



SHREE DIGVIJAY CEMENT CO. LTD.

DIGVIJAYGRAM – VIA JAMNAGAR (GUJARAT)

Unit Profile:

Shree Digvijay Cement Company Limited (SDCCL), an Aditya Birla group company, established in the year 1946 is one of the pioneering companies in Cement Business in India. The Dry Process Plant of the company is having production capacity of 11 Lac MT clinker per annum. The plant is equipped with latest 18 MW Diesel Generating Sets commissioned in the year 1999.

SDCCL is producing seven different types of cements. This includes special purpose Cement like Oil Well Cement as Import substitution resulting in saving of valuable Foreign Currency. The other specific purpose products like Sleeper grade Cement, Sulphate Resistant Cement have premier share in the markets.

SDCCL also owns Jetty with a prestigious status of Two Star Export House. Company's Clinker and Cement has earned reputation in International Markets also. The company is proud recipient of various awards of international repute for its outstanding performance in Exports, productivity and Quality.

Energy Management Policy:

At SDCCL, our aim is

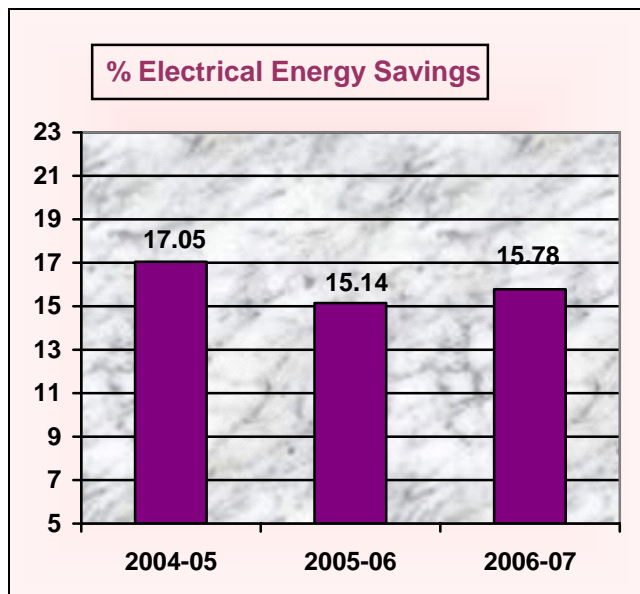
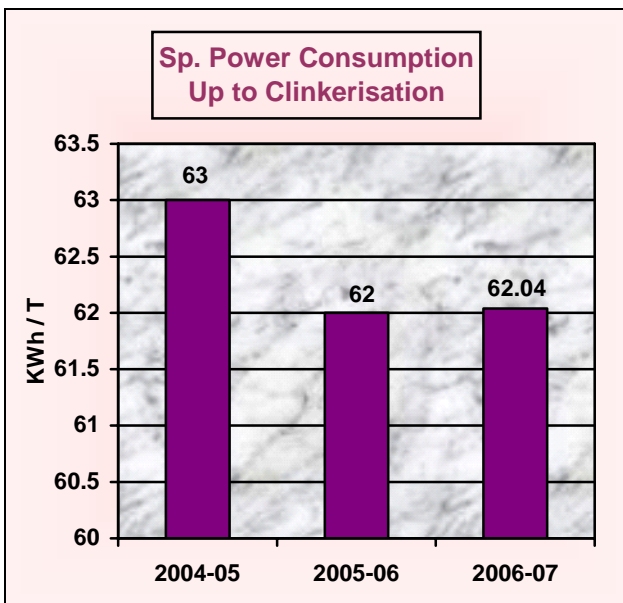
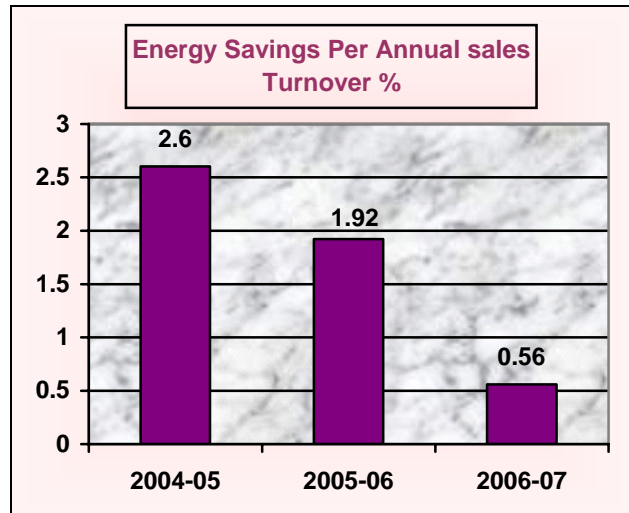
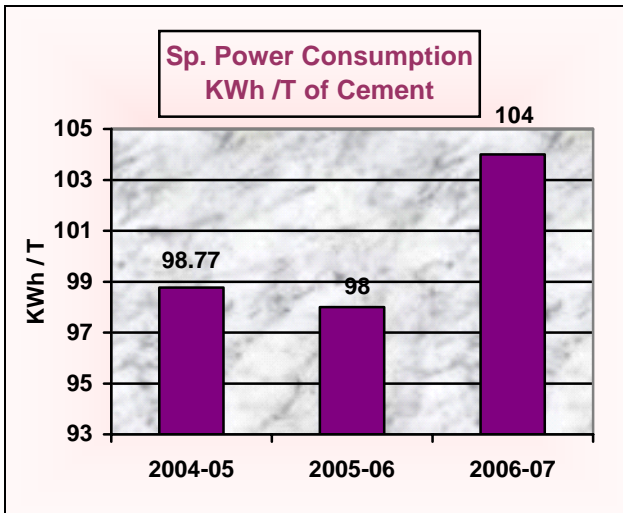
To optimally utilize various forms of Energy (Fuel & Power) in a cost effective manner to ensure conservation of energy resources.

