

A monthly newsletter of
Indian Association of Energy Management Professionals

THE URJA WATCH

October 2008, Issue 4

It is about "Conscience Keeping on Energy Matters"



BEE Energy Efficiency Labeling- Details

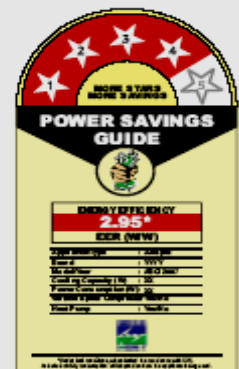
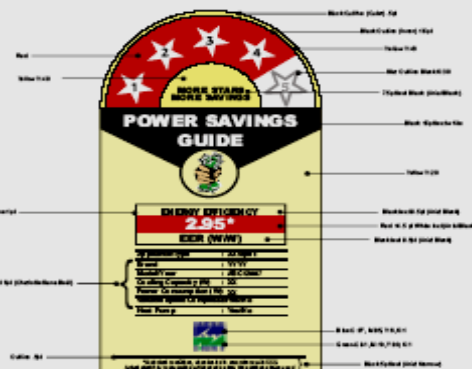
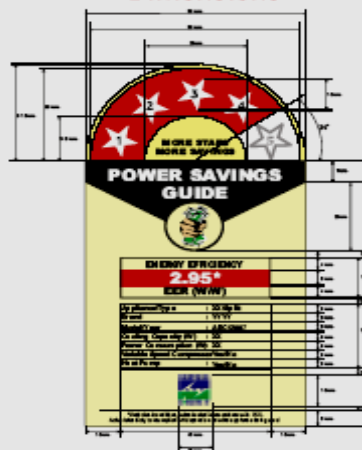
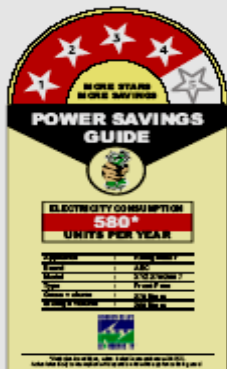
Refrigerator & Air Conditioner

Refrigerator

Dimensions

Colors

Air Conditioner



Tubular Fluorescent Lamp



STAR RATING	BEE STAR RATING PLAN				
	★	★★	★★★	★★★★	★★★★★
Lumens per Watt at 0100 hrs of use	<51	>=51 & <67	>=67 & <86	>=86 & <92	>=92
Lumens per Watt at 2000 hrs of use	<52	>=52 & <57	>=57 & <77	>=77 & <83	>=83
Lumens per Watt at 3500 hrs of use	<49	>=49 & <54	>=54 & <73	>=73 & <78	>=78

Under test conditions when tested in accordance to IS 2418. Actual efficiency will vary as per site conditions.



SPECIAL ISSUE

ENERGY STANDARDS AND LABELING

SPECIAL ISSUE
ENERGY STANDARDS AND LABELING

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From the Editor's Desk

Energy Labels - What Do They Stand For?



Want to go shopping for appliances? Get set for a daunting task. You will face a bewildering choice of Indian and multinational brands with an amazing range of sizes, features and prices. You will be bombarded with high sales pitches from smart salesmen and confront conflicting opinions on products. In such a confusing scenario, how do you make a purchasing decision?

Of course, there are different considerations for making a purchasing decision. However, remember that there are essentially two important costs to a product. One is the upfront cost that you pay for the product at the counter and the other is the operating cost that you need to pay recurrently throughout the lifespan of the product. Unwary buyers get carried away by a lower price tag and often buy an inefficient product that will consume more energy and result in higher electricity bills. Eventually, the buyer ends up paying a lot more for the product. If you want real value for your money, the trick is to look for energy-efficient products that are backed by the manufacturer's guarantee for lower energy consumption. This is where energy labels come in - to help the buyer choose a product that is energy-efficient and cost-effective.

Energy-efficiency labels attached to products convey standardized, easy-to-understand information about a product's energy efficiency relative to other similar products. The primary goal of an energy labeling program is to shift consumer preferences towards more energy-efficient products. Energy labels also serve as an important marketing tool for product manufacturers and retailers. You may be familiar with the Energy Star® label that you see on your computers. The Energy Star is a voluntary labeling program introduced in the USA and recognized in many parts of the globe.

In our country, the Ministry of Power, Government of India launched the National Energy Labeling Scheme in May, 2006. The scheme was introduced on a voluntary basis for home appliances to initially address refrigerators and fluorescent tube lamps. The label rating will grade models on their energy efficiency, starting from one star, implying low energy efficiency, to a five star grade for the most energy efficient model.

In September 2008, the Governing Council of the Bureau of Energy Efficiency (BEE) approved the preparation of standards and labeling program for a wider range of appliances and equipment, including ceiling fans, pumps, LPG cooking stoves, electric geysers and colour TV sets. Labeling schemes for these appliances and equipment are expected to follow soon. According to the BEE, the avoided generation capacity on account of the labeling program is estimated to reach about 3000 MW by 2012.

Energy Efficiency Standards and Labels

Energy standards and labels go together. If properly implemented, they can serve as effective policy tools for increasing the efficiency of energy-using appliances, and accelerating the penetration of energy-efficient technology into the marketplace. The development of energy efficiency appliance standards and labeling programs help countries to reduce the total energy demand and mitigate emissions of greenhouse gases and other pollutants.

Driven by energy standards, appliances already have made substantial gains in energy efficiency. For example, a new energy efficient refrigerator consumes about half as much electricity as an old model refrigerator made in early 90s. Through comprehensive use of energy efficiency standards and labels, it is possible to spread energy savings across millions of appliance users in the country and thus reduce demand for electricity.

Energy labeling programs hold the promise to initiate a "market transformation" process – transforming specific markets toward increased sales of energy efficient products. They will induce changes in the behavior of manufacturers and challenge engineers to innovate and squeeze out more efficiency gains from appliances.

Since liberalisation of India's trade in early 90s, retailing has become one of the big sectors of the Indian economy. Under the current policy, foreign brands of appliances are flooding into the country posing a mighty challenge to local brand manufacturers. Reliable labeling programs would help consumers to identify energy efficient products and make informed purchasing decisions.

