

ACC - LAKHERI CEMENT WORKS

Organization set up for energy conservation

ACC- Lakheri Cement works has an energy conservation cell consisting of Energy Manager as Coordinator with exclusive responsibility for this activity. The energy conservation cell consists of head of various departments who are primarily responsible for conservation of thermal / electric energy. The cell monitors the thermal / electric energy conservation report in various sections of the plant on daily basis and records the observation in the form of report which is reviewed by concerned managerial staff and Vice President.

Monthly meeting - Energy conservation review meeting is conducted where a committee consisting of concerned managers and Vice President in the chair review the activity carried out in the month, gives directions to energy conservation cell for focused attention. Certain identified schemes where large financial commitments are involved are discussed at length for the viability and accordingly Vice President sanctions the funds.

Energy accounting and monitoring report is prepared by EC cell and the same are discussed in the periodic review meeting. Energy Manager maintains daily monitoring reports.

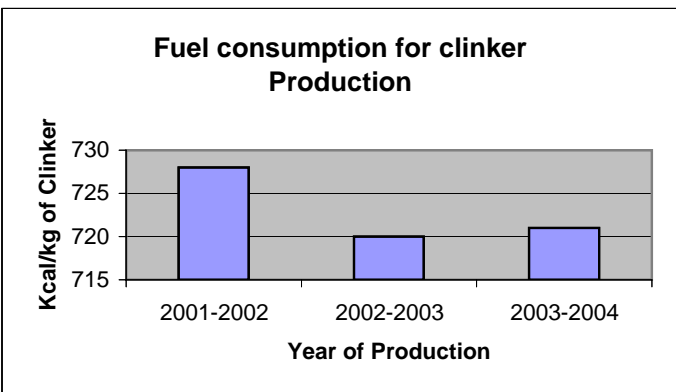
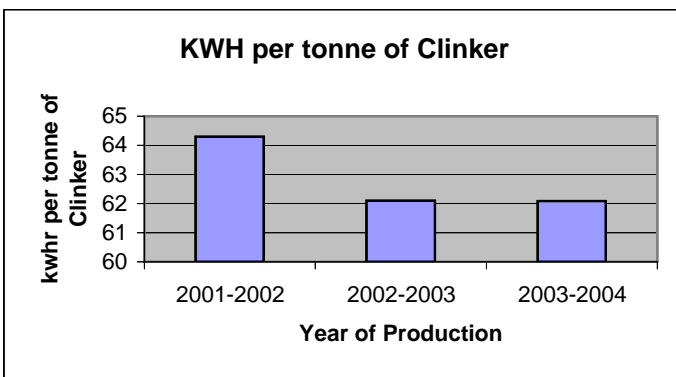
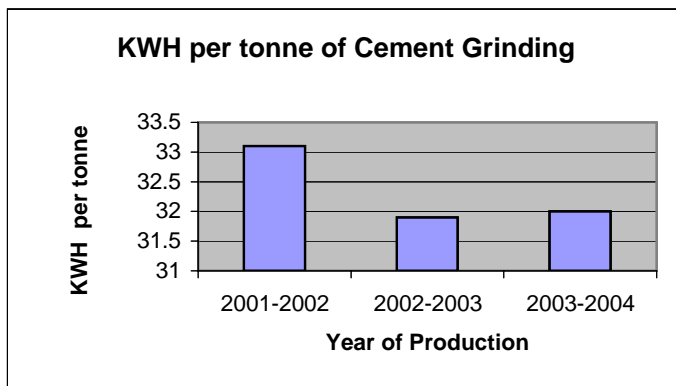
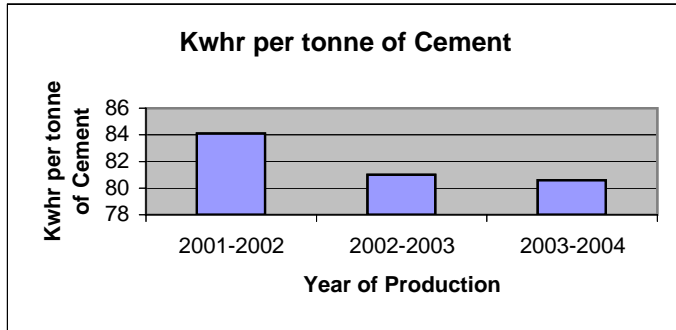
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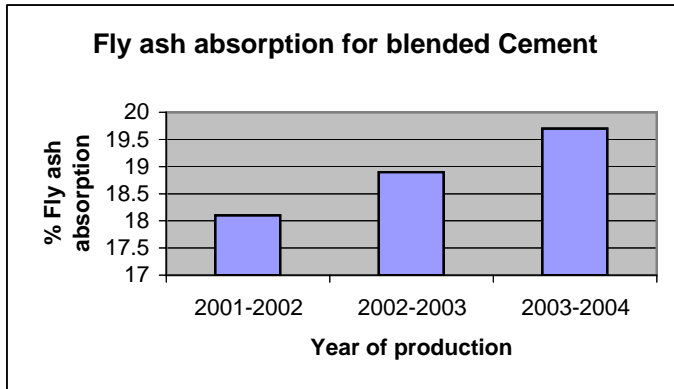
Brief write up on ACC Lakheri Works