By Committed efforts to

1. Reduce specific energy consumption by identifying areas of energy saving potential in the process.
2. Set energy consumption targets and monitor continuously.
3. Involve all the employees to work towards progressive improvement of targets of energy consumption.
4. Promote culture of awareness towards energy conservation in the organisation.
5. Implement innovative ideas for modification, improvement and up gradation of the equipment & process for optimizing energy consumption.

Energy Consumption Data:

S.No	Description	Measurement	2004-05	2005-06	2006-07
1	Annual Cement Production	MTs	765909	897409	927861
2	Total Electrical Energy Consumption	Lacs KWh	922.94	998.03	1019.77
3	Total Thermal Energy Consumption	Million Kcal	773553.29	788375.18	758438.89
4	Specific Electrical Energy Consumption	Kwh / T of Cement	98.77	98.00	104
5	Specific Thermal Energy Consumption	Kcal / kg of clinker	800.41	779.00	781.02
6	Total Sales turnover of the unit	Rs. Lacs	19862.20	24805.61	28946.12
7	Total Energy Cost	Rs. Lacs	7588.26	7675.38	8479.57
8	Energy as % of Total Manufacturing cost	%	57.45	50.72	51.07 %



Energy Conservation Organizational Set-Up:

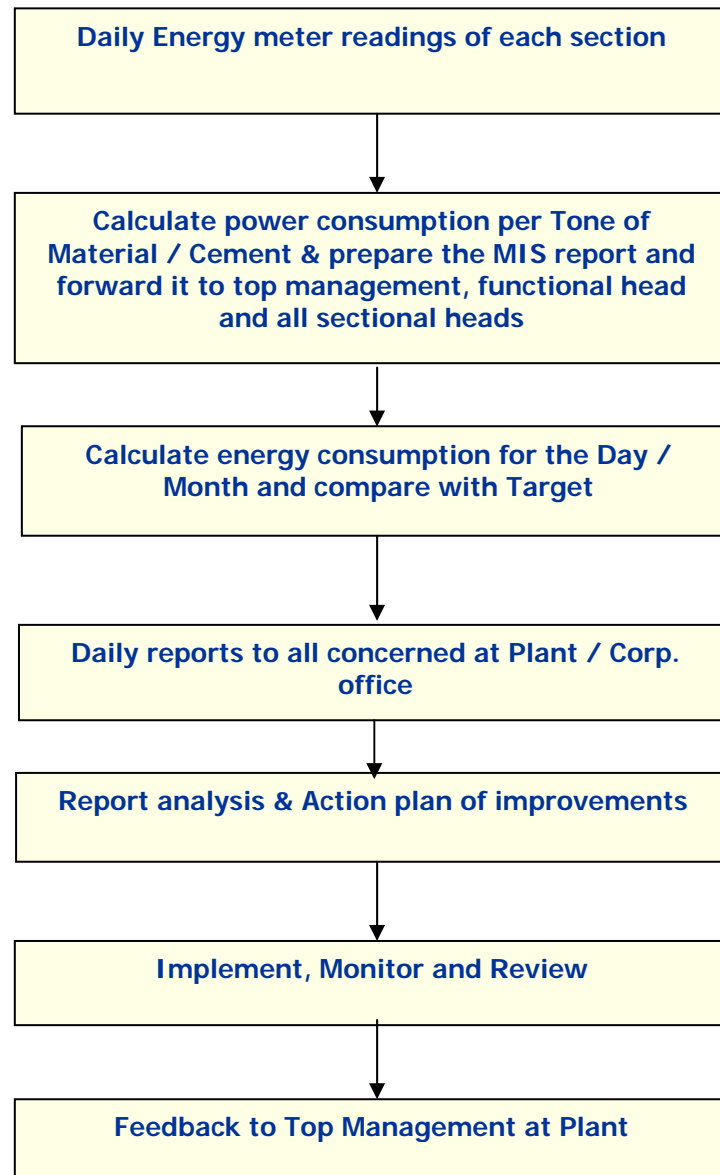
Macro Level Efforts:

