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Indian Association of Energy Management Professionals

THE URJA WATCH

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It is about "Conscience Keeping on Energy Matters"

Focus On
CERTIFIED ENERGY AUDITORS (CEAs)
and
CERTIFIED ENERGY MANAGERS (CEMs)

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What's inside...

- ❖ **From the Editor's Desk**
CEAs and CEMs – The Unsung Energy Heroes **3**
- ❖ **Letters to the Editor** **5**
- ❖ **Duties And Responsibilities Of Energy Managers** **6**
- ❖ **Members Speak...**
On “National Mission on Enhanced Energy Efficiency” **12**
- ❖ **In the Wonderland of Energy Consultants** **16**
- ❖ **History of National Certification Examination for**
Energy Auditors and Energy Managers **18**
- ❖ **Energy Quiz** **19**
- ❖ **The Case of Missing Regulations** **21**
- ❖ **IAEMP News** **27**
- ❖ **Upcoming Events** **29**

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From the Editor's Desk

CEAs and CEMs – The Unsung Energy Heroes



Season's Greetings!

Everyone loves energy efficiency but not everyone has the appropriate skills to manage energy efficiently. Energy Management is a highly specialized field. It is multi-disciplined and calls for integrated technical and managerial skills.

Over the last several years, the country has carefully assembled these skills in a special breed of Certified Energy Auditors (CEAs) and Certified Energy Managers (CEMs). This issue focuses on CEAs and CEMs.

Currently, financial budgets are shrinking everywhere, energy shortages are getting more stressful, and environmental awareness is on the rise. The country urgently needs qualified professionals to help improve energy efficiency and achieve cost savings. The national network of CEAs and CEMs is uniquely qualified to meet this increased need.

Who are these CEAs and CEMs? How did they rise in the national energy scenario? To answer these questions, a bit of history is relevant.

For long years, India's businesses have been struggling with inefficient equipment, processes and systems. Realizing the vast potential of energy savings and the benefits of energy efficiency, the Government of India enacted the Energy Conservation Act, 2001 (EC Act).

The EC Act provides for the creation of a cadre of professionally qualified energy managers and auditors with expertise in energy engineering, project management, and implementation of energy efficiency projects. The EC Act also makes it mandatory for every designated consumer to appoint or designate an energy manager with prescribed qualifications and get energy audit done from an accredited energy auditor.

The Bureau of Energy Efficiency (BEE), Ministry of Power (MoP) that oversees the implementation of the EC Act is empowered to specify the qualification criteria and procedures for the certification of energy auditors and energy managers.

The essential qualification for CEAs and CEMs is the passing of a National Level Certification Examination, which is conducted under the BEE's overview.

Since 2004, the BEE has conducted seven National Level Examinations for the certification of Energy Managers & Energy Auditors and has churned out thousands of CEAs and CEMs all over the country.

Sounds Good? Not any more. The current scenario for CEAs and CEMs is in a mess. Take a look at the following statements from some of the energy professionals in the country.

Commenting on BEE's recent invitation for energy conservation awards, Sunil Sood who is the president of IAEMP says "BEE has invited applications from most of the industrial, commercial, government sectors including State Designated Agencies. But there is no invitation for Energy Managers and Auditors. Some CEAs innocently think that they are 'Accredited Energy Auditors' while the fact is that there are no accredited energy auditors even after the examinations and there are no official Designated Energy Managers."

Gangadhar Dalal, an active IAEMP member, says "Everyone knows about the backward steps of BEE & MoP for stalling implementation of the EC Act. It is greatly affecting the productive utilisation of 5000 redundant CEAs/CEMs. This is because of not fulfilling accreditation conditions that were revised twice. Now no accredited energy auditor exists in India." According to Vishwa Bandhu Gupta, a CEA, "We have been fooled by BEE & NPC who have spinned money from hapless CEMs & CEAs."

In a recent opinion poll conducted by IAEMP, over 60 per cent of member voters rated BEE's initiative in the certification process and its usefulness in the promotion of energy efficiency in the country as "poor".

Such comments are distressing in as much as they reflect a lack of recognition and sagging morale in this talented community. "There is no smoke without fire" says an old adage. Obviously, there must be genuine concerns. Many of the CEAs and CEMs feel that the implementation process for the EC Act has been characterized by long delays and foot-dragging. Now, they are getting weary and are driven by a strong urge to call for justifiable attention.

It is time for the government to address the brewing discontent of CEAs and CEMs and help nurture these unsung heroes to their fullest potential. The BEE needs to act now and draw up a badly needed roadmap for a new way forward. Are you listening, BEE?

Energetically,

S.Subramanian
Editor

Letters to the Editor

Dear Sir,

Opinion from a CEA/CEM is very much useful for individual working professionals since it includes many energy calculations. Like me, many maintenance engineers are so busy with routine maintenance activities that they find it very difficult to find time to think over energy conservation activities in detail. So, they need to call in a qualified external consultant and get expert opinion.

The engineers who appeared at the Bureau of Energy Efficiency (BEE)'s examination and became successful candidates have done something useful on energy conservation by helping implement projects with low or nil investments. The examination has given a boost to think over energy conservation and related needs for our own industry and society.

I am an Energy Auditor who had successfully passed the BEE examination in a single attempt in the year 2006. I had convinced my management on the usefulness of this qualification and nominated about 15 employees for the examination out of which 11 had passed it. Our group contains 10 units. In almost every unit, we have an energy manager to look after energy conservation activities.

BEE's objective is good in conducting the CEA/CEM examination but they miserably failed in the implementation of Energy Conservation Act!

K.Janardhan
DGM-Corporate Engineering
Aurobindo Pharma Ltd
Hyderabad

Dear Sir,

We have noted about "The Urja Watch" monthly News Letter.