Energy labels not only influence consumers to choose efficient products but also help create sharper competition among local manufacturers to produce and market the most energy-efficient models. However, claims made by manufacturers have to be carefully verified by independent agencies including consumer forums to ensure that labels mean what they say and consumer interests are protected.

Let us hope that competition gives a shot to our domestic industries and make them produce energy efficient products that are comparable to international standards.

Feel free to convey your views by e-mail to tellsubi@gmail.com

Wishing you all a Happy and Prosperous Diwali!

Energetically,

S. Subramanian
Editor

Letters to the Editor

We provide below some e-mails received from readers in response to the September issue of 'The Urja Watch' that focused on Home Energy Management. - Editor

Thanks to Urja Watch editorial team. Marvelous effort!

T. Srinivas, Visakhapatnam

1. Congratulations for good work done. The September issue has come out so nicely.
2. The issues are covered well.
3. There is a good continual improvement compared to earliest issue even though articles are less as per clause 8.5.1 Continual Improvement of ISO 9001: 2000
4. Please keep it up.
5. Best wishes for next.

R.A.Sharma, Hyderabad

The group discussion in this forum is highly informative and useful. The Urja Watch magazine is also worth reading.

Please keep the good works going.

R.Vaidyanathan

On Ideal Society...

Where the mind is without fear and the head is held high

Where knowledge is free

Where words come out from the depth of truth

- Rabindranath Tagore in 'Geetanjali'

Members Speak...

Many IAEMP members have expressed their deep disappointment and distress at the lethargic functioning of the Government's Bureau of Energy Efficiency (BEE) particularly on the implementation the Energy Conservation Act 2001. Having failed to get appropriate response from BEE, IAEMP's President and many of its members have recently written to the Prime Minister of India appealing for speedy actions. We reproduce a letter that sums up the representation made to the Prime Minister. -Editor

A Letter to the Prime Minister of India

Dt.27th September, 2008

Respected Shri Manmohan Singhji

The Honorable Prime Minister of India,
New Delhi - 110011

Respected Sir,

Enclosed along-with is a copy of a letter written to you by Mr. Sunil K Sood, National President of Indian Association of Energy Management Professionals.

While you would have received this or similar letter from other energy professionals and would have got a sense of the anguish felt by this community of committed persons, I would like to point out and emphasize the following in my own way.

1. You have successfully driven economic reforms during the ' 90s and have been the architect of economic resurgence of this great nation of ours.
2. You have been seized of the importance of energy security and energy independence so very much required for the economic development of this country and for up-lifting of the masses. More than anyone else you understand that economic reforms can only be strengthened by corresponding reforms in the energy sector.
3. Towards this end you have successfully driven initiatives that will eventually significantly enhance our nuclear power generating capacity, without compromising our security needs, risking your government, because you truly believed it was for the country's good.
4. Your recent pronouncements on realistic energy pricing are very encouraging.

5. We are deeply hurt when India and China are referred to as the new energy guzzlers in any national / international forum contributing significantly, and negatively, to Climate Change. What is even worse is that we, much less than China, are perceived to be doing little to counter the harmful effects of 'wasteful energy consumption'.
6. An enabling legislation, viz. The EC Act, 2001, was en-acted to drive home the absolute necessity of Energy Conservation or responsible Energy Consumption.
7. Speedy implementation of this Act, both in letter and in spirit, is bound to save the National Exchequer crores upon crores of rupees spent in wasteful, indiscriminate and in-efficient energy consumption, country-wide, and free up the same for investing in poverty alleviation, economic development and in renewable, clean and green power.
8. Sadly, as per the accompanying copy of the letter from the National President, IAEMP (Indian Association of Energy Management Professionals), Mr. S. K. Sood, many gaps remain and much ground needs to be covered.
9. We request you to carefully go through its contents and deliberate on the concerns expressed.

Respected Sir, we know that many pressing issues cry for your undivided attention but we also know that the issues of Energy Efficiency and Conservation are equally urgent and important and threaten the long and short term economic and developmental goals of our country.

We therefore entreat you to tackle our energy conservation issues with the same steely determination and tenacity of purpose that you have applied to the energy and economic security issues earlier and enable the EC Act, 2001, to deliver all that it was enacted to do. And we assure you that the IAEMP community will rise to the occasion, leave no stone un-turned and work with you, in step, towards India's Energy Security and Energy Independence.

Jai Hind!

R. N. Kamdin
72, Cunningham Apartments,
5 Edward Road,
Bangalore 560052

BEE Scheme for Energy Efficiency Labeling

The scheme for energy efficiency labeling was announced by the Bureau of Energy Efficiency (BEE) in May, 2006. For the benefit of readers, this article provides essential details of the scheme with amendments as approved by the Ministry of Power. Important points in this scheme are highlighted in red. Annexures referred to in the scheme are not included here but these along with the scheme's full details may be accessed directly on the BEE's website.

1 Scheme for Energy Efficiency Labeling

a. The Bureau of Energy Efficiency, Ministry of Power has developed a scheme for energy efficiency labeling of equipment, **pending issue of Notification under clause (d) of section 14 of the Energy Conservation Act, 2001 by the Central Government.**

b. **This scheme will come into force from the date of its announcement in the print media and the Bureau of Energy Efficiency's web site www.bee-india.nic.in and on www.energymanagertraining.com. It shall remain in force until Notification under clause (d) of section 14 of the Energy Conservation Act 2001, is issued by the Central Government.**

c. The scheme has been developed in **collaboration with all the stakeholders**, and aims at providing information on energy performance so that consumers can make informed decisions while purchasing appliances.

d. **Participation in the scheme is voluntary and currently applicable for the following equipment**

1. Frost-Free (No-Frost) Refrigerators
2. Tubular Fluorescent Lamps

The labeling of other equipment and appliances would be introduced in a phased manner. The test procedures, schedule of tests, rating plan, sampling plan, qualification requirements, label design, label fee and the manner of display of label in relation to the aforesaid equipment have been specified in Schedule 1 & 2 respectively.

e. **A committee will be set up by the Bureau to oversee implementation of the scheme. The committee will be chaired by Director General, Bureau of Energy Efficiency and consisting of representatives from Ministry of Power, Bureau of Indian Standards, Consumer Associations, Manufacturers Association, and Test laboratories.**

f. The Standards and Labeling Implementation Committee will recommend BEE on the following issues:

- i. Enforcement of provisions of this scheme.
- ii. Develop the criteria for deciding whether challenge test and further actions should be undertaken or not.
- iii. Verification of the legitimacy of challenges to the label, and further action
- iv. Selection of samples for verification and challenge testing.

