

Shree Cement Limited, Beawar (Unit -II)

(i) UNIT PROFILE

Shree Cement Limited (SCL) is located at Beawar, 185 Kms. from Jaipur off the Delhi-Ahmedabad highway. **SCL** is an energy conscious and environment friendly sustainable business origination. Shri. M.K.Singhi, Executive Director of the Company, is looking after all day-to-day affairs. The company is managed by qualified professionals with broad vision



Starting its Second plant (KHD, Humboldt wedge(3700 TPD) with installed capacity of 1.24 million tones per annum was commissioned in 1997, **in record time of 18 months**. By cost optimization and unmatched efficiency levels through technical innovation and bold decisions, **it has become the most energy efficient Plant**

SCL's Unit-II has a track record of over 100% capacity utilization in the eighth year of its existence. In 2004-2005 it registered its **highest ever production of 18.99 Lakh tones with 107 % capacity utilization against industry average of 82 %**.

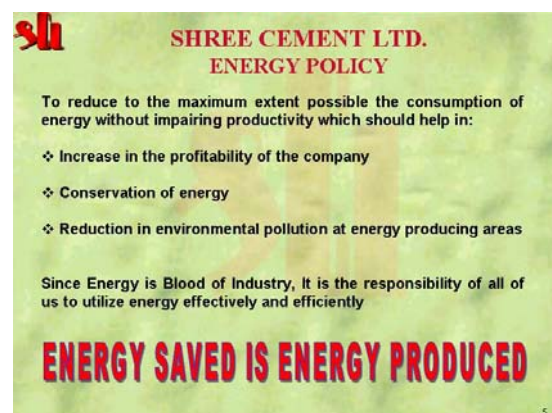
(ii) ENERGY CONSUMPTION

Shree R&D centre efforts and manpower training have helped in achieving new heights in reducing energy consumption and use of alternate fuel which is considered to be a difficult task for cement industry. These efforts have resulted in reduced power consumption.. Efforts have been recognized by various National & International agencies.

Particulars	2002-03	2003-04	2004-05
Energy Cost as % of manufacturing cost: (Combined for Unit- I&II)	33.06	24.68	30.32
Power consumption per tonne of Cement	74.99	73.07	69.17
Heat consumption Kcal per tonne of clinker	667.27	729.39	715.10

(iii) ENERGY CONSERVATION, COMMITMENT, POLICY AND ORGANIZATION SETUP

A clear-cut energy policy has also been formulated by the company in order to give more inputs on energy conservation. The statement of the policy is written on hard boards and displayed at various locations of the company Shree firmly believes that its employees are its most important, vital & valuable asset. The potential of Human Capital is optimally utilized by providing cohesive & creative work environment. Due attention is paid for development of this resource & sharpening of the skill through continuous Training & Development for developing competencies as well as providing avenues for self & organizational development. Shree provides ample opportunity of growth both vertically & horizontally to self-drivers & gives freedom for taking initiatives for modification in plant, machinery, equipments & work procedures



(iv) **ENERGY CONSERVATION ACHIEVEMENTS**

The increasing consciousness for energy conservation and steps taken towards effective monitoring, better operational control and process optimization in addition to various modifications/retrofitting of energy efficient equipments have contributed greatly in energy conservation. The abstract of various project executed during the reference year are given below:

Project-1

Installation of triplet cyclone

To improve the efficiency of Kiln-II, 3rd parallel cyclone was installed in the top stage of both strings. Before installing triplet cyclone , the ΔP across top stages of both string were 130 and 135 mm WG (Kiln string & Pyro string respectively).



BENEFITS:

	<u>Kiln string</u>	<u>Pyro string</u>
⇒ Pressure drop saving (mm WG)	35	35
⇒ Flow at fan inlet (m3/sec)	66.44	100.28
⇒ Power saving (KWh)	32	45
Total power saving =	77*24*310= 5.74 Lakh KWh	

Cost of Modification : Rs. 57.50Lakh

Project-2

Optimization of blended cement production

Fly ash unloading system

There were no of obstructions in our unloading system of fly ash and it was very difficult to unload the required quantity of fly ash. To optimization the blended cement production we modified our fly ash unloading system as given below.



Observation

1. RCC hopper restricts free flow of fly ash as fly ash stick with hopper walls.
2. Rotary air locks most of the time runs idle due to bridging of material.
3. Average feeding rate was 35 to 40 tph

Modification

1. RCC hopper has been modified by fixing 6m.m. thick m.s. plate inside complete hopper to avoid restriction in flow of fly ash
2. Air aeration system has been installed to fluidize the complete flyash in hopper so bridging of material can be restricted.
3. Air slide conveyor installed with higher capacity of 150-210 TPH and fitted with pneumatic shutoff & dosing gate

Benefits

1. Extraction increased with smooth & consistent flow of material
2. Easy to control flow of material by elevator load
3. Unloading capacity has been increased from 800 to 1200 tpd

Cost incurred: 0.30 Lakhs

Project –3

Optimization of Start/stop timings

To avoid idle running of plant's equipment we optimized the start/stop timings of various drives in the following manner:-

Step-1: Find out running kw of each drives

Step-2: Recording time interval between starting / stopping of consecutive drives

Step-3: Calculation of kwh

Step-4: Reduction of time interval in PLC programming among starting /stopping of various drives

BENEFITS:

Group-A	Before modification		After modification	
	Total time (Second)	Idle running (kwh)	Total time (Second)	Idle running (kwh)
Starting	269	109.04	178	71.09
Net saving= 37.95 kwh for each starting				

Group-B	Before modification		After modification	
	Total time (Second)	Idle running (kwh)	Total time (Second)	Idle running (kwh)
Stopping	829	133.93	640	84.46
Net saving= 49.47 kwh for each stopping				

COST Incurred: : Normal

(v) **ENERGY CONSERVATION PLANS AND TARGETS**

The company is consistently engaged in marching ahead for further reduction of electrical as well as thermal energy consumption in plant because we believe the key of the success in cement business is minimum input of energy (electrical, thermal and human) with maximisation production of good quality. With quest for excellence the company is marching ahead to achieve lower energy consumption in the plant. The energy conservation plans and targets for achieving lower energy consumption are:

Energy Conservation Plans and Targets

Energy Conservation Measures (Planned)	Anticipated savings in		Approx. investment (Rs.lakhs)	Project commencem ent & completion year
	<u>Energy Value</u> (specify units)	<u>Rs.</u> <u>lakhs</u>		
Reduction of suction side pressure drop of cooler fans	4.68 Lakh Kwh	9.36	4.00	2005-06
Installation of new cooler vent fan with VFD	9.82 Lakh Kwh	19.65	14.00	2005-06

Installation of coal conveying blowers	1.15 Lakh Kwh	2.29	1.00	2005-06
Optimization of GCT pumps.	3.12 Lakh Kwh	6.24	8.00	2005-06
Optimization of cement mills	1.06 Lakh Kwh	29.64	25.00	2005-06
Installation of high efficiency separators in coal mills	4.45 Lakh Kwh	8.89	20.00	2005-06
Installation of new blower in calciner coal conveying system	2.08 Lakh Kwh	4.16	12.00	2005-06
Installation of new filler transport system	9.05 Lakh Kwh	18.10	30.00	2006-07
Installation of lower dispersion Box in riser duct and increase heat transfer	6900 Million Kcal	26.2	10.00	2006-07