

## **Energy Management Practices**

### **1. Aluminium Sector**

#### **1.1 Energy Management Cell, its organization and role**

Aluminium industry understands the importance of energy conservation and have set up energy management cell (EMC) in one form or other. This cell has members drawn from various sections of the plant who have additional responsibility of energy conservation other than related to maintenance or production.

The job of the EMC is to generate the energy management plan, identification and execution of energy conservation projects in the plant. EMC also monitors the energy performance of equipments and plant on a continuous basis and prepares energy consumption status report for review by different levels of management. Energy consumption reporting to top management is done on monthly basis, and to plant sectional heads on daily/weekly and monthly basis. Energy conservation plan for the next year is prepared in advance. The cell also interacts with top management frequently and with different departments in the plant very regularly.

#### **1.2 Energy Audit:**

Almost all the plants utilize energy audit to identify potential of energy savings in their units. Every plant has the internal expertise to carry out energy audit in-house. However, few plants take help of external energy auditors also. Frequency of audit varies from once a year to once in three years.

#### **1.3 Energy Conservation budget:**

Most of the plants have no separate budget for energy conservation. Decision on investment to be incurred on energy conservation is taken by the top management and is implemented by the sectional heads. These decisions are based on techno-economic analysis and return on investment is an important criteria. Emphasis is given to those projects which can be executed inhouse.

#### **1.4 Setting of Targets:**

Energy conservation targets are set on the basis of reduction possibility in last year's energy consumption and the best energy figures for similar plants in the region or the sector. Some companies set second best specific energy consumption figures achieved in a month last year as the target for the next year.

#### **1.5 Motivation:**

There are a number of schemes in aluminium plants to educate and motivate the plant personnel. All these schemes are designed in a way to ensure maximum participation of the employees. Few units encourage them to give suggestions and slogans on energy conservation while few organize in-house training programs on energy management for their employees. Some of the plants encourage their employees to publish their achievements in energy conservation in journals and internal newsletters.

#### **1.6 Barriers for energy conservation:**

High cost of technology, which plants want to adopt for improving their energy efficiency is the main barrier. This again, however, is dependent upon the size of the plant viz. larger aluminium producers feel that there is no barrier in achieving higher energy efficiency levels in their plants. Interestingly, higher interest charges or production disruption was not cited as a barrier by any plant.

## **2. Proposed energy policies in aluminium industry**

The aluminium industry in India has come a long way after deregulation in the mid 1980s. This sector is highly concentrated with only two private industrial groups controlling four companies and one public sector plant. However, this is a very competitive sector with aluminium prices in the country linked to LME prices and hence these plants have to operate in a globally competitive market. Few plants have taken steps to upgrade and modernize by adopting latest technologies and practices that have been developed by international suppliers, particularly electricity, is like a raw material to them and they want good quality and uninterrupted power for their operation. All the plants are continuously identifying ways and means to reduce their cost of production with special emphasis on energy conservation because it directly affects their bottom line. In fact, one of the plant in this sector is amongst the lowest cost producer of aluminium in the World.

Apart from achieving energy saving through technological upgradation in plant and machinery, there are a number of softer approaches that need to be taken to improve the energy performance at the plant level. Few important issues that emerged are highlighted below:

### **2.1 Top management commitment**

A strong commitment towards energy conservation from the top management will send right signal down to the shop floor worker. An energy policy statement will work as a catalyst in this regard. The policy statement should also make a commitment to reduce specific energy consumption by certain percentages in the next 5 – 10 years. Daily monitoring of sectionwise energy consumption levels by their respective heads and comparison with the set norms would show the importance attached to operators and supervisors. Deviation from the set targets should be analysed thoroughly and corrective action should be initiated.

### **2.2 Energy Management Cell**

It is important for energy intensive industries like aluminium to have a dedicated energy management cell with a full time 'Energy Manger' who will be responsible for overseeing its operations. Most of the plants in this industry have department/cell who look after energy conservation activity, which is an additional responsibility and not necessarily a prime one. The energy management cell should provide necessary structure and formalize the process of energy conservation thereby enhancing its efficacy with full support from top management. Besides energy manager, the cell should also have skilled persons in different disciplines to take care of its need. The cell should interact with manufacturing and other divisions like maintenance, utilities and even finance, which will help in carrying out its activities like conceptualization and implementation of projects, carrying out educational campaigns etc and are beneficial to effective energy management. This dedicated working will also bring to the fore the energy issues in the minds of personnel working in different areas and will influence their decision making.

### **2.3 Small Group Activities**

It is very important to involve every employee from top to bottom to achieve best results in the area of energy conservation. Operator and foremen level employees form a team to work on a specific energy conservation project. This cross-functional team conceptualizes the project, carries out the measurements and after discussions with management implements it too with support of concerned departments. Monitoring of its successful operation and actual savings realized are also calculated and presented to the management. Through this exercise, not only the awareness among the employees about the energy conservation would be created but also they would feel a sense of ownership and achievement. A proper reward scheme would also be helpful in encouraging employees to share their valuable ideas.

#### **2.4 Task Force to work as a catalyst**

Aluminium Association of India (AAI) can play an important role to spread the culture of energy efficiency among its plants at the national level. In fact, BEE has helped in forming a “Task Force” with participation from all the plants with an objective to promote energy efficiency in this sector. This forum can be utilized by these plants to showcase successful case studies on energy conservation in their plants, share best practices, keep track of international players and should collect the information about their energy consumption, technologies, market conditions, etc. Based on the information collected, this forum should frame the norms for various types of products and also revise it time to time.

#### **Reference:**

Energy Management Policy – Guidelines for Energy Intensive Industry of India,  
Chapter 3, pp 13-36 by Bureau of Energy Efficiency