2 Scheme Participation Process

- a. **Manufacturers of equipment/importers/persons- in- trade can participate in the scheme by registering with the Bureau.**
- b. Manufacturers of equipment/importers/persons- in- trade (hereinafter called the User of label) will enter into an agreement (Annexure – 1) on a non-judicial stamp worth Rs.100/- (Rs. One Hundred only), with the Bureau of Energy Efficiency (hereinafter called the Bureau) agreeing to abide by the terms and conditions of the scheme. **The agreement will be valid for a period of 3 years or until Notification under clause (d) of section 14 of the Act is issued by Central Government, whichever is earlier.**
- c. A separate application (Annexure – 2) will be made by the user of label for labeling of each equipment/model. The application for each equipment/model shall be accompanied by non – refundable registration charges of Rs. 1,000 (Rupees One thousand only) in the form of a crossed bank draft issued in the name of Bureau of Energy Efficiency and payable at New Delhi.
- d. **A labeling fee (as defined in the schedule for each equipment) shall be given by the manufacturer (Rs 10/Refrigerator and Rs. 0.05/TFL) in advance to the Bureau of Energy Efficiency.**
- e. The formats for application, agreement and application form for label are provided as annexure to this document.
- f. After receiving the complete application for an equipment/model, the Bureau will scrutinize the application, and seek further information, if required, within a month from the date of receipt.
- g. If there are no queries from the Bureau within a month, the user of label can affix the label under intimation to the Bureau if an agreement for participation in the scheme has already been entered under (b) above.
- h. Proprietary information supplied to the Bureau should be marked as such by the user of the label, and Bureau shall keep it confidential
- i. The user of label will print and affix the labels as per the label design, manner of display, and the rating plan prescribed for the particular equipment.

j. The Bureau would prepare a poster/brochure informing the consumers as to how to read/interpret the label and select equipment for purchase. The user of label would distribute a copy of the poster/brochure along with their technical brochure to the buyer and would also display the poster/brochure at the point of purchase.

k. The user of label shall maintain the list of labeled equipment and provide a statement of labeled equipment, their star rating level and the number of such labeled equipment produced, with serial numbers, wherever applicable, every six months.

l. A list of labeled equipment (and information on the label) will be maintained by the Bureau and made available to the public through publications and its web site.

m. If during the tenure of the scheme, for a particular model/equipment, there are changes in the energy efficiency of the model/equipment or any other information on the label, then a fresh application should be submitted, and it will be processed accordingly.

n. The user of label shall be solely responsible for ensuring-

i. the accuracy of the information displayed on the label or any public claim for label level and quality of equipment.

ii. use of label only for such equipment/models for which the agreement has been entered with the Bureau.

iii. compliance to the terms and condition of the scheme,

iv. directions of the Bureau on the implementation of the scheme

v. payment of any compensation adjudicated by any court/tribunal to any person for any information displayed on the label.

o. The Bureau will work towards creating a market for energy efficient equipment through consumer awareness and consumer education.

p. The Bureau will appoint an independent agency to evaluate the program impact and process of implementation on a periodic basis. The scope of evaluation will include the impact on sales, energy consumption, cost, consumer purchasing behaviour, manufacturing, national energy use and the environment. The user of label shall extend full cooperation by providing the relevant data for the purpose.

q. The Bureau will review the scheme periodically to determine the need for revision or amendment or termination of the scheme.

r. The Bureau, at any time during the operation of the scheme, may decide to terminate or modify the scheme after giving three months notice period.

s. The User of Label, at any time during the operation of the scheme, may decide to withdraw from the scheme after giving three months notice period to the Bureau as well as a public notice.

t. The liability of the user for the accuracy of label will continue till those labeled products are available in the market.

3 Label Verification Process

a. The Bureau will verify the label contents, and the manner of display of label for each equipment/model on a regular basis.

b. The frequency of the verification test will be determined by the Bureau depending on the nature of equipment and time required for testing.

c. Verification testing will be conducted in an independent (NABL accredited) laboratory registered with the Bureau.

d. The Bureau or its representative(s) will identify and seal the equipment samples as per the sampling procedure specified in the Schedule to the scheme (for each equipment).

e. The User of label will

i. agree to make available samples free of charge for verification as well as challenge testing.

ii. be responsible for transportation (to and fro from the place of picking of sample to the test laboratory) and handling of the sealed samples to the assigned test laboratory.

iii. be responsible for getting the selected and sealed samples tested in the assigned laboratory and reporting the results to the Bureau within a reasonable time period.

iv. directly bear the cost of transportation, handling, and testing of samples for verification testing.

4 Challenge Testing

a. The label contents can be challenged by any person.

b. The challenge must be submitted to the Bureau in writing.

c. The Bureau will examine the challenge within a month of the date of receipt in writing. The Standards and Labeling Implementation Committee will recommend whether to conduct a challenge test or not, keeping in view the basis of the complaint and examination of past records.

- d. The decision of the Bureau will be final and will be conveyed to complainant along with justification.
- e. If a challenge test is required, then
 - i. the complainant will deposit the expenses related to transportation (to and fro from the place of picking of sample to the test laboratory) and testing in advance to the Bureau.
 - ii. the Bureau will arrange for selection and sealing of samples. The transportation to the assigned laboratory is the task of the user of label.
 - iii. the testing will be conducted in an independent laboratory registered with the Bureau and the testing charges would be paid out of the advance by the complainant.
- f. The complainant and the user of label may witness the process of challenge testing.
- g. If the equipment fails the challenge test, then the expenses paid by the complainant would be reimbursed by the user of label whose equipment has failed.
- h. If the equipment passes the challenge test, then the complainant would forfeit the deposit.
- i. If the equipment fails the challenge testing, the enforcement process (section 5) will be followed.