Our unit is a manufacturer of multi-shrink brand heat shrinking kits for power cables up to 33KV, brass & aluminium glands, copper & bi-metallic tubular crimping, sockets, lugs, and inline connectors. We want to contribute for one year subscription. Kindly send us one copy of latest issue & amount to be sent in advance for one year subscription.

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Duties And Responsibilities Of Energy Managers Under “The Energy Conservation Act, 2001”

By Sunil Sood, President, IAEMP

A genuine commitment at the top is the most important ingredient in the effective management of energy. I feel that “The Energy Conservation Act, 2001” will bring at least “enforced” commitment from the top management. The commitment once enforced by the Act has to be demonstrated by the appointment or designation of an Energy Manager.

The role of an Energy Manager is aptly described by Dr.N.S.WOODING as *‘keeper of the company’s conscience on all matters affecting energy’*. The Energy Manager is in a unique position. While most of us just keep talking about the rising energy costs and environmental problems, the energy manager is actually able to do something positive about it by solving the two problems in one stroke.

In my opinion, the duties and responsibilities of Energy Manager in order to be effective will certainly be influenced in future by the words of Dr. Wooding. Legal documents such as the energy conservation act can only serve as guiding and enforcing mechanisms. Without the ‘conscience’ and ‘commitment’, no energy manager can do justice to his existence.

With this philosophy in mind, the duties and responsibilities of an appointed or designated energy manager have to be fixed. These duties can be broadly grouped into the following three categories:

1. In-house tasks in implementing energy cost reduction measures.
2. Interaction with BEE, Designated Agency and State Commission
3. Interaction with Accredited Energy Auditor Firm.

What shape the above duties and responsibilities may take in future?
I have presented my thoughts in the following paragraphs:

1. In-house tasks in implementing energy cost reduction measures

This is undoubtedly the most important task of an energy manager. This will need all the skills an energy manager including personnel management skills, training and motivational skills and technical skills. The various duties and responsibilities to be performed by the Energy Manager in this first category are summed up in *Table 1* for easy understanding.

Table-1**Duties and Responsibilities of Energy Manager in the in-house implementation of energy cost reduction measures**

| <u>Sl. No.</u> | <u>Activity with</u> | <u>What is done</u> | <u>Why it is done</u> | <u>How it is done</u> | <u>Where it is done</u> | <u>Remarks</u> |
|----------------|--|---|---|--|---|---|
| 1. | The Top Management | Preparation of Annual Energy Management Plan (EMP) | To finalize the budget | In consultation with all the departmental heads | At the Head office | In line with company's Energy Policy |
| 2. | The Middle/ Local Management | Preparation of Tender Documents for ECO measures | To invite Lowest quotes | In consultation With the in-house/ external experts | At the Head office/ plant location | Study of best Practices and literature required |
| 3. | The Supervisory Staff | Formation of energy conservation cell | To ensure involvement and support | By inviting nominations from dept.heads* | At the plant location | * in writing specifying the desired qualifications |
| 4. | The Suppliers of energy measuring and monitoring instruments | Information on latest energy measuring & monitoring devices | To ensure most accurate data of present energy consumption | By writing letters to them, from internet, journals etc. | At the plant location | This helps the EM to develop data bank suitable for the plant application |
| 5. | The suppliers of energy efficient equipment/ processes/items | Inviting quotes for the requirements projected in the EMP | To plan for the implementation strategy | By sending enquiries and tenders* | At the plant location/ Head Office | * after taking required approval from the top management |
| 6. | Existing Suppliers of Fuels and Electricity | Understanding of applicable tariffs/ prices | To ensure optimum tariff/ price structure | By having discussions with the competent authority | At the Office of Fuel/ Electricity supply company | Going through the agreement before hand will help |
| 7. | Alternate Fuel Suppliers/ Renewable Energy based Equipment Suppliers | Working out cost of alternative fuel/ electricity supply | To have a ready alternate supply arrangement and to get price advantage | By understanding the market and latest govt incentives and regulations | At the Locations of the suppliers/ installations | Top Management approval is required |

...continued

Table-1 (...continued from previous page)

| | | | | | | |
|-----|--|--|--|---|------------------------------------|--|
| 8. | Suppliers of Raw materials and other items affecting energy efficiency | Working out energy consumption with different raw materials/ consumables | To identify raw materials needing lower energy to process | Field trials and experiences of other users | At the Plant location | Top Management approval is required |
| 9. | Energy Management Training Institutes | Co-ordinating for training programmes | To plan for training of operating staff for EE improvement | By sending nominations to the training programme organisers | At the institute / plant site | Prior approval from top management is must |
| 10. | The Contractors/ Suppliers related with implementation of EE projects | Co-ordination for approval of drawings, erection, testing and commissioning | To ensure implementation as per plan | Calling daily / weekly meetings / project management techniques * | At the plant location/ | Daily/ monthly progress reports to be prepared |
| 11. | The Operating Staff | Daily/hourly monitoring of energy consumption | To prepare shop level data bench marking, disaggregating | By nominating particular persons to record the data | At respective equipment location | Necessary orders to be issued after approval |
| 12. | The Maintenance Staff | Discussions on housekeeping measures/ lubrication etc. | To ensure best maintenance practices are followed | By checking of maintenance records, vouchers etc. | At respective equipment location | Necessary orders to be issued after approval |
| 13. | The Office and General Staff | Creating awareness about company's Energy Policy | To ensure co-operation from all the employees | By conducting meetings, issuing appeals circulars etc.. | At the plant location | Top level approval required |
| 14 | The sector association official in-charge of energy | Exchange of information | To compare practices by other units and identify improvement | Keeping in touch with the association officials | At the Association office premises | Top level management to be kept informed |
| 15. | Departmental Heads | Working of activity wise specific energy consumption analysis of equipment performance | To establish data for regular monitoring and controlling. | Conducting meeting with concerned persons | At the plant location | Top level approval required |
| 16. | Top and Middle level management | Preparation and presentation of monthly report and discussions on policy matters | To keep everybody informed and to ensure commitment. | Conducting monthly meeting with concerned persons | At the plant location | Top level presence to be confirmed |

