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Energy Auditor Performance: Do We Need to Check It?

The questions raised are:

- Is it necessary and helpful to establish a quality control system for energy audit reports?
- If so, why is it necessary?
- Practically, how might a quality control system be implemented?

1. Introduction

Energy auditing is a multiple action activity which not only helps in reducing energy consumption but also helps in benefiting employment and competitiveness of companies and fulfilling the global commitments of the countries in respect of environmental impacts. Various Governments now even have their respective commitments to reduce GHG emissions. Energy audits are therefore now being seen as an important tool for the correct assessment of energy consumption and energy efficiency. This has created a demand for concrete and discretely measurable results from the energy audit process. Energy auditing is, therefore, becoming a serious business.

2. Aim of energy audit process:

The ultimate aim of an energy audit process is to get **good quality energy audit reports**, which shall provide the client company the requisite information for successful implementation of the energy conservation / efficiency measures / projects. ***A good amount of effort should, therefore, be put in ensuring the best possible quality of the energy audit reports.***

3. Need for a central quality control mechanism for the nation wide energy audit program :

Ensuring the quality of energy audit reports by the individual clients is difficult. The reasons may be any or all of those given below:

- For the clients it may be quite difficult to decide what level of quality of the energy audit report is acceptable.
- Very few clients would really be able to evaluate whether the output of the work of the energy auditor is excellent, good, satisfactory or poor. It may even happen that the client may be quite satisfied with the audit report submitted to him by the auditor although an official quality control system, e.g. that implemented by the BEE, may subsequently reject the report .

- Further, it is quite difficult for each and every client to develop its own quality control system for the energy audit reports either because of unavailability of the necessary expertise with them or because of quantum of resource commitments involved in setting up an independent quality control system, and that too for catering to only a non regular nature of the activity of energy audit (to be done only once a year) .
- For large projects, involving huge costs, a poor quality energy audit report may result in huge losses instead of savings. Thus there are big risks involved if proper quality control is not maintained.
- The reports submitted by two different energy auditors for two different clients of similar industries, or even for the same client at two different periods of time, may be very different in formats or nature of recommendations and it may be very difficult to use the reports for comparison purposes and/or for developing of future benchmark parameters, etc.
- Quality control carried out by the client may not always be acceptable to the energy audit firm and disputes may arise between the firm and the client.

Thus it is necessary that, in a nation wide energy audit programme there should be a quality control mechanism at the central level. The advantages of such a system at the central level may be listed as below:

- Central guidelines for quality control of energy audit reports shall serve as the basis for a uniform output quality of energy audit work being carried out by various auditors.
- Ensuring that the guidelines are obeyed by all the energy auditors included in the nation wide energy audit program.
- The individual clients shall be relieved of developing an independent quality control of their own and still they would be assured that the standard procedures have been followed by the auditor while submitting the report. Thus they shall be ensured that they are getting what they are paying for.
- The energy auditors shall be able to know the quality levels of their reports through a mechanism of feedback and also would be able to improve upon in future.
- Receiving feedback for training sessions conducted for energy auditors. By the process of reviewing and comparing the reports submitted by the energy auditors before and after undergoing a training session, the central quality control mechanism shall help in assessing the impact of various training programs being carried out for them.
- A general creditability shall be developed for the whole process of energy audit at the national level.
- One auditor can raise objections regarding the quality of a report submitted by another auditor and may raise the matter in front of BEE.

4. Quality Control Mechanism/System

In the implementation of energy audit programme at the national level, as is being done by the BEE in India, the quality of energy audit reports could be ensured at the central level by each of the following :

1. Exhaustive and the most appropriate **training** of all the energy auditors.
2. **Licensing / Authorizing** only those energy auditors to carry out energy audits who can deliver perfect reports.
3. Putting in place a **quality control system** which will cover all of the energy audit reports and accept only perfect reports.

None of these options shall give very good results independently in themselves. However, a cost-effective and workable solution can be found from the combination of all of these three actions. The three activities should be supporting and complementing each other. Introductory training and relatively easy authorization can be compensated by a strict quality control. On the other hand, if the training and authorization are stringent enough, the quality control can be less exhaustive. One needs to analyze which combination shall work best not only for the country as a whole but also based on the energy audit activities to be undertaken. Based on that an optimum combination can be worked out.