Due to high cost of Energy in manufacturing process of Cement, high priority is laid by Management to conserve energy. Energy consumption parameters are daily analyzed and deliberated with floor level operating & supervisory staff by managerial staff. Daily, Monthly reports are prepared with emphasis on Energy by MIS Cell. Energy consumption is also compared with other Group Companies in the manufacture of same product at Plant management and corporate level. Development in any of Group Company or World over in the field of Energy conservation is relayed to each other. Also, suggestion scheme is implemented to get good suggestions from all levels. Our Unit's "Energy Policy" is attached herewith.

Micro Level Efforts:

With a view to create awareness & involve the people up to grass root level in Energy Conservation process, SDCCL has set-up a Task Force for Energy Conservation. These task forces are formed for each functional sections of the plant & they have Engineers, supervisors & workers as their members. A core team made of senior plant executives led by Energy Manager guides the task forces. The Task Forces identify, explore, plan, execute & monitor energy conservation efforts among their sections. All the teams carry out monthly meeting with the Unit Head to discuss the progress, ideas, problems, action plan & performance.

Energy Management System – Flow Chart:



Energy Conservation Achievements:

Major Energy Conservation Initiatives during 2006-07:

1. Modification of Compressor No-2.

Problem Faced:

- Kiln tripping due to unavailability of Spare Compressor.

Improvement Actions:

- Reversion of K.G. Khosla Make Compressor to its original model **1HA4Q(DPKILN)**.
- The mention Compressor was modified to high pressure 7 bar from its origin low pressure version during the plant's drastic situation of H.P.7 bar compressed system.
- Make the compressor Energy efficient by replacing the 225 KW slip ring induction motor with 200 KW Cage inductions motor.
- Replaced Oil immersed Resistance Starter with Star Delta Starter.



Benefits Achieved:

- Power Saving - 26 KW.
- Eliminated Following maintenance prone devices:
 1. Slip Ring induction motor
Cost of Slip ring – Rs.26000.
- Zero Carbon brush consumption.
- OIRS maintenance & Consumption of transformer Oil eliminated.

Cost of Project: Rs. 0.75 Lacs (Rs. Seventy Five thousand only)

Annual saving: Rs. 12.88 Lacs (Rs. Twelve lacs eighty eight thousand only)

2. Installation Cross Belt Analyzer and FLS Expert system :

Project background:

- To improve Raw meal quality.

Improvement Actions:

- Online Raw material correction in place of manual system.
- Avoided frequent variation in Raw meal quality.

System Diagram:



Benefits Achieved:

- Consistent in Raw meal.
- Smooth Kiln operation.
- Better clinker quality.

Project Cost:

- 4.5 Crs (Rs. Four crs. & five lacs.)

Total Annual Saving :

- Rs. 25 Lacs. (Rs.Twenty five lacs only)

3. Replacement of Stacker Gear box :

Project background:

- Frequent failure of gearbox and motor.

Improvement actions:

- Replaced the Gear box with New including motors.





Benefits Achieved:

- Reduction in Stacker Down time.
- Reduction in maintenance cost -3.00 lacs / annum.
- Improvement in Raw material quality.

