td> </tr> </tbody> </table>					SI No	Description	No	Rate, Rs	Value, Rs	1	BPT 21 3/4	50	5941	297050	2	MST 21	5	2000	10000	3	BPT 21 3/4	7	5941	41587	4	TD3 1/2 IBR sw	105	1501	157605	5	TD3 3/4 IBR sw	45	6397	287865	6	TD3 1/2 Flanged	6	1501	9006	7	Ball float	2	12930	25860	8	Ft20	8	25322	202576	9	TD62	65	10559	686335		Total	293		1717884
SI No	Description	No	Rate, Rs	Value, Rs																																																							
1	BPT 21 3/4	50	5941	297050																																																							
2	MST 21	5	2000	10000																																																							
3	BPT 21 3/4	7	5941	41587																																																							
4	TD3 1/2 IBR sw	105	1501	157605																																																							
5	TD3 3/4 IBR sw	45	6397	287865																																																							
6	TD3 1/2 Flanged	6	1501	9006																																																							
7	Ball float	2	12930	25860																																																							
8	Ft20	8	25322	202576																																																							
9	TD62	65	10559	686335																																																							
	Total	293		1717884																																																							
Economics:																																																											
Net Steam savings : 68494 MT																																																											
Net Energy Savings : 40055 Million Kcal																																																											
Net Cost Savings : 704.2 Lakh Rs.																																																											
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification																																																								

Agency that executed the project (with complete address and email): In house					
Total investment, Rs: 32.06 Lakh			Year of implementation: 2007-08		
First year energy cost savings, Rs: 704.2 lakhs					
First year other savings, Rs:					
On annual basis		KWh 000'	Gas Nm ³	Oil (kL)	Other
Energy consumption before				Base	
Energy consumption after				Base – 4311.2	
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...				16334.31	
Company complete address: Mangalore Refinery & Petrochemicals Ltd, Kuthethoor post, Mangalore - 575030			We authorize Bureau to use this information for dissemination		
Contact person who could be contacted for more information: Mr. P INDUSHEKARA RAO – 0824 2219501			Signature		
			Date		

Note: Please submit this sheet separately for each Energy Conservation Measure implemented in 2007-2008 and a CD containing the above information may be please be enclosed.