5 Enforcement Process

- a. If the equipment fails the verification/challenge testing, then the matter will be placed before the Standards and Labeling Implementation Committee and the user of label will be informed about the failure.
- b. The user of label has the option to go in for the second test, in case the equipment fails the first verification/challenge test.
- c. A second test will be carried out with twice the initial test sample size, and all the samples should pass the test.
- d. The user of label will bear the expenses related to the second test.
- e. If the equipment passes the second verification/challenge test, then no further action would be taken and the appliance would deem to confirm to the label level.
- f. If the equipment subjected to verification/challenge testing fails the second test, the user of label will, within the given time limit by the Bureau,

- i. correct the label or remove the defects or deficiencies found for new equipment/models yet to be shipped out as well as for equipment/models for sale in the market.
 - ii. change particulars/information on the advertisement material.
- g. If the user of label fails to comply with the directions issued under clause (e) then the use of the label for that model will be prohibited. In addition,
- i. the Bureau will inform the consumers about the failure of the equipment/models by wide publicity.
 - ii. the Bureau may advise the government to debar the equipment/models and/or the user of the label from participating in any public tender.
-

**Amendments to the scheme for Energy Efficiency Labeling
approved by the Ministry of Power**

Note: The page numbers referred herein relate to the original BEE document.

1. Para I, sub-para (d)

- (i) Page 2, “delete 5th – 6th line”
- (ii) Page 2, after the 7th line add the following:

“The labeling of other equipment and appliances would be introduced in a phased be manner. The programme is as follows –

- (a) Direct Cool Refrigerator - September, 2006
- (b) General Purpose Electric Motors - October, 2006
- (c) Air-conditioners - November, 2006
- (d) Ceiling Fans - December, 2006

The test procedures, schedule of tests, rating plan, sampling plan, qualification requirements, label design, label fee and the manner of display of label in relation to the aforesaid in schedule shall be specified in schedule 3, 4, 5 and 6 respectively”.

2. Page 2, para 1 sub-para (f)

- (i) For the words “Standards & Labeling Implementation Committee” appearing in line 1 of sub-para (f) and other places wherever these appear in the scheme read National Standards & Labeling Implementation Committee”
- (ii) After Clause (iv), add the following new Clause
“(v) such other issues as are considered crucial to the implementation of the scheme on uniform basis throughout the country.”

3. Page 3, para 2, sub-para (d)

Delete the existing para and substitute the following:

“(d) The user of label with respect to each equipment shall deposit a sum of Rs 1 lakh along with the application for seeking authority to use label, as a security deposit. The amount of labeling fee due in a financial year shall be paid by the user of the label to the Bureau of Energy Efficiency within one month of the close of each financial year. In case of default in payment of the due amount of labeling fee the security shall be forfeited. Further, participation by the defaulters in the scheme shall be subject to payment of full amount of labeling fee due with 10% interest thereon and with the approval of the National Standard & Labeling Implementation Committee.”

4. Page11, Annexure 2, replace the last paragraph with the following:

“A crossed bank draft of Rs 1 lakh in favour of Bureau of the Energy Efficiency payable at New Delhi as security deposit is enclosed.”

Highlights of energy efficiency labeling scheme

1. The energy efficiency labeling scheme is a voluntary programme launched by BEE It shall remain in force until Notification under clause (d) of section 14 of the Energy Conservation Act 2001, is issued by the Central Government.
2. BEE has spent more than Rs. 15 crores on print and media publicity to promote the scheme.
3. BEE hired the services of a media consultant to recommend how the scheme shall be promoted.
4. The scheme is being promoted through electronic media through commercials i.e. “Bachat Ke Sitare” and “Jago Grahak Jago”.

DEBATE ON ENERGY STANDARDS AND LABELING

Following a suggestion from members IAEMP's president Mr. Sunil Sood recently initiated a debate on BEE's Energy Standards and Labeling Programs. The Urja Watch shares members' views and concerns. - Editor

1

Dear Friends,

As suggested by Mr. Jindal and Mr. RA Sharma let us have topic every week for discussion. I suggest the topic for this week as:

"BEE's Standards & Labeling Programme - its effectiveness and shortcomings"

As you are all aware, BEE has already introduced 5 appliances under the program i.e. Frost Free Refrigerators, TF Lamps, Room A/Cs, Direct Cool Refrigerators and Distribution Transformers. Another item i.e. Induction Motors up to 15kW ratings will be included soon.

I request members to share their views on the effectiveness of the program and its publicity in TV ("Bachat ke sitare"). BEE has already spent more than Rs15 Crores on media publicity. As per the latest information available, more than Rs 70 crores are going to be spent on labeling program publicity in the next 4 years. Thus, good earning is assured for all the media people and "Communication Consultants".

Let us debate on the following issues:

- Who decides the criteria for Labeling? Whether is there any hidden agenda to promote foreign goods in the name of Labeling? Who verifies the claims? How the consumers can easily check the claims? Whether Labeling tells about the alternatives available? (For example in case A/c- the alternative of dessert cooler) .Whether it gives any wrong impression to save money in using AC or Frost Free refrigerators? Is it true that the Frost free refrigerators are banned in USA? Does the S&L Programme solve all other problems associated with wrong use of appliances, over-sizing etc?

As announced by Dr. Subramanian, the next issue of "The Urja Watch" will be devoted to Standards & Labeling program. Hence, I request you all to contribute your thoughts on the very important issue.

Best Wishes,

(Sunil Sood)
President, IAEMP

Responses from Members

2

Standards & Labeling program as it is administered now is only ensuring earning for media rather than any real saving for consumers. I feel that for it to be effective, all brands of a particular product needs to bear the label indicating its energy efficiency rather than those brands that voluntarily offer themselves for certification.

