


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 Screw Compressor for air	Sector ...TYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
<u>Description of the energy conservation measure:</u> To meet 100 PSI air requirement in Tyre plant, one number TS2 X Type compressor was being used. This was very old and inefficient also. New energy efficient screw compressor provided in its place. It has got acoustic enclosure which helped to reduce the sound pollution also.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs. :9.5 LCS			Year of implementation:2007-2008		
First year energy cost savings, Rs.:1.4 LACS					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	986656	NA	NA	NA	NA
Energy consumption after	947189	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE				Signature Date:14-10-2008	

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Energy Conservation Measure implemented in 2007-2008

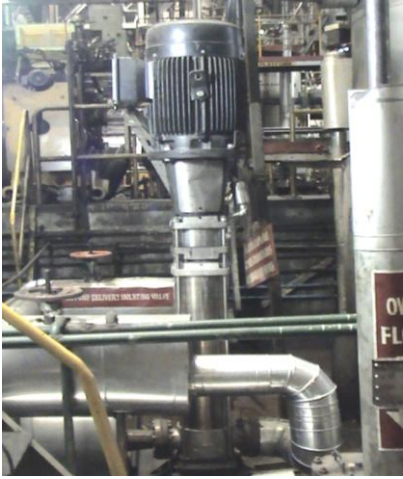
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure	Sector ...TYRE.....			
Year to be filled by BEE	Energy Efficient and Sound Proof Blower	Technology ...NEW.....			
<p><u>Description of the energy conservation measure:</u> 10" Tread line was received with a 50HP 1150 CFM blower for blowing off the water from tread. This was producing high noise pollution also. Now it's replaced with 2 nos of 10HP sound proof Energy efficient Blower with efficient blowing nozzles. Horizontal deployment of this project is planned in the other two extruder lines also immediately.</p> <p>As a result,</p> <ol style="list-style-type: none"> 1. Noise level reduced from 95 Db to 63 Db. 2. Flow rate increased from 1150 CFM to 1450 CFM 					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.:3.5 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.:6.33 lacs					
First year other savings, Rs.: Nil					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	253000	NA	NA	NA	NA
Energy consumption after	77000	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL	3.6	NA	NA	NA	NA
Company complete address:			We authorise Bureau to use this information for dissemination		
MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE					
Contact person who could be contacted for more information:			Signature		
M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE			Date:14-10-2008		

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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 Hot Water Fill pump	SectorTYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
<u>Description of the energy conservation measure:</u> 60 HP hot water fill pump of Tyre curing trench No.2 was replaced with a higher efficiency 'GRUNDFOSS' make 50Hp vertical type pump.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.:8 Lacs			Year of implementation:2007-2008:		
First year energy cost savings, Rs.: 0.93 lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	151536	NA	NA	NA	NA
Energy consumption after	134217	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE				Signature	
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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 Tube Extruder line blower	SectorTYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
<p><u>Description of the energy conservation measure:</u> In both Tube extruder lines, two Nos. 7.5 HP blowers were used for blowing off the water from the green tubes during extrusion. By modifying the blower out let duct, blowing nozzles and positioning the nozzles at the optimum location, one 7.5 HP blower each could be removed from the line.</p>					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.: Nil			Year of implementation: :2007-2008		
First year energy cost savings, Rs.: 2lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	111111.1	NA	NA	NA	NA
Energy consumption after	55555.54	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE Contact person who could be contacted for more information: M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE				We authorise Bureau to use this information for dissemination Signature Date	

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Energy Conservation Measure implemented in 2007-2008