Unit Profile - ACC Lakheri Cement Works has installed a new energy efficient six stage dry process SP kiln in place of conventional 3 numbers wet process kilns. The plant is operated with DCS and had an installed capacity of 1250 TPD clinker production. State-of-the-art energy conservation equipment like Vertical Roller Mill, Reverse Air fiber glass bag house, CF silo, Deep bucket conveyor for clinker transport, Electro static precipitator for clinker cooler, variable speed DC drives for major process fans, VVVF drives for other smaller equipment, solid weigh feeder for coal and kiln feed, electronic weigh feeders etc. form integral part of this plant.

In the above project the sizing and selection of the equipment were conceived keeping in view the overall conservation of thermal as well as electrical energy. This project was commissioned in July 1997 with an investment of around Rs. 65/- crores. Soon after the stabilization of the plant productivity optimization measures were taken up every year to improve the performance continuously.

Energy Consumption - The improvements achieved in various areas of Pyro processing and Cement mill Dept. through various Energy Conservation measures are depicted below:





Energy conservation commitment, Policy and setup-

ACC Lakheri attributes highest priority to energy conservation. To achieve this, the entire team at the unit level works with whole hearted commitment. Many continuous improvement projects were implemented through Small Group Activity (SGA) & Quality Circle (QC) team, as apart of TPM. With a clear vision and strategy for improvements in the energy front, the Energy Conservation Cell was formulated. The activities of this cell are constantly monitored by a high level committee, which demonstrates the commitment of Management in this sphere of activities.

(i) Energy conservation achievements - ACC Lakheri Works, through implementation of various projects, have been able to achieve the following -

- a) Reduction in the power consumption by 3.1 Kwh/t of cement.
- b) Reduction in specific fuel consumption by 8 Kcal/Kg clinker
- c) Increase in the fly ash absorption in the blended cement from 18.9% to 19.7%.

(ii) Energy Conservation plans and the targets - with the strong thrust on saving energy, ACC Lakheri Works have planned for the following.

- a) Installation of VVVF drives in the cooler fans and cement mill bag filter fans.
- b) Usage of petrocok as an alternative fuel to conserve natural fuel and natural limestone reserves.
- c) Beneficiation of own quarry limestone to increase the quarry life.
- d) To increase awareness on the need for energy conservation among workmen.
- e) Removal of inlet damper in the process fans in which VVVF has been installed.
- f) Replacement of higher capacity single water pump in place of two water pumps in the pyro processing section.
- g) Installation of higher efficiency water pump in the residential colony.
- h) Installation of higher efficiency motor in E.O.T. crane.
- i) Installation of higher efficiency double helical gearboxes in the cement mill common screw conveyor in place of worm reducer.
- j) Installation of sonic ear in the coal mills for auto control of feed.
- k) Provision of inlet guide vane type damper in the place of butterfly damper for reducing pressure drop and power saving in the fan.

- l) Center feeding of material In the VRM and increase in the grinding pressure for increasing the output rate of VRM.
- m) Installtion of auto star delta starter in the drives of vibrating screen and reject belts to reduce power at quarry.
- n) Improving the crusher output and reduction in crushed limestone size thereby improving the VRM output by the way of re-orientation of hammer configuration with increased with increased momentum and increasing the GRR steps of VRM fan.
- o) Installation of VVVF in the reverse air fan.
- p) Direct feeding from cement silo to the elevator and avoid running of screw conveyor in the packing plant
- q) Saving in the power from replacement of lining plates to modified design boltless plates in the cement mills.
- r) Modifications of VRM classifier to achieve higher output levels
- s) Replacement of Halogen lamps with HPSV lamps to conserve power
- t) Modifications of Grit cone separator for minimizing the pressure drops to reduce the power consumption of the fan
- u) Installation of additional capacitor banks for PF compensation
- v) Installation of Fly ash system to achieve higher fly ash absorption in the cement
- w) Installation of high efficiency motors for crane and circulating fans

(iii) Environment and Safety - Apart from massive drives for energy conservation ,ACC Lakheri Works has equal concern for environment and safety. The unit's unmatching efforts to protect environment has qualified it for the prestigious ISO 14001 certification. the unit has been spending huge amounts on the development of green belts in around Lakheri,for the last several years.

Lakheri works gives first priority to the safety in all, spheres of its activity.the safety department constantly monitors the conditions under which various jobs are carried out in the different departments and advises where necessary specific steps to be taken.Safety audits are conducted at regular intervals and any weak areas observed are immediately attended.A team led by a manager carry out Safe Attitude Encouragement exercise among the workmen. Safety day celebrations are conducted every year and all workmen take active participation in various competitions held.The Vice President of the unit distributes prizes to the winning teams/ individuals.In recognition of the efforts put in by the unit towards Safety, Greentech Foundation has selected Lakheri Works for it's prestigious Silver Award.