S. P. Nanda

3

During a workshop in Orissa, I happened to meet a representative from the Bureau of Energy Efficiency (BEE). We discussed the S&L program of BEE. He cited Karl Popper to explain why BEE should have an S&L even if it is not the best rating mechanism. Standards are not absolute. In his words “KOI PATHAR KE LAKEER NAHI HOTA HEY.”

Karl S Popper has given a new term called **VERY SIMILITUDE** to compare two contesting theories. Members are requested to read Karl Popper in Original for more accurate description.

If for example there are two theories say “T1” and “T2” for any thing, and T2 claims to be more advanced than T1, than you can discard T1 if T2 has more truth than T1 and less or equal falsity than T1.

So, the S&L has to be in place for all to challenge and set new standards.

SUNIL BISWAL
BEE CERTIFIED ENERGY AUDITOR
Zonal Coordinator (East) IAEMP
Organising Secretary, Orissa Chapter of IAEMP
Shantinagar, Sunabeda- 763001

4

While I say the idea may be good for labeling and standardisation, it is a copy from USA (USAID being the advisor for BEE). Main difference in USA and India is that in India, unlike in USA, labour is cheap and hence it is cheaper in USA to buy and replace a burnt out motor while in India, who throws away a burnt out motor.

With the power quality that we have, which motor remains unburnt for the full 15 years of usage (in the low rating that these are being proposed and implemented).

Hence it is another instance of "nakal mein bhi akal chahiye" - good idea but wrong place and method of implementation.

Going by labeling of fridges and tube lights, which consumer can actually cross check whether what is being claimed by the manufacturer in the label is being delivered to him (in terms of power consumption). Further if you check on some websites and ask for the models with 5 star rating, they would be out of stock or with very long delivery (another way of politely telling the client that the same is not available). All can understand why this happens. This is my observation for the last one and half years of following the process.

My suggestion is that the labeling process be made simple to understand & give values which a consumer can demand to cross check at the show room and can see for themselves, list a method of testing which any consumer can test, either from the showroom, or by themselves. In addition, lay down norms for the rewind/ rebuilt products too as rewinding and rebuilding industry in India is bigger than the total imported motor/compressor costs.

If we close our eyes as cats, it does not mean that rest of the world is dark.

Rakesh Sahay

5

Dear Mr. Sahay,

You mentioned that the consumptions of refrigerator and tube lights can be measured in such star rating program. Actually it is not possible for following reasons:

1. Refrigerators testing adopted is clumsy and only very few labs may be able to test it. These tests are not user friendly and you can find that note in small letters 'under standard conditions' which you can never generate at home.
2. How do you measure lumens of the lamp, while you can measure wattage. However unless and until you have mechanisms to measure both you do not know the luminous efficacy, which is a major parameter for star rating. Some lamp may show lower power consumption but may give lower lumens as well and may not qualify for star rating.

I agree that the test procedures should be user friendly and only in that case we can take the manufacturers to the consumer courts in case of defaults.

Prof. Ajay Chandak.

6

Dear Prof. Ajay Chandak,

Thanks for sharing the information on BEE's S & L programme. From day one I was telling my other friends that there is no transparency in the functioning of BEE. They must have some hidden agenda. Only under the guise of these programmes, BEE officials must be deriving benefits.

How can a regulatory committee work with the manufacturers, whose products are going to be tested for the performance standards by them?

In fact, BEE should have set the standards along with reputed Institutions of India and asked the manufacturers to comply with it for getting stars, or quality approval in terms of energy usage. This is normal procedure, but if BEE has to learn the guidelines from manufacturers and follow their instructions then some thing is wrong there, the very purpose is being defeated.

Secondly, energy conservation is basically the optimal use of energy without sacrificing the parameters of the equipment. Now it is proposed to use electronic ballasts in place of conventional Copper or Aluminium ballasts. The conventional ballasts do not have much effect on other circuits, whereas electronic ballasts create a problem of interference with other magnetic and radio circuits, so care has to be taken to eliminate this interference problem, else one will be saving energy at some other cost. This is not conservation.

Conservation without diluting the performance criterion, employing latest technology will be useful, e.g. an interior with say fluorescent tube lights are to be replaced by CFL, then one has to ensure that the lux level of that interior remains the same. I have seen many places like hotels and commercial complexes wherein use of CFL lamps is implemented for reducing electricity bills but at the cost of reduced illumination levels. This is not real energy conservation.

ULHAS VAJRE

7

Standards and Labeling program is an unethical handshake between BEE and beneficiary companies, who misused their positions in the technical committees. I had expressed my views on Green India forum earlier during one such debate. Extract of the discussion is given herewith.

1. In my view the purpose of star rating is to:

a. Provide information to the consumer so that he is well informed about the energy consumption of the gadget he is purchasing. Star rating is like a claim of a manufacturer about energy consumptions and if he fails to substantiate the claims, now he can be booked under consumer laws.

b. Promote manufacturers of efficient equipments and penalise inefficient manufacturers.

To serve this purpose effectively what we need,

a. Easy and transparent system of measurements and verification of energy consumption of these star rated gadgets.

b. For deciding criteria and test procedure to qualify for the star rating the committees formed should have had members from "Grahak Panchayat" (Consumer Forum), neutral experts from research laboratories and IITs and other institutes of high repute, may be member from Bureau of Indian Standards and more important issue is that the beneficiary companies to whom star rating is to be awarded should have been kept away from the process of framing rules and regulations of star rating.

What has actually happened: BEE joined hands with the manufacturers who are beneficiaries of the star rating program. Objectionable part of the star rating allotment was:

a. No consumer body/forum was involved in the process, while these standards are meant for them.

b. No third party experts from reputed organisations like IITs, Bureau of Indian Standards etc. were involved.

c. All test procedures were designed and framed by the representatives of the manufacturer companies, who are actually beneficiaries. This is grossly unethical. It is like asking students to set question papers. It can be seen that the industry people have misused their participating in setting standards in different ways as follows.

i. They set the test procedures so difficult that it will be impossible for any consumer or consumer body to prove that the equipment purchased is consuming more energy than committed by star rating. In case of refrigerators, few tests were not available in India when the standards were set.

ii. The test parameters which are important for consumers but not convenient to the manufacturers were conveniently sidelined. For example, harmonic distortion is a very important criterion for power quality assessment, but the members of lighting committee excluded this from the test protocol.

iii. All the manufacturers funded the star rating development program. Can anybody believe that they will do funding to chain themselves?

iv. As all big manufacturers were involved in the process of setting standards, they used this position to kill small players by making suggestions that few items like ballasts should be delisted from small scale industries.

