

## Energy Audit\*

The economic growth of a developing country remains a major decisive factor for it to acquire the status of an industrialised nation. Energy has always been perceived as the driving force behind the economic growth. Developing countries have considerable potential in energy efficiency. There are energy efficiency opportunities all around us ranging from obvious to the less obvious.

Energy conservation can reduce use of energy year after year. Startling achievements have been reported by successful organizations in this regard. Every organisation must develop its own energy conservation programme. The programme must be clear, impelling and continuous. A good programme would consider distinctive energy professional as part and parcel of the overall exercise – Energy Managers, Energy Auditors and Consultants. While the Energy Manager is an internal employee, the Energy Auditors and Consultants are generally from outside the organisation. Once an energy management programme has been initiated, the next step is conducting energy audit.

### Energy Audit

Energy audit is defined as an activity that serves the purpose of assessing 'energy use' pattern

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of factory or energy consuming equipment, and identifying energy saving opportunities.

There are actually three basic questions, which should be answered in an energy audit: -

- How much energy is being used and where is it utilised?
- How much energy should be used with the present operating conditions?
- How much energy could be used with improved operating conditions?

In order to give satisfactory answers to the above questions, the energy audits should be conducted by a team of technically oriented individuals, preferably those who have significant experience in the design and operation of the facility or specific equipment,

system or process that will be audited. The team should also be backed up with personnel with accounting, finance and computer skills.

### Methodology

- ❖ Gather and collate information in specially designed, "Energy Systems Questionnaire" format, for the Industry under study.
- ❖ Inter and Intra Industry comparison of the collected data.
- ❖ Assessment of the present efficiency index for energy consumption in the Industry/process.
- ❖ In-depth study of the plant operations, equipments and systems for a general review of the energy systems to





assess the operational efficiency and potential for economisation.

- ❖ Evaluating detailed recommendations for energy saving/conservation.
- ❖ Formulation of detailed action plans/strategies in consultation with the plant management for the implementation of the identified energy saving measures.
- ❖ Training the operating personnel in the specifics of energy conservation to enable them to implement the recommendations and also to monitor the progress on a periodic basis.

### Role of Chartered Accountant in Energy Audit

The functions of an Energy Auditor could be compared with that of a Financial Auditor. At the moment, while Energy Auditor is not yet a mandatory requirement on an all-India basis, the Financial Auditor is a pre-requisite for any organisation. The Energy Auditor is normally expected to give recommendations on

efficiency improvements leading to monetary benefits and also advise on energy management issues.

Chartered Accountants as part of the energy audit team can be involved in:

1. Quantifying energy costs,
2. Correlating trends of production of activity to energy costs,
3. Devising energy database formats to ensure they depict the correct picture - by product, department, consumer etc.,
4. Advising and checking the compliance of the organisation for policy and regulation aspects,
5. Highlighting areas that need attention for detailed investigations,
6. Conducting preliminary and detailed energy audits which should normally include the following: -
  - Data collection and analysis
  - Measurements, mass and energy balances
  - Reviewing energy procurement practices

- Identification of energy efficiency projects and techno-economic evaluation
- Establishing action plan including energy saving targets, staffing requirements, implementation time requirements, procurement issues, details and cost estimates

Recommendations on goal setting for energy saving, record keeping, reporting and energy accounting, organisation requirements, communications and public relations. □

