Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of Variable Speed Drive for water pump (V1X01 & V1X03) application	Sector : Cement
Year to be filled by BEE		Technology : AC Variable Speed Drive

Description of the energy conservation measure:

Two no of cooling water pump of 22kw is installed in the plant. The starting method was in Direct On Line (DOL) mode. The energy consumption in DOL mode is very high due to low power factor and low efficiency. This creates a power surge in electrical system during starting and decreases the life of motors and also contributing for peak power demand. In variable speed drive the power factor and efficiency has increased, so that power consumption is decreased with the higher output(from 22kw to 16kw) .The speed of the motor is maintained as per the demand of the water thus & power is saved.

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
	
DOL FEEDER	

Agency that executed the project (with complete address and email):In house execution

Total investment, Rs.:2.40 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 2.79 lacs

First year other savings, Rs.: 0.10 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	3.63				
Energy consumption after (in lacs)	2.76				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of Variable Speed Drive for Fly ash unloading compressor	Sector : Cement
Year to be filled by BEE		Technology : AC Variable Speed Drive

Description of the energy conservation measure:

One no of air compressor of 75kw is installed for unloading Flyash from bowsers. The starting method was in Direct On Line (DOL) mode. The energy consumption in DOL mode is very high due to low power factor and low efficiency. This creates a power surge in electrical system during starting and decreases the life of motors and also contributing for peak power demand. In variable speed drive the power factor and efficiency has increased, so that power consumption is decreased with the higher output(from 70kw to 62kw) .The speed of the motor is maintained as per the demand of the water thus & power is saved.

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
	
DOL FEEDER	**VARIABLE SPEED DRIVE FOR COMPRESSOR**

Agency that executed the project (with complete address and email):In house execution

Total investment, Rs.:2.40 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 1.86 lacs

First year other savings, Rs.: 0.12 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	5.04				
Energy consumption after (in lacs)	4.46				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of Variable Speed Drive for compressor(X1X04) application	Sector : Cement
Year to be filled by BEE		Technology : AC Variable Speed Drive

Description of the energy conservation measure:

The LP compressor of 132kw is installed in packing plant .The starting method was in Direct On Line (DOL) mode. The energy consumption in DOL mode is very high due to low power factor and low efficiency. This creates a power surge in electrical system during starting and decreases the life of motors and also contributing for peak power demand. In variable speed drive the power factor and efficiency has increased, so that power consumption is decreased with the higher output(from 132kw to 118kw) .The speed of the motor will very as per the demand of the air thus totally avoid the no load running of the compressor.

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
	
DOL FEEDER	**VARIABLE SPEED DRIVE FOR COMPRESSOR**

Agency that executed the project (with complete address and email): In house execution

Total investment, Rs.:6.00 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 3.41 lacs

First year other savings, Rs.: 0.40 lacs (Reduction in maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	9.50				
Energy consumption after (in lacs)	8.42				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Replacement of motor compressor type air drier with refrigerant type air drier in compressed air line	Sector : Cement
Year to be filled by BEE		Technology : Refrigerant type air drier

Description of the energy conservation measure:

The earlier air drier installed was motor compressor type coupled through a v-belt. The efficiency was poor, maintenance frequency was very high. Reliability factor was low. The power consumption was more. The same was replace with high efficiency refrigerant type air drier. The reliability was high ,low maintenance cost and consuming less power as compare to earlier one(from 11 to 7 kw).

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
 COMPRESSOR& MOTOR TYPE AIR DRIER	 AIR DRIER(REFRIGERANT TYPE)

Agency that executed the project (with complete address and email): In house execution

Total investment, Rs.: 3.00 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 0.74 lacs

First year other savings, Rs.: 0.01 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	0.63				
Energy consumption after (in lacs)	0.40				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of LT capacitor bank in Raw Unloading Material MCC	Sector : Cement
Year to be filled by BEE		Technology : Automatic Power Factor Correction

Description of the energy conservation measure:

Earlier there was no capacitor panel connected in the Motor Control circuit (MCC) of Wagon tippler. The power factor was very poor i.e less than 0.85 as a result efficiency of the motors was low, the power demand was high. After installation of the capacitor bank (LT) the power factor has improved to 0.99 and efficiency of the motor increased, power demand reduced , losses reduced ,life of the electrical equipment viz. cables, motors etc has improved.

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
No CAPACITOR BANK	 **LT CAPACITOR BANK (RMU)**

Agency that executed the project (with complete address and email): in house execution

Total investment, Rs.: 1.80 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.:1.05 lacs

First year other savings, Rs.: 0.21 lacs (Saving on energy cost)

On annual basis	kVa 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	293				
Energy consumption after (in lacs)	249				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	200				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of Energy Efficient Motors	Sector : Cement
Year to be filled by BEE		Technology : Energy efficient motors

Description of the energy conservation measure:

The LT motors installed are of conventional type which have crossed their normal life. These were installed during the project stage. The efficiency of the motors are low. Losses are high. Due to ageing effect frequent insulation failure is occurring. These motors are being replaced in phase manner with energy efficient motors which has more reliable in terms of efficiency and consuming less power as compared to earlier one.