2. Interaction with BEE, State Designated Agency and State Electricity Regulatory Commission.

The duties and responsibilities of an Energy Manager towards Bureau of Energy Efficiency and State Designated Agencies are limited to:

- i) Furnishing information to the designated agency with regard to the energy consumed and action taken on the recommendation of the accredited energy auditor (clause k, section 14)
- ii) Submitting a report in the form and manner as may be prescribed on the status of energy consumption at the end of every financial year to the designated agency (clause l section 14)

Further, when norms for process and energy consumption standards for equipment/appliances (clause a, section 14) have been specified, energy conservation building codes have been prescribed along with the provisions for power of inspection (section 17), and penalty clause (sub-section 1 of section 26] operative from 1st April, 2007, then the Energy Manager will be required to interact more often with these agencies. The Energy Manager will also have to interact with the adjudicating officer appointed by the state commission in case of any dispute regarding imposition of penalty. Further, with the establishment of Appellate Tribunal for Energy Conservation by the central government, another task will be added to the list of duties of the energy manager, if the company has been imposed a penalty and the management decides to approach the Tribunal against the order of the adjudicating officer.

The various duties and responsibilities to be performed by the Energy Manager in this category are listed in *Table-2* for easy understanding.

Table-2

| <u>Sl. No.</u> | <u>With whom</u> | <u>What is done</u> | <u>Why it is done</u> | <u>How it is done</u> | <u>Where it is done</u> | <u>Remarks</u> |
|----------------|-------------------------|---|-------------------------------------|--|-------------------------|--|
| 1. | Designated Agency / BEE | Furnishing information on energy consumed and action taken on EA report | To comply with clause k, section 14 | After approval From the top management | At the Head office | The information to be submitted if demanded by BEE / Designated Agency |
| 2. | Designated Agency / BEE | Preparation and Submission of report at the end of financial year | To comply with clause l ,section 14 | With top management's concurrence | At the Head office | The report shall be in line with the statement in Annual Report as required under Companies Act,1956 |

.....continued

Table-2 (continued from previous page)

| | | | | | | |
|----|--|---|---------------------------|--------------------------------------|--------------------------|---|
| 3. | Designated Agency (DA) | Arranging Inspection Of premises if demanded by the inspector of DA | To comply with section 17 | By showing invoices and plant survey | At the Plant Location | This will be applicable only after 1 st March 2007 |
| 4. | Adjudicating Officer of State Commission | To represent Company's case With AO | To save penalty | As per approved procedure | At State Comm- -ssion | This may be required 1-2 years after Sl.no3 |
| 5. | Appellate Tribunal | To appeal against Order of AO | To get relief | As per approved procedure | At AT Office | This may be required 1-2 years after Sl. No 3 |

3. Interaction with Accredited Energy Auditor (AEA)

As per the EC Act, the designated consumer has to get energy audit done from the accredited energy audit firm. The selection of the AEA firm will be carried out from the list of such firms to be maintained by BEE. (As on 15th December there were no accredited energy auditors in the country) This means that the interaction of Energy Manager with the AEA will be in two stages :

- Before selection of the AEA
- After selection of the AEA

The activities involved in selection of the AEA firm may be one time only and the Top Management may decide to select the AEA firm without involving the Energy Manager.

The duties and responsibilities of Energy Manager to the Accredited Energy Auditor after the job is assigned to the AEA are listed under *Table-3* in the following page.

This is all about the duties and responsibilities of an Energy Manager as per the EC Act. In practice what is going to happen, nobody can say. Perhaps, that is why the book titled "Energy Management Principles" by Craig B. Smith had the following quote:

*"Would you tell me, please, which way I ought to go from here?
"That depends a good deal on where you want to get to," said the cat*

*Lewis Carroll, 1865
Alice's Adventures in Wonderland*

Table-3

Duties and Responsibilities of Energy Manager towards the Accredited Energy Auditor (AEA)

| <u>Sl. No.</u> | <u>With whom</u> | <u>What is done</u> | <u>Why it is done</u> | <u>How it is done</u> | <u>Where it is done</u> | <u>Remarks</u> |
|----------------|--|--|-------------------------------|---------------------------------------|-------------------------|---|
| 1. | In-charge and Team members of Accredited Energy Auditor Firm | Preliminary Discussions On the Energy Audit (EA) | To plan For the audit | As per the Directions of DA | At the plant location | Top/Middle Management to Be involved |
| 2. | Team members of EA Firm | List of data Required by them | For planning Of EA activities | From Respective Dept. heads | At the plant location | Circular to Dept.heads To be issued |
| 3. | Team members of EA Firm | List of Measurements To be taken | To inform the Concerned staff | Informing Personally And through memo | At the plant location | Necessary Support to be given to the EA |
| 4. | Team members of EA Firm | Recording of measurements | To insure Joint recording | *By deploying The respective Operator | At the plant location | *Recording Format To be finalized |
| 5. | EA Firm Chief Or rep. | Discussions On Draft Report | To finalize The EA Report | *Comments From Dept.Heads | At the plant location | *A copy Of the Report To be sent |
| 6. | EA Firm Chief Or rep. | Discussions On Final Report | To finalize The Action Plan | As per The priority assigned | At the plant location | Top/Middle Management to Be involved |

You don't stop laughing because you grow old; you grow old because you stop laughing.