I am aware that some of our members may feel that criticism is biased against the star rating program. I am not against the star rating program; my objections are the way the standards were laid down in India by BEE. Just to prove my points, I have compiled minutes published on BEE website for refrigerators and lighting and these are attached herewith*. **Objectionable part I have marked in Red** and **my comments in Blue**. People will find these attachments interesting. All this information is available on BEE website.

I did the assessment only for refrigerators and lighting, but for other items situation has been the same. It is unholy association of BEE and corporates to get the policies and programs bent in their favor, without bothering about the consumers. Please do go through the attachments as all information is compiled from BEE website only.

This information can be used for the upcoming issue of Urja Watch.

Prof. Ajay Chandak.

**Due to lack of space for these high volume attachments, we regret that we are unable to include these in this column. However, specific requests may be made to the Editor.*

8

There have been quite a few messages on the subject, and most of us want the star ratings to be easily verifiable by a user. While this would be ideal, I doubt if it is practically possible.

I would request you to refer to any of the IS specifications. Let us take cable as an example. According to the IS the cross-section area specified like 1, 1.5 or 2.5 sq.mm is not the physical area. It is the electrical area, and it can be worked out only on the basis of measurement of resistance of the wire. The resistance of 1 km long Al. cable of 300 sq mm area is 0.123 ohms at 70 deg C. For a 1metre long piece it would be .000126 ohms. It is impossible to measure this anywhere except in a lab. Similarly insulation properties etc are revealed only after tests in a lab. This is true of any other item, be it simple domestic switch, or a fuse wire or a bulb. Hence our dream of easily verifiable star ratings appears distant to me.

Please think over it.
S. Khandekar

9

I agree with Mr. Khandekar, but a lot of simplification is possible in many gadgets.

1. For tube lights test can be taken without any reflecting surface around. Distance and location of the lux meter we can fix and indicate the range how much the lux meter should read. E.g. we can mention that at one meter distance from the center of the tube light lux levels should be so and so. Wattage should be so and so. Now all our digital energy meters show instantaneous wattage. This will make the task easy.

2. For refrigerators, standing losses overnight (say 12 hours) with empty refrigerator is a good measure. There can be some multipliers for correction of ambient temperature as test as standard temperature is not possible.

3. For electrical motors, no load power is a good measure.

Such measures will be a very good guess work and will make a way to take a decision whether consumer organisations should challenge that gadget for laboratory testing or not.

Ajay Chandak.

Great works are performed not by strength but by perseverance. Most accomplishments were preceded by persistence & perseverance.

- Anonymous

Never doubt that a small group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.

- Margaret Mead

The Story of Energy Star

By Sundareshan Subramanian

Have you seen the Energy Star logo appearing on some computer monitors and appliances? What exactly is Energy Star, and what does it mean for the products we use? This article provides a short story of Energy Star - how Energy Star got its start and where it's headed.

Back in 1992, in an effort to promote energy efficiency and reduce air pollution, the U.S. Department of Energy (DOE) and the U.S. Environmental Protection Agency (EPA) partnered to launch the Energy Star program. It began as a way to cut down the energy drain from computers and was gradually expanded to cover more than 50 product categories. DOE and EPA work together to offer businesses and consumers energy-efficient solutions to save energy and money, while also helping to protect the environment.



Image courtesy [Energy Star](#)

Energy Star was designed as a voluntary program to promote energy-saving innovations by providing consumers with objective information about products -- not everyone has the time or resources to investigate how much energy one ceiling fan or air-conditioner saves over another. More than 9,000 organizations have joined ENERGY STAR as partners committed to improving the energy efficiency of products, homes and businesses. The Energy Star label indicates that the product uses less energy than other products in that category -- you're probably familiar with it on appliances or heating and cooling equipment, but you can also find the label on many other products such as roofing materials, home appliances and indoor air quality products.

The EPA has also extended the Energy Star label to cover new homes, commercial buildings and industrial structures.

The Energy Star program was initially designed for computers and monitors when home computers were relatively new to the market, so many consumers weren't aware that this technology could be raising their energy bills significantly. Other office equipment and residential heating and cooling equipment were added to the list over the next three years, and in 1996, the EPA partnered with the Department of Energy for additional product categories.

The Energy Star program operates by lowering the cost of production so consumers can more easily afford energy-efficient products. The label makes a product more attractive to consumers, so it's an incentive for manufacturers to become more energy-efficient.

The Energy Star label allows a purchaser to consider a range of potential products and see immediately how much electricity a product would be using. Products that use the "Energy Star" label include:

- **Appliances:** clothes washers, dishwashers, refrigerators and room air conditioners
- **Heating and cooling:** central air conditioners, furnaces and programmable thermostats
- **Home electronics:** televisions, VCRs, DVD players and home audio systems
- **Office equipment:** computers, monitors, photocopiers, notebook computers and printers
- **Lighting:** fixtures and bulbs
- **Commercial products:** exit signs, vending machines and water coolers

Energy Star requirements

So what does a product need to do to get the Energy Star label? It begins with the US Department of Energy "Energy Guide" label, the familiar yellow tag that stores require on all major home appliances. This label indicates the results of testing according to the Department of Energy's standard procedures. The label lists how much energy the appliance uses, compared with similar products, and the approximate annual operating costs. (Estimated yearly operating costs are based on the US national average cost of electricity.)

If the product has met the specific criteria for its particular category -- typically a percent reduction in energy consumption versus other products in the same category -- the yellow tag will have an Energy Star label on it.