Project Cost:

- **Rs. 9.0 lacs (Rs. Nine lacs only)**

Total Annual Saving :

- **Rs. 7.36 Lacs (Rs. Seven lacs thirty six thousand)**
- **Pay back period 1.5 years.**

4. Replacement of Raw mill Tyre with new :

Project background:

- Poor qualities of raw meal as raw mill tyre are worn out.

Improvement Actions:

- Raw mill tyre replaced with new with running time of 3 year instead of 1.5 years

Benefits Achieved:

- Life of tyre become double as it is of good quality and improves the clinker quality.

Total Annual Saving :

- **Rs. 8 lacs (Rs. Eight lacs only)**
- **Pay back period 1.5 years.**

5. Modification in Lube oil Separator of DG:

Problem Faced:

- Filter got damaged before the Life achieved.

Improvement Actions:

- Modified the lube oil separator pump suction line for collecting the lube oil. Which is done every 1000 Hrs?

Benefits Achieved:

- Saving in lube oil 200 ltr at every 1000 Hrs

Annual Saving :

- **Rs. 0.5 lacs. (Rs. Fifty thousand only)**



6. Errection of 11 KV capacitor bank to improve the Power factor of GRID from 0.86 to 0.92.

Problem Faced:

Excessive reactive demand of Cement mill and crushing feeding section leads to poor power factor .And to avoid the Penalty forced down by the GEB due to poor factor, it become necessary to repair and recondition the capacitor bank with a target of maintaining the power up to 0.91 .

Benefits Achieved:

- Improved the GRID Power factor from 0.86 to 0.92.

Improvement Actions:

- Re uses the Capacitors of 11 KV.
- Overhauled the Reactor used in capacitor bank.

Cost of Project: Rs. 2.5 Lacs (Rs. Two lacs and fifty thousand only)

Annual Saving : Rs. 20 Lacs (Rs twenty lacs only)

The unit has achieved saving of **Rs. 161 Lacs** by implementing various energy conservation Projects / implementations during the year 2006-07.



Energy Conservation Plan & Targets:

Sr. No.	Energy Conservation Measures (Planned)	Anticipated savings in			Approx. investment (Rs. Crs)	Project Commencement & Completion year
		Power U/T of Cem.	Heat Kcal/kg of cl.	Rs. Lakhs Per Annum		
1	Fly Ash handling and feeding system.	1.8	-	5	1	Dec-08
2	Clinker Storage system and modification of clinker conveying system.	0.5	-	25	2	Jan-08
3	Replacement of Worn out body of ESP fan and GCT.	1.0	-	7	1.2	Nov-07
4	Up gradation of plant SCADA system	0.6	-	30		June-08
5	Automation of Crushing and feeding plant	0.5	-	2		Mar-08
6	Up gradation of Coal mill No-4 and 5 MCC.	0.3	-	2	0.8	June-08
7	Spare power cable for DG out going.	0.12	-	9		Dec-07
8	Replacement of DG-3 engine	0.5	-	45	1.2	Jan-08
9	Increase of clinker production	2.5		440	2.0	Mar-08
	Total...	7.82		565		

Improvement through Capex:

Particular	Present Status	Imp. Through Capex	%
Kiln Production – TPD	3250	3400	4.62
Power Consumption (KWH/Ton)	104	96.2	7.5
Fuel Consumption Kcal / KG	781.02	765	2.1
PPC Production Tons/Day	550	1000	82

The unit has targeted to achieve sp. Power consumption of 104 KWh / T of cement & Sp. Heat consumption of 781.02 Kcal / kg of clinker by the end of the year 2007.



Safety & Environment:

Safety:

Safety is an important aspect of working culture at SDCCL. The unit has announced its Safety Policy, which is implemented by Safety Department across the plant. The culture of safety is promoted by conducting various awareness programs, on-site trainings, competitions & rewards etc. The company has also prepared its Disaster Management Plan to handle any accidental circumstances. The unit also runs an Occupational Health Center in the campus for the health & welfare of employees & their families.

The company has successfully achieved OHSAS 18001 certification from year 2005 & is committed to maintain it .

Environment:

The unit has an ISO 14001 certification for Environment Management System. The stack emissions & fugitive dust emissions are constantly monitored & controlled. The Horticulture section of the unit has carried out an area wise drive by developing more than 20,000 plantations in the entire campus to make the surrounding areas clean & green.