- Anonymous

Man is rich in proportion to the number of things he can do without.

- American philosopher Henry David Thoreau

Members Speak.....

The following is an extract of views expressed by Shri. G.G. Dalal on the “National Mission on Enhanced Energy Efficiency.” We thank Shri. Dalal for taking the initiative and sending us his views. - Editor

Preamble: Government of India is designing National Mission on Enhanced Energy Efficiency (NMEEE), which is one out of eight missions planned under the National Action Plan on Climate Change. We would like to invite comments on the proposed initiative. This note presents a short overview of the planned actions. Please note, that this document cannot include all the details of the activities; it is rather meant to give an overview of the actions being considered to tackle major inefficiencies in the country.

1. Perform Achieve and Trade (PAT)

The Perform Achieve and Trade scheme is a market-based mechanism to enhance energy efficiency in the ‘Designated Consumers’ (large energy-intensive industries and facilities). The scheme includes the following project steps:

- Goal setting: Set a specific energy consumption (SEC) target for each plant, depending on level of energy intensity (specific energy consumed = energy use / output) of that plant. The target will specify by which percentage a plant has to improve its energy intensity from the base line value in a period of three years.
- Reduction phase: Within a three-year period (2009-2012) the designated consumers try to reduce their energy intensity according to their target.
- Trading phase: Those consumers who exceed their target SEC will be credited tradable energy permits. These permits can be sold to designated consumers who failed to meet their target. Designated Consumers who fail to achieve their target have to compensate this failure by buying permits. If they fail to do either of this, they may have to pay penalties.

The energy consumption reported by designated consumers is based on audit by any of the BEE accredited agencies. The BEE may verify correctness of reported values.

Views:

It is clearly mentioned in EC Act, 2001 that BEE shall effectively co-ordinate with DCs, designated agencies and other agencies, recognise and utilise the existing resources and infrastructure in performing the function assigned to it by or under EC Act. as per Section 13 (1) and recommend to the central government the norms for processes and Energy Consumption Standards required to be notified under clause (a) of section 14 of EC Act, 2001. This has not been done by BEE since 1st March, 2002.

Abovementioned "Perform Achieve and Trade scheme", in short is a recycled proposal for "trading of energy saving certificates" with reward/penalty provisions, introduced under NMEEE . This is only to dispel the provisions of EC Act for appointing Adjudicator & Appellate Tribunal for energy conservation It is nothing short of delaying the implementation of EC Act even after five years of promotional phase ending on 1st March, 2007. Such diversions will stimulate preempting vital clauses of the EC Act only for its tacit defiance. If BEE had realised that the EC Act has had serious deficiencies, it should have got it amended in last seven years through parliament legislation.

Is this not the reason for deliberately, not notifying sections 30 to 45 of EC Act, 2001, stipulating appointment of adjudicators & Appellate Tribunals as yet?

Further the common people are paying for the cost of system right now in wasted energy. So for reversing the energy waste and fulfillment of other vital objectives for the common good, the EC Act, 2001 was passed by Parliament in September 2001 and notified on 1st October 2001. But the recent trend appears to delay the energy saving in the country by keeping on hold the EC Act, 2001.

It is remarkable that Gujarat State took unique lead in making its own laws on energy conservation & energy audit in 2000 and it is the only state which is now boasting of 24 Hrs availability of power supply to the state.

Even for collating data for setting up a target of a specific energy consumption or standard for each plant, BEE (then with a staff of 6 and now with 20 after pointing out through RTI) is finding multiple difficulties, on the other hand, 5000 energy auditors, certified by BEE itself, but rendered redundant since last 4 years, are not being utilised for such National Mission.

2. Market Transformation for Energy Efficiency (MTEE)

Accelerated shift to energy efficient appliances in designated sectors will be enabled through innovative measures. These products would be made more affordable. This target would be achieved by DSM measures, supported with CDM financing wherever possible.

Comments: Should have quantitative targets like real saving in MW otherwise it would be repetition of past many failed DSM projects.

- Programmatic CDM: BEE is exploring undertaking CDM Programme of Activities for the following sectors: lighting (Bachat Lamp Yojana), Municipal DSM, Agricultural DSM, SME sector, Commercial Building sector and for Distribution Transformers.
- Standards and Labeling: Step by step notification for mandatory labeling for Equipment & Appliance for Domestic Sectors, Hotel Equipments, Office equipments, Industrial Products, Transport Equipments.
- Public procurement: Amendment of procurement rules to explicitly mandate procurement of energy efficient products for all public entities.

- Technology program: Replacement of inefficient appliances by efficient products such as efficient lighting, ballasts, AC, refrigerators in domestic sector. Reduction of Transmission & Distribution (T&D) losses.
- Energy Conservation Building Code (ECBC): Mandate maximum energy consumption norms (per square feet) for new commercial buildings and existing buildings (through retrofit).
- ESCos Promotion: Assuring ESCo quality through accreditation. Promoting their capacity through set of 1200 bankable efficiency retrofit demonstration projects covering all sectors and the entire country.
- Capacity building and information: Creating a pool of trained manpower in states, government agencies, banks and financial institutions. Continuing the training of Energy Auditors and Energy Managers.
- Policy transparency:

Comments: It is unfortunate that BEE could not ensure this attribute since its inception. There is no grievance communication cell and all feedbacks requested by BEE are never responded except by the tools of RTI only.

3. Financing of Energy Efficiency

The initiative focuses on the creation of mechanisms that would help finance demand side management programmes in all sectors by capturing future energy savings. The initiative includes the following activities:

- Fiscal instruments: Tax exemptions for the profits and gains made from energy efficiency projects by ESCos and Venture Capital funds. Reduction of VAT for energy efficient equipment (e.g. CFLs)
- Revolving fund: To promote carbon finance
- Partial Risk Guarantee Fund: To provide commercial banks with partial coverage of risk exposure against loans made for energy efficiency projects. The fund will charge a small fee on all projects seeing the risk guarantee.