4.1 Training :

In principle, training of all the energy auditors should always be one of the mandatory elements in a nation wide energy audit programme. There may be several different ways of implementing a training programme. The only way to have a properly functioning training programme in place is to analyze thoroughly the complete situation keeping in mind the ultimate aim of the energy audit programme. Training for energy auditors can be classified as:

- An introductory training.
- A detailed training covering the complete audit methodology.
- An on job training.

It may also be classified as :

- Voluntary training.
- Recommended training.
- Mandatory training.

BEE has taken the approach of a **semi detailed, voluntary training** for energy auditors.

4.2 Authorization:

The authorization of energy auditors is one way to ensure that the non-professionals can be kept out from the serious business of energy audit. Therefore, if the energy audit activity has a real meaning, some level of authorization should be introduced. The options in practice are (probably being practiced by BEE as well):

- Maintaining a register, a short list of companies based on strict selection criteria laid down by the agency responsible for the implementation of the nation wide energy audit programme (BEE in India).
- A thorough process of accreditation.

Thus, authorization of an energy auditor becomes a kind of license to perform energy audits within the nation wide energy audit programme. It's purpose can be either or all of the below:

- To ensure that only competent auditors are working within the energy audit programme.
- Identify those who are allowed to do energy audits.
- To set up a ranking system which is based on different levels of competence.

Authorization is thus connected to the training. The authorization may not so much depend on the magnitude of the energy audit activity. It may, however, depend on the category and type of industry. Authorization can be arranged in small programmes with a short duration. The stress has to be on the real need for development of a control and steering mechanism. The authorization may concern a person or a company or both. It may also include such factors like duration of validity of authorization, area of validity of authorization, cost of authorization, etc., as fixed by the BEE. BEE has already fixed the authorization charges for the certification process of individuals which involved undergoing a National test conducted on 22-23 May 2004. As regards the energy audit firms, it is probably following a process of accreditation of the firms having certified energy auditors (once they are in place) and also based on other criteria of technical and financial strengths and the overall experience of the firm.

4.3 Quality Control :

Once the energy auditors are trained and authorized for carrying out energy audits, the work of the energy auditors has to be checked for their quality. This is quality control. The process of quality control shall mainly depend on:

- Objective of the quality control activity.
- The resources available for the quality control process.

The objective may be either to be able to avoid major problems in the energy audit programme or to be able to ensure absolute quality in each and every energy audit process/report. The resource requirements for these two objectives shall be different, being higher for the later option. Whatever may be the objective there should be a **systematic procedure** (with predefined steps) in place for the quality control of energy audit reports.

The advantages of having a good and **well defined quality control system** in place shall be:

- The existence of a well defined quality control system itself shall result in better quality reports being submitted by the energy auditors in the first instant.
- Equal treatment to all the energy auditors and energy audit reports.
- Generation of a healthy competition among the energy audit firms
- It may serve as a mark of guarantee for the clients. (However, caution should be made for clients to take measures for ensuring quality from project to project basis as well, particularly for large projects involving large sums for investment.)
- Easier control over the process of quality assurance and feedback.

The options for quality control may include basing the process on reports alone or also including site visits. The site visits may increase the cost of the process many folds and may only be justified for very large projects. As regards implementation, BEE may have to decide whether it may have enough resources to carry out quality control of the energy audits at such a large scale or it would be cost effective to hire external consultants for the same.

4.3.1 Coverage and criteria of quality control

A 100% coverage is the ideal situation, but it shall demand a lot of resources and may not prove to be cost effective. The existence of a systematic quality control system may itself prove to be enough to maintain the quality at a reasonable level. A process of continuous feedback and refresher trainings to the auditors shall further help in ensuring that majority of them try and follow the guidelines as far as possible. BEE may, in any case, have to decide on the percentage of checked energy audits reports. The coverage may vary depending on the following factors:

- The size of the project.
- The energy audit procedure used.
- It maybe higher in the beginning of the nation wide programme and then later, when a certain level of quality has been achieved, the coverage may be lowered.
- Industry type and the complexity of the energy audit process.
- Difficulty in gathering the right type and amount of basic data.

In my opinion the coverage of 50% should be maintained for initial two years and then it should be reduced to 25% after the assessment of general quality level of the reports being submitted.

4.3.2 Selection of reports for quality control process

There should be a well defined criteria for choosing the energy audit reports for quality control instead of random selection. This shall help in achieving the maximum results with minimum efforts. The selection criteria may include the following:

- Very large project in terms of cost.
- Auditor with previous bad record in terms of quality of reports submitted.
- A complex site/process being audited.
- First time submission of an auditor.
- A new client.
- A new audit model being reported.
- Client's request.
- Auditor's request.