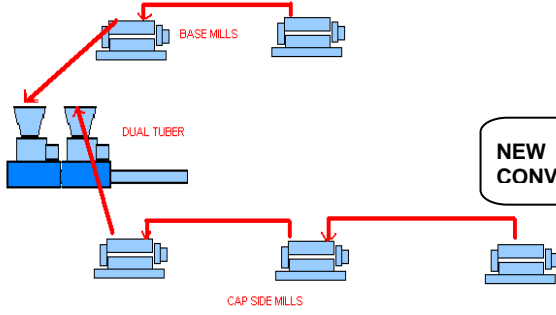
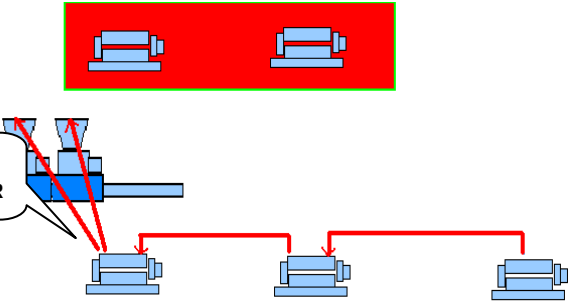
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Dual Tuber Extruder for Tread (Recepie introduction)	SectorTYRE.....
Year to be filled by BEE		TechnologyNEW.....
<p>Description of the energy conservation measure: Through continuous monitoring of extruder parameters for all tread sizes, an optimum value for the speed of conveyors, extruders, mills etc were derived. This has been made as a recipe and included in the SCADA. Operator can select recipe from the screen provided for the sizes. This facility given to the operator has reduced the set up time, variation from operator to operator etc. This also contributed to reduced rework, improved productivity and there by reduction in specific energy.</p>		
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification	
		
Agency that executed the project (with complete address and email):		
Total investment, Rs.: Nil	Year of implementation: :2007-2008	
First year energy cost savings, Rs.:2.52 lacs		
First year other savings, Rs.:		
On annual basis	kWh 000'	Coal (Tons)
Energy consumption before		Gas Nm ³
Energy consumption after		Oil (kL)
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	Other
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE		We authorise Bureau to use this information for dissemination
Contact person who could be contacted for more information: M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE		Signature
		Date:14-10-2008

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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 Dual Tuber Extruder Line - (mill reduction).	SectorTYRE.....			
Year to be filled by BEE		Technology NEW.....			
<p>Description of the energy conservation measure:</p> <p>Due to this modification two numbers 250 hp mills could be switched off while extruding single stock treads.</p> <p>Average time obtained from this option is 2 hrs. / Day.</p> <p>Reduction in units is 25 units / hour (50 units /day).</p>					
Picture/ sketch/ drawing before modification (if available)	Picture/ sketch/ drawing after modification				
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.: 1.62 Lacs	Year of implementation: :2007-2008				
First year energy cost savings, Rs.: 0.61 Lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	1947276	NA	NA	NA	NA
Energy consumption after	1930380	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE				We authorise Bureau to use this information for dissemination	
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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 FRP leaf for cooling tower	SectorTYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
<u>Description of the energy conservation measure:</u> Two Nos. 500 Ton cooling towers are used for process and utility purposes. This cooling tower fan leaf is made of die cast Aluminum. Cooling tower No.1 fan leaf replaced with FRP which in turn reduced the energy consumption and improved the efficiency.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.: 1 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.:					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before		NA	NA	NA	NA
Energy consumption after		NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE				We authorise Bureau to use this information for dissemination	
Contact person who could be contacted for more information: M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE				Signature	
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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 Soap spray pump	SectorTYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
<u>Description of the energy conservation measure:</u> The compound mixed in our Banbury line is being stacked on skids in sheet form. Sufficient ageing is given for this before the next process. Because of this ageing time and due to the property of rubber, the sheets can get stuck to each other. To avoid stickiness, soap solution spray is being applied on these sheets during process, before the stacking. One 5 HP pump was used for this purpose earlier which is optimized with 1.5 hp.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.: 0.33 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.: 0.927 Lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before		NA	NA	NA	NA
Energy consumption after		NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE Contact person who could be contacted for more information: M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE				We authorise Bureau to use this information for dissemination Signature Date:14-10-2008	