Comments: Almost all these are covered in the "Action Plan" prepared by & for BEE inaugurated by Hon'ble Prime Minister on 23.08 2002.

4. Power Sector Technology Strategy

This strategy is aimed to enhance energy efficiency in power plants.

- Adopt energy efficient generation technologies in new plants including supercritical boilers
- Enhance energy efficiency in existing plants
- Roadmap for IGCC demonstration plants
- Development of know-how for advanced super-critical boilers

Comments: The idea of advanced super-critical boilers & IGCC with higher efficiencies is very good. However, NavRatna industries like NTPC have in the past resorted to sustained import of coal for their pit-mouth power stations when India boasts as the 4th largest coal producing country in the World.

5. Other initiatives

In addition to the above mentioned activities, following activities will supplement the overall plan.

- Set up Energy Efficiency Services Ltd.: A public sector company is planned to be set up to facilitate the progress and to address all the issues / barriers which impede investments in energy efficiency projects. This company will be an implementing agency, while BEE will concentrate on its quasi-regulatory role. In addition to being an implementing body; this company will also function as consultancy organization, resource centre and an ESCo.
- Strengthening of State Designated Agencies (SDAs): The scheme seeks to build institutional capacity of the newly created SDAs to perform their regulatory and facilitative functions in the respective states.

Comments: Even after 6 National Certificate Examinations, not a single technical staff from SDAs could qualify as CEM or CEA and become fit for accreditation , for leading by example, which shows their inability to function as monitoring, regulating & facilitating agency.

- Strengthening of BEE: Government funding for infrastructure creation that is necessary for BEE to implement 8 new projects/ schemes through the country with an allocation from the XIth plan.
- Awareness Programs: Information campaigns in schools, industry, commercial, agriculture and domestic sector. National painting competition, Energy Award, publication of Manuals and Codes for energy efficiency etc.

It is envisaged that all missions under the NAPCC would report once a year to the PMO. The PM has specified that these mission document would be an evolving document, which would be enriched using the learning and new insights.

Comments: EC Act 2001 is one of the potentially neglected laws in the country (with a statutory mandate unlike other voluntary missions).Howeve, its implementation appears more difficult for India than landing on Moon . There is a prolonged delay in its implementation, spanning over six years. Any further delay in the EC Act implementation and denying accreditation to Certified Energy Auditors across the country will be a monumental folly. This has almost halted the energy conservation movement to the peril of the country.

Lastly, as per a great visionary thought of Einstein, " Nothing is more destructive of the respect for the laws of the land than passing the laws which can not be enforced". Will India take some lessons?

In The Wonderland Of Energy Consultants

(Excerpts of a prize winning article from www.energymanagertraining.com)

Not many in our country really understand about the creature called 'Energy Consultant'. They are normally supposed to give advice (sometimes unsolicited) to the users of energy on how to use energy more efficiently and suggest ways for energy conservation but often they end up just doing "Energy Conversation". Actually, this breed is not very old, hardly about 25 years old. Every year new consultants are born, thanks to the engineering colleges and universities offering courses on energy management where they are 'trained' to manage energy efficiently. Thanks also to BEE for having conducted 7 national certification Examinations for mass production of the so-called 'Certified Energy Auditors' some of whom are likely to practice as 'Energy Consultants'

There are various types of Energy Consultants in our country. A glimpse of some of them is given in the following paragraphs.

Sarkari Energy Consultant

This breed of energy consultants was born sometime in mid-70s after the first oil price shock. They all work for government agencies and have all the resources in their hands but little time to actually make an impact. Mostly, they are kept busy in organizing painting competitions, award functions, international seminars, workshops, radio and TV programmes.

Every year ritualistically they organise programmes like 'Energy Conservation Day', 'Oil Conservation Week', 'Oil & Gas Conservation Fortnight' 'International Sun Day' and so on.. Their other jobs include planning for energy conservation awards, solar cooking competitions, save energy campaigns and women rallies. With the enactment of "The Energy Conservation Act-2001", the strength of Sarkari energy consultants is expected to grow. They have the maximum professional life span because of financial security and government support.

NGO Energy Consultant

There are some Non-Government Organisations (NGOs), exclusively working for promotion of energy efficiency and renewable energy devices. While a few are funded by some of the top industrial houses and international organisations, most of the NGOs are actually proprietorship firms controlled by a single person.

NGO Energy Consultants are very enthusiastic in the beginning when the concept is new to them. Soon their enthusiasm vanishes when they realise that it is not their cup of tea nor there is much money to be made.

The insecurity of the job totally makes them disinterested in the job. Some of them are thrown out (or situations are created for them to resign) not for their non-performance but because of their potential threat to the authority of power centers in the organization. Their average life span varies from 6 months to about 5 years, although there are energy consultants who are working with some reputed NGOs for more than 15 years due to their proximity to the bosses controlling the show.

ESCO Energy Consultant

The Energy Consultants working in Energy Services Companies (ESCOs) or Large Consultancy Organisations fall in this category. Most of these companies are actually frontline organisations of some industrial houses manufacturing energy efficient equipment. Obviously, their role is to push the energy efficient products manufactured by their promoters. Till recently, there were not many ESCOs in India. Recently, some ESCOs have been recognised by BEE. Not finding much response in the private sector, they have started working on government facilities under shared saving contracts. ESCO energy consultants are actually more interested in increasing business volumes rather than real energy savings.

Individual Energy Consultant

There are two categories of individual energy consultants. The first category is those who overestimate their capabilities and earning potential and soon after the reality dawns to them, they close their shop. These energy consultants last for about 6 months to 1 year.