4.3.3 Thoroughness of quality control

It means the level of checking the reports - issues that are checked in the report. In my opinion all the reports selected for quality check should undergo a thorough check by the qualified and highly experienced professionals available at BEE or being hired by the BEE. The thorough check should include:

- Checking of all the technical issues and the technical specifications in the report.
- Checking and verification of the saving measures, both technically and financially.
- Evaluation of the knowledge and reporting skills of the auditor as a whole.

The thorough check process shall result in developing confidence among the clients and can also have an effective evaluation and training function for the auditors. A thorough check process shall further help BEE in giving grades or scoring points to reports for classifying the energy auditors. It shall definitely require more resources in terms of person-days and funds.

4.3.4 Tools of quality control

BEE may utilize various tools in the quality control process. These tools may help in easing some routines and also in standardizing the complete process. The following list presents some of the tools in use in other countries where there are such programs already in place:

- Self evaluation forms for auditors – helps in possibility of missing any items at the time of quality control as the energy auditor also completes the checklist after necessary checking as per the list provided in the self evaluation form. Helps in reducing the work at the time of quality control.
- Industry specific or energy audit model specific checklists - helps in making the process standard when many persons are put on the job.
- Audit client questionnaires – help in making the energy audit firms alert and quality conscious.
- Computer software-based figure-checking.
- Auditor feedback – A very effective tool. Can be implemented in many ways. BEE website may help in big way. Regular seminars and workshops may also help.

4.3.5 Cost of quality control

The question that needs answer is - who shall bear the cost of quality control process. The options for the same may be as below:

- BEE meets the cost of quality control through the Central Energy Conservation Fund or through a separately approved budget.
- During the initially phase of 5 years, which is the promotional and creating infrastructure phase, the cost of quality control should be borne by the BEE either through the Central Energy Conservation fund or through an approved budget of the central government. Thereafter the BEE may include a part of the quality control cost in the authorization fee for the energy audit firms as an annual payment who in turn may pass on the costs to their clients on project to project basis as overhead costs. Moreover, for all such cases in which an energy audit report fails the quality control check, the costs for the second time quality control process for the same report should be charged to the energy auditor.

The decision in this regard shall have to be taken keeping in mind the structure of the BEE, the cost effectiveness of the decision and the overall effect of the funding option chosen.

4.3.6 People for quality control process

This would require a number of competent people who can carry out the task of quality control of energy audit reports. The competence involves auditing skills, technical skills and also the knowledge on auditing guidelines. When deciding on the people for the quality control process following points need to be taken into account:

- Number of people in relation to the quantum of work and the reasonable deadlines fixed- there should be sufficient competent people for the task.
- Technical expertise of the persons- they should be technically thorough in the job of quality control of energy audit reports. Any mistakes made by them may cost the client dearly.
- They should be neutral and should have good credibility. This is so because the persons involved in quality control of energy audit reports shall have access to a large information, some times confidential too, and they should be able to maintain the expected confidentiality.

In this respect, the BEE is, or at least it should be, a neutral body. It is assumed that the technical competence of the BEE's staff is as required and there are sufficient people in BEE to carry out the job. Subletting to consultants may be done but there is always the **requirement** of strict neutrality and credibility. These consultants, in any case, should not be working as energy auditors in the energy audit program being implemented nation wide.

4.3.7 Subsidies and Quality control

Any subsidy should be paid after the quality control process - assuming that sufficient resources are available with the BEE to carry out the work in reasonable time frame. The effect of the quality control is stronger if the subsidy is paid only after the auditor's work has been accepted. If any corrections are needed, the auditors will more easily put an effort to do what is required. This option will, however, set tighter schedule limits for the control process.

4.3.8 Grading System

The effect of the quality control can be strengthened by:

- Introducing a grading system and the BEE advertising only those companies with good or excellent grades
- The BEE working closely together with the auditors and clients instead of just giving grades to reports

5. Conclusion

It has to be ensured that there exists a quality control system in a way that it would really make a difference. I would recommend the following for quality control system implementation for the energy audit programme being taken up by the BEE in India:

1. Mandatory and exhaustive training of the accredited auditors on regular intervals. The training may be sector specific.
2. The authorization should be moderate but sector specific,
3. The quality control should be tight.