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

ID to be filled by BEE	Title of the measure	SectorTYRE.....			
Year to be filled by BEE	270-1 Machine lay out modification	TechnologyNEW.....			
<p>Description of the energy conservation measure:</p> <p>Total 4 mills are used to batch off stocks dumped from stock mixer. This arrangement helps to reduce one pass-through in mixer and saves energy. But 30% of the stocks mixed in this mixer does not require four mills and require only two mills. The existing arrangement gives the provision for either four or three mill operation. An additional conveyor is erected between mill-1 and mill -2 giving provision for two mill operation.</p>					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
Agency that executed the project (with complete address and email):					
Total investment, Rs.: 1.2 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.: 0.927 Lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before		NA	NA	NA	NA
Energy consumption after		NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
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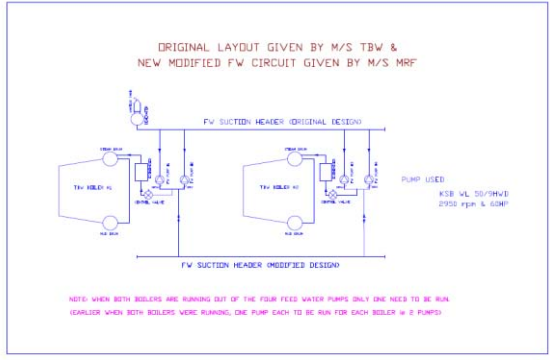
(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure	SectorTYRE.....			
Year to be filled by BEE	Engineering modification in conveyor	TechnologyNEW.....			
<u>Description of the energy conservation measure:</u> The sheet rubber bales which are one among the major ingredients to Banbury mixer is being cut into small pieces on bale cutter before it is fed to the mixer. In bale cutter, there is a transfer conveyor to shift the cut pieces.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.: 0.054 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.: 0.064 Lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before		NA	NA	NA	NA
Energy consumption after		NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
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(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure	SectorTYRE.....			
Year to be filled by BEE	Common feed water pump for 15 ton boilers	TechnologyNEW.....			
<u>Description of the energy conservation measure:</u> Two numbers of 15 Ton boilers are run to generate steam for curing. Both boilers have its own feed water pumps. Rating of the pump is 60HP. A common header is lied and connected to both boilers. Through this modification we could able to run both boilers with one feed water pump.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs:Nil			Year of implementation: :2007-2008		
First year energy cost savings, Rs.: 10.64					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	591360	NA	NA	NA	NA
Energy consumption after	295680	NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE				We authorise Bureau to use this information for dissemination	
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(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Zindania sheet fixed below the tube press mould	SectorTYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
<u>Description of the energy conservation measure:</u> In all Tube curing presses, the mould is directly fixed on the chamber. Trail was conducted by providing 25 mm thick Zindania sheet between the chamber and the mould. The result was encouraging with reduced conduction losses to the chamber and consequent reduction in steam consumption also. Horizontal deployment of this modification on all presses is underway.					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs.:0.06 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.:0.5 Lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before		NA	NA	NA	NA
Energy consumption after		NA	NA	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	3.6	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE				We authorise Bureau to use this information for dissemination	
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(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Additional deaerator provided for Boiler feed water.	SectorTYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
<p><u>Description of the energy conservation measure:</u> . An additional de aerator of 25 cum / hr provided for boiler feed water. De aeration is the process of removing dissolved impurities from water by heating it above 105 deg C. This has resulted in improving the boiler efficiency from 80.9 % to 82.9 %.Investment for this project is around Rs. 257500. Daily fuel saving achieved through this modification is 461 kg of furnace oil.</p>					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs: 25.75 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.: 60.1 Lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before		NA	NA	NA	NA
Energy consumption after		NA	NA	161.5MT	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...		NA	NA	NA	NA
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(To be filled up separately for each Energy Conservation Measure)

ID to be filled by BEE	Title of the measure Engineering modification in condensate recovery system.	SectorTYRE.....			
Year to be filled by BEE		TechnologyNEW.....			
Description of the energy conservation measure					
<p>Condensate collected from outlet of steam traps is flashed in flash vessels. This flash steam is used for heating feed water at de aerator. Condensate collected from High-pressure steam (210 PSI), Low Pressure steam & dome steam is taken to separate flash vessels, instead of common flash vessel. This modification improved the condensate recovery from 50% to 60%. Daily fuel saving achieved through this improvements is 251 kg.</p>					
Picture/ sketch/ drawing before modification (if available)			Picture/ sketch/ drawing after modification		
					
Agency that executed the project (with complete address and email):					
Total investment, Rs:4.15 Lacs			Year of implementation: :2007-2008		
First year energy cost savings, Rs.: 33.43 Lacs					
First year other savings, Rs.:					
On annual basis	kWh 000'	Coal (Tons)	Gas Nm ³	Oil (kL)	Other
Energy consumption before	NA	NA	NA	NA	NA
Energy consumption after	NA	NA	89.8 MT	NA	NA
Energy tariff, Rs/ kWh/ Ton/ Nm ³ / kL ...	NA	NA	NA	NA	NA
Company complete address: MRF LIMITED,P.B.No2,VADAVATHOOR.P.O,KOTTAYAM,KERALA STATE Contact person who could be contacted for more information: M.G.RAJAN,MANAGER ELECTRICAL MAINTENANCE.				We authorise Bureau to use this information for dissemination Signature Date:14-10-2008	

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