Next time you go shopping for computers and appliances, look for the Energy Star logo on the products if you want to lower your home energy costs.

(Source: DOE website and the internet)

About the author: A winner of international energy and environmental awards, Sundaesan Subramanian is a senior management professional with an array of global experiences. He serves as the editor of "The Urja Watch" and may be reached at tellsubi@gmail.com

How to Measure Luminous Efficacy?

There are numerous brands of lamps available in the market – each with its own claims on the quality of light and energy consumption. Are these claims legitimate? Is it possible to verify the claims? Here are some views from IAEMP members and also basic lighting definitions. - Editor

1

Star labeling program for Fluorescent Tube Lamps (FTLs) has put criteria for star labeling as lumens/watt at different working hour of lamp.

I can easily measure wattage consumed by any lamp, but does anybody know how lumens are measured. I can measure lux levels with my lux meter, but do not know how to measure lumens. Does anybody know the procedure? Unless and until we measure both, lumens and wattage, we can not calculate lumens/watt and can not challenge any manufacturer.

Ajay Chandak.

2

Luminous flux measurement is to determine the total visible energy emitted by a light source. An integrating sphere is often used to converge all the power emitted by the source to the detector head. The integrating sphere has to be large enough to encompass the light source being measured, and as a general rule, the larger the sphere, the smaller the errors in measuring luminous flux for different light sources.

As a rough example, calibrating a 1.5m tubular lamp in a 2.5m diameter sphere against a small incandescent standard will produce half the error that would result from calibration the same lamp in a 2m sphere. Calibration of such integrating sphere can be carried out by means of transfer lamp standards which are traceable to recognised national standards.

A good quality integrating sphere which postulates the performance of an ideally spherical, evenly coated interior requires a huge investment and usually has to be customised to the light measurement application. Hence, the existence of a general purpose luminous flux meter is very limited.

Ravi Shankar

3

Please read the following article. It will provide clarity on the subject.

G.K.Anand

Lumens, Illuminance, Foot-candles....

Editor's note: We thank Mr. Anand for forwarding this 'enlightening' article. It is presented here in the edited format.

In defining how bright something is, we have two things to consider.

1. How bright it is at the source- How bright is that light?
2. How much light is falling on something placed away from the light?

Lets' do some definitions now.....

We're going to talk about "foot-candles".

This one's simple. Get a birthday cake candle. Get a ruler. Stick the candle on one end of the ruler. Light the candle. Turn out the lights. One foot-candle of light is the amount of light that birthday cake candle generates one foot away.

That's a neat unit of measurement. Why? Say you have a lamp. You are told it produces 100 foot candles of light. That means at one foot from the lamp, you will receive 100 foot candles of light.

But here's where it gets tricky. The further away you move the light from what you want to illuminate, the less bright the light seems! If you measure it at the light, it's just as bright. But when you measure at the object you want illuminated, there is less light! A Physics teacher is going to tell you that light measured on an object is **INVERSELY PROPORTIONAL** to the distance the object is from the light source. That's a very scientific and math rich way of saying, the closer you are to the light bulb, the brighter that bulb is. Or, think of it this way. You can't change how much light comes out of your light bulb. So, to make more light on an object, you have to either move the light closer, or add more lights.

Now, let's get to LUMENS.

A LUMEN is a unit of measurement of light. It measures light much the same way. Remember, a foot-candle is how bright the light is one foot away from the source. A lumen is a way of measuring how much light gets to what you want to light! **A LUMEN is equal to one foot-candle falling on one square foot of area.**

So, if we take your candle and ruler, lets place a book at the opposite end from the candle. We'd have a bit of a light up if we put the book right next to the candle, you know. If that book happens to be one foot by one foot, it's one square foot. Now, all the light falling on that book, one foot away from your candle equals both.....1 foot candle and one LUMEN!

Let's split off from this and talk about the difference between RADIANCE and ILLUMINANCE.

RADIANCE is another way of saying how much energy is released from that light source. Again, you measure it at the source. Unless you're talking about measuring the radiance of something intensely hot, like the Sun. Then you might want to measure it at night, when it's off.

ILLUMINANCE is what results from the use of light. You turn your flashlight on in a dark room, and you light something up. That's ILLUMINANCE. Turning on a light in a dark room to make the burglar visible gives you ILLUMINANCE. It also gives you another problem when you note the burglar is pointing your duck gun at your bellybutton.

Illuminance is the intensity or degree to which something is illuminated and is therefore not the amount of light produced by the light source. This is measured in foot-candles again! And when people talk about LUX, it's illuminance measured in metric units rather than English units of measure. To reinforce that, LUX is the measurement of actual light available at a given distance. A lux equals one lumen incident per square meter of illuminated surface area. They're measuring the same thing, just using different measurement units.

Old photographers used a device called a light meter to help them judge their exposure. These light meters were nifty devices. You could use it to show how much light was falling on an object, light from the sun, and reflected light energy from every thing else. Or you could use it to show how much light energy was reflected off the object itself.

All this brings back two points.

The first point is if we measure the output of a light at the source that gives us one thing. The second point is that we use an entirely different unit of measure if we are measuring the results of that light's output.

More Confusion! Candlepower!

Candlepower is a way of measuring how much light is produced by a light bulb, LED or by striking an arc in a Carbon-Arc spotlight. Is it a measure of how much light falls upon an object some distance away? No. That's illuminance. Is it a measure of how well we see an object that is illuminated by that light source? No. That's something all together different, and we are not going there!

Nowadays we use the term CANDELA instead of candlepower. Candlepower, or CANDELA is a measure of how much light the bulb produces, measured at the bulb, rather than how much falls upon the thing you want to light up. Further confusing the matter is beam focus. That's how much candlepower can be focused using a reflector/lens assembly. Obviously, if you project all your light bulbs intensity at a given spot, or towards something, it will be more intense, and the illuminance will be higher. And here comes the confuser! A candlepower as a unit of measure is not the same as a foot-candle. A candlepower is a measurement of the light at the source, not at the object you light up.