The other category belongs to proprietorship consultancy firms, with two-three enthusiastic engineers who have some expertise in their own field and are really committed to the cause. Although technically strongest in their breed; they lack necessary instruments and other facilities due to pertinent shortage of funds. They are very optimistic (or fool hardy) in their attitude and feel that one day will come when their role will be appreciated by the society and they will get due recognition.

A sense of duty and commitment towards the cause keeps them going till either lady luck smiles on them or they have sold out all their assets and no one is willing to provide further loan to them. Their life expectancy depends on their luck or how much property they have to sell in order to survive!

History of National Certification Examination for Energy Auditors and Energy Managers

1. In the first meeting of the governing council of Bureau of Energy Efficiency (BEE) held on 5th July,2002 it was decided that a national level examination for certification of energy auditors and energy managers shall be conducted.
2. In the same meeting it was further decided that National Productivity Council (NPC) will be retained for conducting the examination.
3. BEE announced in 2003 that a national level examination will be conducted for certification of energy auditors and energy managers under the Act by the national certifying authority i.e. National Productivity Council (NPC).
4. The fee for taking the examination was fixed as Rs.10,500/-
5. It was earlier announced that the examination will be conducted in November, 2003, but NPC was not ready for conducting the examination by that time, hence the same was postponed to April 2004.
6. Just before one month from the scheduled date, the examination was postponed once again to May, 2004 due to Lok Sabha Elections.
7. Candidates were provided with 4 course books by NPC to prepare for the examination. These books had several errors and NPC issued an addendum informing the candidates about the corrections to be made in the book. Even after these corrections, the books had several errors. However, the examination was conducted in May, 2004 with these books.
8. The first ever examination was finally conducted in May, 2004.
9. First 3 examinations were conducted once in a year. The candidates were also required to pass viva voce. However, in the year 2006 the viva voce was abolished.
10. From 2007 onwards BEE is conducting examination every six months. Hence, till date 7 certification examinations have been conducted. More than 10,000 candidates have appeared in these examinations with about 6,000 having passed the examination.

ENERGY QUIZ

Enjoy this energy quiz !. Answers are provided at the end. Don't cheat!

1. Who discovered the photovoltaic effect?
 - a. Michael Faraday
 - b. Thomas Alva Edison
 - c. Edmund Becquerel
 - d. Westinghouse

2. Which was the year of discovery?
 - a. 1932
 - b. 1839
 - c. 1897
 - d. 1951

3. The best definition of energy is:
 - a. Something you need to live
 - b. The ability to do work
 - c. It is a kind of force
 - e. Power created by God

4. On the rating plate of a 250 KVA transformer. No load loss reads 1KW and the load loss as 4KW. The total losses at 50% loading are:
 - a. 5KW
 - b. 3KW
 - c. 2.5KW
 - d. 2KW

5. Heat Pumps provide:
 - a. Only Heat
 - b. Only Cold
 - c. Cold and Heat
 - d. None of these

6. A vehicle provided with a motor runs from point A to B at the same height. The motor efficiency is 35%. When it arrives at B:
 - a. 65% of the energy consumed is converted into heat
 - b. 100% of the energy consumed is converted into heat

- c. 35% of the energy consumed is converted into heat
d. It depends upon the type of motor
7. There are two electrical irons, rated 1000W and 2000W, with the same thermostat settings. Which of the following is true:
- a. The 2000W iron will consume more energy
b. The 1000W iron will consume more energy
c. Both irons will consume same energy
d. The 2000W iron sole will reach the desired temperature quicker than the 1000W iron.
8. Which type of battery has the highest energy/weight ratio?
- a. Lead Acid
b. Nickel Cadmium
c. Lithium -Ion Polymer
d. Dry battery
9. There are wooden and metal pieces in a room at 20 degrees C. On touching, the metal pieces seem colder than the wooden pieces. It is because:
- a. Wood absorbs humidity
b. Metal is usually at a lower temperature
c. Thermal transmission coefficient is higher for hand to metal than hand to wood.
d. Human hand is colder than metal
10. What is the approximate average solar radiation that reaches earth after allowing for reflection and absorption by the atmosphere and clouds?
- a. 20W/m²
b. 160W/m²
c. 1200W/m²
d. 5W/m²

Answers: 1.c, 2.b, 3.b, 4.b, 5.c, 6.b, 7.a, 8.c, 9.c, 10.b
So, how much did you score?

- 9-10: Super! You're quite the energy whiz.
7-8: Pretty good! You can do better.
5-6: Not bad! Learn more.
0-4: Watts up? Don't give up.

The Case of Missing Regulations

Editorial Note; (The Manner and the intervals of time for the Conduct of Energy Audit) Regulations, 2005 were drafted in the year 2005. When these regulations will be notified is not known. We are reproducing these regulations for the benefit of the readers.

(To be published in Part III, Section 4, of the Gazette of India dated, 2005

BUREAU OF ENERGY EFFICIENCY

NOTIFICATION

New Delhi, the ...2005

No. 02/11(6)/05 –BEE In exercise of the powers conferred by clause (q) sub-section (2) of Section 13 and the clause (g) of sub section (2) of section 58 of the Energy Conservation Act, 2001 (52 of 2001), the Bureau of Energy Efficiency, with the previous approval of the Central Government, hereby makes the following Regulations, namely:

1. Short title and commencement-

- (1) These Regulations may be called the Bureau of Energy Efficiency (the Manner and the intervals of time for the Conduct of Energy Audit) Regulations, 2005.
- (2) They shall come into force on the date of their publication in the Gazette of India.

2. Definitions - (1) In these Regulations, unless the context otherwise requires:-

- a) “Accredited Energy Auditor” means an auditor possessing qualifications specified under the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditor and

maintenance of their list) Regulations, 2005 and included in the list maintained by the Bureau under such Regulations.