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
	 **Energy efficient motor**

Agency that executed the project (with complete address and email): in house execution

Total investment, Rs.: 10.49 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.:21.00 lacs

First year other savings, Rs.: lacs

On annual basis	kVa 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	19.40				
Energy consumption after (in lacs)	12.91				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Up gradation of Product Transport group carrying cement to silo	Sector : Cement
Year to be filled by BEE		Technology : Belt bucket elevator

Description of the energy conservation measure:

The cement product transport group is consists of equipment viz. Product belt ,Bucket elevator, Screw Conveyor, Jet pulse filter etc. The product transport output was less than 145 tph only. Although the Cement Mill was capable of producing more tons of cement ,but the product transport group is not able to handle the same. Hence the entire equipments were upgraded which is capable of handling cement more than 155 tph/ton. This has improved the overall productivity of the plant by 10 ton/hrs. Thereby considerable amount of energy was saved .

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
No sketch	**No sketch**

Agency that executed the project (with complete address and email):In house execution

Total investment, Rs.: 70.00 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 68.94 lacs

First year other savings, Rs.: 0.00 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)					
Energy consumption after (in lacs)	21.34				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Installation of Screw Compressor	Sector : Cement
Year to be filled by BEE		Technology : Screw Compressor

Description of the energy conservation measure:

The compressor installed earlier was reciprocating type of old technology with water cooling system. Its efficiency was very poor, accommodating more space, creating noise and generating heat which in turn increasing the moisture in the compressed air. The maintenance frequency is high and also consuming more power. The new screw compressor installed is energy efficient type which accommodating less space, low installation cost, no heat generation, less noise, air cooled type and also less moisture.

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
	
RECIPROCATING COMPRESSOR	SCREW COMPRESSOR

Agency that executed the project (with complete address and email): In house execution

Total investment, Rs.: 7.00 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 4.88 lacs

First year other savings, Rs.: 0.15 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	4.75				
Energy consumption after (in lacs)	3.24				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Replacement of HPSV lamp with Tubular Fluorescent Lamp for street light	Sector : Cement
Year to be filled by BEE		Technology : Variable Speed Drive

Description of the energy conservation measure:

The street light fittings Installed are of High Pressure Sodium Vapour(HPSV) type. Which is consuming more power and delivering less lumen output. The maintenance frequency is high. This was replaced with Tubular Fluorescent type lamp with four tube lights. If any one of the tube fails then the others will not affected. Better Illumination with instant glow . The lumen output is more and consuming less power.

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
HIGH LAMP 	 **TUBULAR FLUROCENT LAMP**

Agency that executed the project (with complete address and email):In house execution

Total investment, Rs.: 0.08 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 0.005 lacs

First year other savings, Rs.: 0.05 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	0.0043				
Energy consumption after (in lacs)	0.0276				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Replacement of DC drive Weigh feeder with AC drive for Clinker Feeding	Sector : Cement
Year to be filled by BEE		Technology : Variable Speed Drive

Description of the energy conservation measure:

The weigh feeders installed was of old technology i.e of dosimate feeder type with DC variable speed drive. The accuracy and reliability was poor. The spare parts were not available in the market. Break downs were more. This was replaced with Belt weigh feeders (Trans Weigh Make) with AC variable speed drive . The accuracy was high , less break down ,high reliability with less power consuming .

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
	
DC VFD(WEIGH FEEDER)	**DC VFD (WEIGH FEEDER)**

Agency that executed the project (with complete address and email):In house execution

Total investment, Rs.: 8.00 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 0.04 lacs

First year other savings, Rs.: 0.05 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	0.17				
Energy consumption after (in lacs)	0.16				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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Energy Conservation Measure implemented in 2006-2007

ID to be filled by BEE	Title of the measure Replacement of DC drive Weigh feeder with AC drive for Gypsum Feeding	Sector : Cement
Year to be filled by BEE		Technology : Variable Speed Drive

Description of the energy conservation measure:

The weigh feeders installed was of old technology i.e of dosimate feeder type with DC variable speed drive. The accuracy and reliability was poor. The spare parts were not available in the market. Break downs were more. This was replaced with Belt weigh feeders (Trans Weigh Make) with AC variable speed drive . The accuracy was high , less break down ,high reliability with less power consuming .

Picture/ sketch/ drawing before modification (if available)	**Picture/ sketch/ drawing after modification**
	
DC VFD (WEIGH FEEDER)	**DC VFD (WEIGH FEEDER)**

Agency that executed the project (with complete address and email):In house execution

Total investment, Rs.: 8.00 lacs	Year of implementation: 2006-07

First year energy cost savings, Rs.: 0.04 lacs

First year other savings, Rs.: 0.05 lacs (Saving on maintenance cost)

On annual basis	kWh 000'	Coal (Tons)	Gas Nm^3	Oil (kL)	Other
Energy consumption before (in lacs)	0.17				
Energy consumption after (in lacs)	0.16				
Energy tariff, Rs/ kWh/ Ton/ Nm^3/ kL …	3.23				

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