Energy Management Practices

1. Petrochemical Sector

1.1 Energy policy

The energy policy broadly spells out the vision of the management in promoting energy conservation, increasing energy awareness, using benchmarking tools, need for conducting periodic energy audits and promoting use of renewable energy sources.

1.2 Commitment to energy conservation

Top management commitment ensures that energy conservation is followed in the design and operation of the plant. Optimum specific consumption of raw materials and energy is one of the main evaluation criteria during selection of a new technology. Fuel substitution, de-bottlenecking and energy optimisation are routinely practised during operation of the plants. The companies also employ external energy auditors and publish energy conservation measures undertaken by them in their annual reports.

1.3 Energy Conservation Cell, its organisation and role

All petrochemical companies have vibrant energy conservation cells. The cell is usually headed by a very senior manager usually of the rank of General Manager or AGM. The head of the energy cell reports directly to the head of operations.

The head of the cell, along with normally one or two engineers, form the 'Core Group'. The Core Group is responsible for compilation of energy consumption data, MIS reporting to top management, arrangements for external audits, and compilation and prioritisation of energy conservation schemes.

Further, each manufacturing plant nominates an energy coordinator from amongst its operational personnel. The energy cell works with the plant energy coordinator and respective plant technical services engineer to form the 'Working Group'. This group is usually responsible for conceiving and implementing new energy conservation schemes.

1.4 Small group activities

There are small 'Working Groups' in most petrochemical companies. In addition, some progressive plants organise other group activities in which participation of every technical personnel is mandatory. Each group is responsible for conceptualising and developing a specific cost saving idea. All the different groups in the company come together every year to present their project ideas to other groups. This kind of group work promotes interaction across functions and helps in development of many new ideas within the company.

1.5 Energy Audit

Petrochemical companies are quite conscious of the role of energy audit in energy conservation. Most plant conduct energy audit on a regular basis, both in-house and through external agencies.

The in –house team conducts periodic audit to identify areas of energy wastage in the plant. Some typical areas where internal team concentrates are steam traps, electric motors etc. Insulation maintenance work, which is done round the year, is usually entrusted to an external insulation vendor in petrochemical companies. Some plants have also entrusted the steam trap vendor for routine maintenance of steam traps.

Both domestic and international external auditors have also been employed from time to time by most companies. There have been some very good examples of inhouse capacity building through working with external auditors in this sector. Based on the learning's acquired from external auditors, energy audits have been undertaken by inhouse teams subsequently.

1.6 Energy conservation budget

In petrochemical companies, funds are usually not a constraint for energy conservation schemes that have attractive payback period. The different energy conservation projects are analysed for anticipated savings and approximate investment based on which they are prioritized for implementation. The finance for various energy conservation projects are either allocated separately or provided from the respective plant budgets.

1.7 Target setting

Targets are usually set based on last year's energy consumption. The reduction target of specific energy consumption is in the range of 2 – 3% in most companies. The targets set are communicated to the respective plants. Periodic review is done and the deviations from the target are acted upon. Positive achievements in the current year remain as benchmarks for the next period and hence continual improvement is achieved.

1.8 Motivation

A number of measures to motivate the employees to minimize energy wastage are followed by petrochemical companies. These include suggestion schemes, inhouse training programmes on energy conservation, external training programmes and internal reporting and communication of outstanding achievements.

2. Proposed energy policies in petrochemical industry

Petrochemical industry is one of the most complex industrial sectors. The future of the industry depends in several factors and their interactions. Although the industry has seen a brisk rate of growth in the last decade, it has to gearup to withstand global competition. The cost of domestic production remains high since many plants were set up during a period of high customs and excise duties, high interest rates, poor infrastructure facilities, and administered pricing of raw materials.

2.1 Energy audits

Most petrochemical companies are already using energy audits. However, the decision on issues such as frequency of energy audit, target setting, scope of work etc. are often on an adhoc basis. Streamlining the process of such energy audits, especially when involving external auditors is recommended. There is also a lot of scope for strengthening the internal energy audit capability of the plants.

2.2 Monitoring

Most petrochemical plants are already doing regular monitoring of energy consumption trends. The latest plants are having distributed microprocessor based monitoring system. Few older plants however still have pneumatic instruments, and replacing them with DCS controls, will greatly help in identifying losses quickly so that remedial measures are taken immediately. In addition to online monitoring, individual plants and energy cell also generate energy consumption reports. There is scope for rationalization of the plethora of energy consumption reports generated for senior management in some plants. Translating the deviations in actual performance from budgeted consumption into monetary value should be practiced.

2.3 Corporate strategy

In the long term, the achievement of energy efficiency will work best when energy efficiency considerations and investment are integrated into the day to day decision making process at the firm, thereby reducing the amount of policy stimulus. Instead of making energy efficiency investments 'piggy back' on other non-energy benefits like increase in production, firms will have to 'internalise' energy efficiency by adopting advanced technologies and innovative operating practices.

2.4 Training

Transformation of human capacity through training is a long-term approach to promote energy efficiency. Although most petrochemicals plant are conducting in-house training programs and sending staff for external training, there seems scope for further improvement in this area. Two areas could be considered for giving a fillip to training of staff – making certain minimum hours of training compulsory for technical staff, and having a separate budget for training activities.

2.5 Management schemes

Most of the companies already have schemes such as suggestion boxes and energy conservation awareness programmes. There is a need to promote these schemes in an innovative manner so that employees at all levels are motivated to participate. Also, formation of cross functional groups of employees to identify new energy conservation projects, should be encouraged.

Reference:
Energy Management Policy – Guidelines for Energy Intensive Industry in India, Chapter 6, pp 96-119 by Bureau of Energy Efficiency