- b) “Act” means the Energy Conservation Act, 2001 (52 of 2001);
 - c) “Audit report” means the report of energy audit prepared and signed by an Accredited Energy Auditor or his nominee, who shall be a Certified Energy Auditor under these Regulation.
 - d) “Certified Energy Auditor” means a person who fulfills the conditions prescribed under the Bureau of Energy Efficiency (Qualifications for accredited energy auditor and maintenance of their list) Regulations, 2005 and has been issued a certificate under such Regulations.
 - e) “Designated Consumer” means any user or class of users of energy, notified by the Central Government under clause (e) of section 14 of the Act
 - f) “Specific Energy Consumption” means the weighted annual average of energy consumed per unit of product or product – mix for the last two completed financial years in a given time period.
- (2) Words and expressions used in these Regulations and not defined, but defined in the Act, shall have the meaning respectively assigned to them in the Act.

3. Interval of time for conduct of Energy Audit.

- (1) Every Designated Consumer shall have its first energy audit conducted and completed by an Accredited Energy Auditor within 18 months of the Notification issued by the Central Government under clause (h) or clause (i) of Section 14 of the Act or from the date of Notification of these regulations, which ever is later.
- (2) The interval of time for conduct and completion of subsequent Energy Audit shall be 3 years with effect from the date the report of the first

Energy Audit conducted and completed by the Accredited Energy Auditor was submitted to the management of the Designated Consumer.

4. Manner of Energy Audit

Every energy audit under the Act shall be conducted in the manner prescribed here under.

- (1) An accredited energy auditor shall arrange to make pre audit assessment of the scope and detail of the work to be done by him in order to fulfill his duties and responsibilities under the Act and to prepare an offer for conducting energy audit at designated consumer premises.
- (2) Collection of data of the use of energy, its verification, monitoring and analysis.
 - (a) An accredited energy auditor shall collect, validate and analyze energy consumption and production data for the most recent past three years to calculate the specific energy consumption per unit of production or product mix, and validate the data given by designated consumers and prepare a list of recommendations to reduce the specific energy consumption in a technically viable and financially attractive manner to identify scope for energy efficiency and to enhance energy conservation.
 - (b) The data collected shall include-
 - (i) annual energy consumption by fuel such as oil, gas, coal, electricity, others.
 - (ii) annual fuel costs by fuel such as oil, gas, coal, electricity, others.
 - (iii) volume of energy sold if applicable.
 - (iv) operating data and schedule of operation.
 - (v) non proprietary process flow charts
 - (vi) production level disaggregated by product, if applicable.

- (vii) such other historical data as may be considered essential by the accredited energy auditor for achieving the purpose defined in clause (a) of sub regulation (2) of this regulation.
- (c) The accredited energy auditor shall verify the accuracy of the data collected in consultation with the certified energy managers of the designated consumers as per standard practice to assess the validity of the data collected
- (d) The Accredited Energy Auditor, jointly with certified energy managers of the designated consumers shall -
 - (i) select energy intensive equipment/ processes for energy auditing and performance testing.
 - (ii) agree on best practice procedures on measuring the energy efficiency performance of selected equipment.
 - (iii) conduct equipments' energy performance measurements with due diligence and caution applying accepted standards or norms for measuring equipment and accuracy as well as algorithm to calculate results.
- (e) The data collected under clauses (a) and (b) of sub regulation (2) of this shall be analysed and processed with respect to -
 - (i) Consistency of designated consumers' data recording compared to the collected data by the accredited energy auditor.
 - (ii) Validation of data input with respect to recommendations to reduce energy consumption and improved energy efficiency.
 - (iii) Summary overview of energy consumption in plant by fuel type and plant sectionwise.

(3) Preparation of recommendations on energy saving measures, their cost benefit analysis and their prioritization -

The accredited energy auditor shall prepare a list of recommendations to conserve energy and improve energy efficiency. The list shall include-

- (i) A brief description of each recommended measure.
- (ii) The estimated energy conservation as well as energy cost reduction potential over a reasonable technical or economic life of the measure.
- (iii) Any known or expected technical risks associated with each measure.
- (iv) A preliminary assessment of the financial attractiveness of each measure or assessment of the maximum investment feasible based on the estimated energy cost saving potential over the life of the measure.
- (v) Tabulated summary of recommendations listed as per priorities (short, medium and long term).
- (vi) Where different alternatives for implementation of a energy efficiency measures are available, the accredited energy auditor shall examine and discuss such options and recommend the techno-financially better option.
- (vii) Where the installation/ implementation of any recommended energy efficiency and conservation measures affects procedures for operation and maintenance, staff deployment and the budget, recommendation shall include discussion of such impacts including their solutions.

4. Preparation of Action Plan

The designated consumer shall select from the energy audit report such recommended measures as are included in sub regulation (3) of this regulation which are in the opinion

of the designated consumer technically viable, financially attractive and within its financial means and prepare an Action Plan for their implementation. This action plan shall include-

- (i) Preparation of detailed project report and financial grade paper for selected measures.
- (ii) A monitoring and verification protocol to quantify on an annual basis the impact of each measure with respect to energy conservation and cost reduction for reporting to Bureau and State designated agencies.
- (iii) A time schedule for implementation of selected measures taking into consideration constraints such as availability of finance and availability of proposed equipment.

5. Structure of the energy audit report

- (i) The energy audit reporting structure shall be jointly decided by the accredited energy auditor and designated consumer taking into consideration the requirements of the Act. The report shall highlight, details of specific energy consumption, list of recommendations to reduce energy consumption and costs and monitoring and evaluation of impact of selected measures.
- (ii) The Bureau shall issue guidelines to different sectors of designated consumers, with respect to best reporting practices based on feedback from energy auditors, designated consumers and analysis of energy audit reports.

