

Energy Management Practices

1. Cement sector

1.1 Structure of Energy Management Cell

The energy management is a critical focus of the top management for all cement plants. Most of the plants have formal energy management cell (EMC) comprising of managers and engineers drawn from various departments. All the plants monitor energy consumption of each section of the plant on daily basis. The EMC of all the plants prepares reports on energy performance on daily and monthly as well as yearly basis. These reports are reviewed at different levels of management. The EMC recommends energy conservation measures, which are reviewed by various review committees internally within the plants. In almost all the plants, the top management takes final decision for implementation of short, medium and long-term energy conservations programmes. Modifications and retrofitting of energy efficiency equipment in different areas are implemented by respective heads of the departments.

1.2 Promoting energy management

Majority of the plants organize training programmes for operators for awareness on energy conservation and specialized training programmes for officers who are directly monitoring energy consuming equipment. The EMC organizes presentation on energy management as well as presentation by external agencies on various energy conservation devices / techniques. There are various forums and campaigns, where the concept is promoted by way of giving awards and incentives to the employees. Suggestion scheme is also in place in most of the plants where the suggestions are received from all the levels in the plant for continuous improvements on reduced energy consumption levels.

1.3 Barriers

All plants have found high cost of technology as the severest constraint in implementation of energy conservation measures in the plant. However, some plants felt the high interest rate as another main barrier. The plants view sharing of information through plant visits as a very important source of information and value the information provided by the associations through industry meets and technological database on energy efficiency.

1.4 Role of blended cements

From the national perspective, increasing the production of blended cements (pozzolanic and blast furnace slag cement) can be considered as one of the most effective means of reducing the energy intensity of cement production and at the same time conserving the scarce natural resources. The ratio of OPC to total cement produced is reducing and in some of the plants it is as low as 0.11, indicating very low level OPC production in comparison to other cements. This is a very encouraging trend and needs to be promoted. In order to further increase the use of blended cements, the plants have suggested a number of policy initiatives. Some of the measures have been suggested are:

Promote use of blended cement in all Government projects/Government sponsored projects. Awareness generatio programs through seminars, technical workshops, interaction meets with architects / masons etc. to promote usage of blended cements in smaller construction projects. Increased participation of the technical staff of cement plants / research organisations to educate and demonstrate the users about the benefits of blended cements. Gradewise categorization of blended cements so that the customers can chose as per their needs.

2. Proposed energy policies in cement industry

Apart from achieving energy reduction through technological upgradation in plant and machinery, there are no. of softer approaches that need to be adopted to improve the energy performance at the plant level.

2.1 Top management commitment

Demonstration of commitment of the senior management staff is extremely important to ensure that the employees at the junior and operating level participate effectively in various activities related to energy management. Daily monitoring of sectionwise energy consumption levels by the section heads and comparison with the set norms can give very positive signals to the operators of the importance being attached by the management to energy consumption. Deviation from the set targets should be analysed thoroughly and gray areas located so that corrective actions can be initiated.

2.2 Energy Management Cell

One of the most important steps that needs to be emphasized for energy intensive industries like cement is to have a dedicated energy management cell with full time energy manager responsible for overseeing its functioning. Apart from the regular activities of the EMC with regard to regular reporting and monitoring, the EMC must also be made responsible for imparting training to the junior plant personnel on energy management, initiating regular energy audits, and initiating and monitoring implementation of the recommendations of the energy audit. This is all the more important now since cement sector is one of the designated consumers that has been identified for priority action under the EC Act.

2.3 Targets and budgets

Importance of having realistic short term and long term targets for reducing energy consumption was stressed. Separate budgets must be earmarked on an annual basis for upgradation / modernization of plant and machinery and for smaller incremental improvements.

2.4 Small group activities

Activities to involve the operators and foremen at the shop floor through small group activities like quality circles, suggestion schemes, and reward schemes should be encouraged in all the cement plants. Initiatives such as these can be very helpful in creating awareness among the employees towards energy efficiency and resource conservation.

2.5 Production of blended cements

From the national perspective, increasing the production of blended cements (pozzolanic and blast furnace slag cement) can be considered as one of the most effective means of reducing the energy intensity of cement production and at the same time conserving the scarce natural resources. The majority of barriers identified in this regard are lack of knowledge of consumers and lack of initiative on the part of both manufacturers and other agencies in promoting blended cements. Some of the measures suggested by cement manufacturers to promote blended cements are:

Incentives for using fly ash from thermal power stations along with clinkers for producing cement. Educating the consumers on the usage of blended cements through seminars, technical workshops at national / regional levels and through small meetings at the local level. Increasing awareness among the general public through advertisements, electronic media, newspapers etc. Categorization of blended cements like 30, 40, 50 and 60 Mpa grade so that customers can choose as per their needs. Promoting usage of PPC and PSC in large construction projects.

Reference:

Energy Management Policy – Guidelines for Energy Intensive Industry in India, Chapter 4, pp 36-65 by Bureau of Energy Efficiency