IAEMP News

On Nov 12, 2008, Mr. Sunil Sood, President, IAEMP gave a presentation to about 30 managers and senior managers working in the printing press of the “Deccan Herald” newspaper at Bangalore. Mr Tilak Kumar, Joint Managing Director of the firm also participated.

It is really a very good sign that the media in Bangalore is taking interest in energy savings .If we are able to save energy in their press, it will give them a lot of confidence.

Mr. Sunil Sood has requested ‘Deccan Herald’ to reserve some space for “Weekly/Daily Tips on Energy Savings.” If ‘Deccan Herald’ agrees, IAEMP will arrange to send energy saving tips to them for publication.

If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple.

But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas.

- George Bernard Shaw

He who knows not and knows not that he knows not is a fool. Shun him.

He who knows not and knows that he knows not is a child. Teach him.

He who knows and knows not that he knows is asleep. Wake him.

He who knows and knows that he knows is a wise man. Follow him.

- Ancient Proverb

It is not the difference between people that is the difficulty; it is the indifference.

- Anonymous

Institutions Offering Courses on Energy Management in India

This information is provided for the benefit of those who aspire to pursue energy management courses in India. - Editor

1. Annamalai University
Annamalai Nagar, Tamil Nadu

2. Banaras Hindu University,
Varanasi - 221005 UP

3. Bharatidasan University,
Tiruchirapali,
Tamil Nadu, 624024

4. College of Engineering,
Anna University
Guindy, Chennai 600 025 TN

5. Devi Ahilya Vishwavidyalaya
Nalanda Parisar, R.N.T. Marg,
Indore 452 001 M.P.

6. Indian Institute of Social Welfare and
Business Management
Kolkata-700073.

7. Indian Institute of Technology (IIT-
Delhi)
Hauz Khas, New Delhi- 110016

8. Jadavpur University
188, Raja S.C. Mullick Road,
Kolkata 700 032 WB

9. JNTU College of Engg
Mahavir Marg,
Hyderabad 500 028 AP

10. Kumaraguru College of Technology
Chinnavedampatti (Po)
Coimbatore- 641 006 TN

11. Maulana Azad College of Technology
Regional Engineering College,
Bhopal 462007 M.P.

12. National Institute of Technology
(Formerly Regional Engineering
College)
Calicut

13. Punjab University
Chandigarh-160 014

14. Rajiv Gandhi Prodyogiki
Vishwa-vidyalaya
Airport Bypass Road, Gandhi Nagar,
Bhopal,
Madhya Pradesh - 462036

15. National Institute of Technology,
Tiruchirappalli
(Formerly Regional Engineering
College)
Tiruchirapali-620015 TN

16. School of Energy Studies
Department
University of Pune,
Ganeshkhind. Pune- 411007

17. Tezpur (Central) University
Napam, Tezpur, Assam 784028

18. Vellore Engineering College,
Katpadi-Tiruvalam Road,
Vellore North Arcot-Ambekar dist.
632 007 TN

Upcoming Events

One Day Technical Workshops: Mumbai, December 16 and 17, 2008

Adoption of Energy efficient process technologies & practices and implementation of Energy Conservation Act 2001 in Sugar Sector. (Dec 16, 2008)

Adoption of Energy efficient process technologies & practices and implementation of Energy Conservation Act 2001 in Dairy Sector. (Dec 17, 2008)

at Reliance Energy Management Institute, Goregaon (E), Mumbai.

Organised by the Bureau of Energy Efficiency with Indo-German Energy Programme. For more details visit www.energymanagertraining.com or Contact Mr. Anil Sharma, Programme Co-ordinator
Fax: 011- 26178352 Ph.: 011-26179699
aks3l@energymanagertraining.com

2 day training programme on GRIHA, National Rating System for Green Buildings at TERI-SRC, Bangalore December 22-23, 2008

Organised by Ministry of New and Renewable Energy and The Energy Research Institute. For details, contact Minni Mehrotra, TERI, Bangalore. Phone: 080-2536590

Optimise for Profit - National Workshop on Energy Efficiency in Compressed Air system, Kochi, 29-30 January 2009

National Workshop on Energy Efficiency in Steam System, Bangalore, February 19-20, 2009

Organised by: Society of Energy Engineers and Managers (SEEM) - A National body of Certified Energy Managers & Auditors

For more information, please contact: Phone: 04713242323, Fax: 04712557607, E-mail: seemk@vsnl.net, www.energyprofessional.in

We Need Your Active Participation...

Do you have an area of expertise in energy management? Have you solved a difficult problem or have an interesting case study? Do you want to share a joke with others? Or just have a word of appreciation for this issue. Share your knowledge with others and promote yourself too, by writing to **The Urja Watch**.

You may also tell us about upcoming energy-related events in your area. Be sure to mention the title of the event, organizers, dates, venue, city, and contact information to get more details of the event.

Please note the following points while making your submissions:

- ❖ Articles must be original, in electronic version, 500 words or less. If you are using material from external sources, please acknowledge them.
- ❖ Please include contact information (full name, title/organization, phone numbers, and email ID) with your submission.
- ❖ Articles should be in MS word, easily readable font, preferably Arial size 12.
- ❖ Please e-mail your submissions to Editor, “The Urja Watch” at tellsubi@gmail.com
- ❖ There are no deadlines for submissions. You may submit articles anytime.
- ❖ We reserve the right to edit, rewrite or reject any article.

We Need Your Feedback Too!

Please write your views and suggestions to the editor at: tellsubi@gmail.com
Letters must include the writer’s name, address, phone and email ID.

We appreciate your feedback and thank you for your support.

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