And a candela is the metric equivalent of the light output of that one candle, based on metric calculations. Since using a candle is rather imprecise, the definition was amended to replace a light source using carbon filaments with a very specific light source. Candlepower is a measure of light taken at the source-not at the target. Foot-candles tell us how much of that light is directed at an object we want to illuminate.

Now, let's convert the lumens, a metric unit of light measurement, to candlepower.

We understand a candle radiates light equally in all directions, its output, in this consideration is not focused by any mechanical means (lenses or reflectors). Pretend for a moment that a transparent sphere one meter in radius surrounds your candle. We know that there are 12.57 square meters of surface area in such a sphere. Remember your Solid Geometry classes?

That one candle (1 Candlepower/Candela) is illuminating equally the entire surface of that sphere. The amount of light energy then reflected from that surface is defined thusly:

The amount of energy emanating from one square meter of surface is one lumen. And if we decrease the size of the sphere to one foot radius, we increase the reflected energy 12.57 times of that which fell on the square meter area.

LUX is an abbreviation for Lumens per square meter. Foot-candles equal the amount of Lumens per square feet of area.

So, that one candlepower equivalent equals 12.57 lumens.

And for you figuring out LED equivalents, first you must know how many lumens your LED's each produce. Then divide that value by 12.57 and you have candlepower of the LED. You don't have foot-candles, remember foot-candles are illuminance. And we are measuring radiance.

Summing it all up:

Candlepower is a rating of light output at the source, using English measurements. Foot-candles are a measurement of light at an illuminated object.

Lumens are a metric equivalent to foot-candles in that they are measured at an object you want to illuminate. Divide the number of lumens you have produced, or are capable of producing, by 12.57 and you get the candlepower equivalent of that light source.

We've now converted a measurement taken some distance from the illuminated object, converted it from a metric standard to an English unit of measure, and further converted it from a measure of illumination to a measure of radiation!

We acknowledge the source of this article- Robert H (Doc) Bryant, USA.

Issue# 20 on Standards & Labeling

from www.energymanagertraining.com revisited

Issue EE # 20

A call for better statistical data

There has been extended discussion regarding which appliances and industrial equipment is actually contributing most to the electricity consumption of India. A rating list seems to be important because under the EC-Act, the Bureau of Energy Efficiency will label and set standards for various appliances and industrial equipment. An overview is given in the attached list.

Considering the efforts necessary to set up a labeling and standard delivery mechanism, including infrastructure, it is important to look into the contribution of each gadget to the national electricity consumption. There is no need to focus efforts and resources on gadgets which do not contribute a lot or the estimated electricity conservation potential is small.

Furthermore introducing labeling and standards for equipment where a very high percentage of manufacturing firms belong to the informal sector will be difficult, because enforcement is going to be more difficult.

From the list it is obvious that, based on annual electricity savings potential, agricultural pump sets, fluorescent tube lights and industrial motors should be tackled first, while CFL's and compressors are at the end of the list.

The trouble with such lists are the GiGo effect. Garbage in means Garbage out. Readers may notice that there are a number of question marks where data is missing. Moreover data shown in the table sometimes comes from unknown sources, or are not validated. In other words, the best one can hope is that the data is $\pm 30\%$. For instance, whoever knows how the consumption of agricultural pump sets is collected and computed may immediately point out the deficiencies and accuse us of window dressing. We are very well aware of it. However, a long journey starts with the first step. We therefore ask our readers to improve on this table, instead of hiring another consultant who may as well only cite official or unofficial data. Whoever can provide us with better data or fill in the gaps will earn between Rs. 1000 and Rs. 5000 depending on efforts and quality of references. A total of up to Rs. 1,00,000 of professional fees will be offered to improve this table over a period of six months. Take notice of the conditionality up to! There may be no awards if submitted data and reference are as shaky as some of our references.

Happy data hunting!

Issue# 20 on

Standards & Labeling from www.energymanagertraining.com revisited (contd.)

Observation on Issue # EE 20 – A call for better statistical data

In the first round to this issue, we got response from 7 participants. After review, 4 papers have been selected, which are as follows:

1. Mr. R.V. Nesari have provided data with references on Annual electricity consumption for agricultural pump sets. He had substantiated the annual sales figures of Air conditioning, refrigerator, CFL, motor and annual electricity consumption figures with references. He had also provided data on ceiling fans including organisation of the industry. His efforts and references need to be commended.
2. Mr. Y. S. Sachidananda has provided data with references on Annual electricity consumption for agricultural pump sets. He had also provided data on Industrial consumption including captive generation. He had also worked out electricity balance and provided data on electricity consumption. He had also worked out systematically energy consumptions at the end use and provided data on consumption. His efforts need to be commended.
3. Mr. S. K. Sood had pointed out that the efficiency improvement only through efficient agricultural pump set would not exceed 15 to 20 % and as well as the operating hours would be substantially low at 600 to 1200 hours. He had also given figures of 30 million electric Geysers and consumption of 29,000 GWh. This data is purely from his experience.
4. Mr. G. Subramanyam had done excellent analysis on agricultural pump set at the State level with references. He had suggested that the power consumption per hour is 6.5 kWh, @1800 hours operation in a year 20 -25% improvement in efficiency improvement in pumps alone and agricultural consumption at 184,172 GWh. There is obviously a dispute and inconsistency concerning electricity consumption in agricultural pump sets. Mr. G. Subramanyam's figures differ substantially from the official and other figures. However they are based on a limited detailed field survey, while official figures are calculated and estimated from data submitted by SEB to CEA.

This all proves that power consumption of a very large group of power users (12.5 million irrigation pump sets) is not very well known.

Based on the efforts and veracity of data it is proposed to award the following:

Mr. R. V. Nesari	Rs. 10,000/-
Mr. Y. S. Sachidananda	Rs. 8,000/-
Mr. S.K. Sood	Rs. 2,000/-
Mr. G. Subramanyam	Rs. 2,000/-

Based on the inputs provided the table is updated and the same is inserted in bold. We therefore once again ask our readers to improve on this table and start the second round.

Keep the good work and further improve over it again.

Congratulations to all the winners! Keep up the good work.

Issue# 20 on

Standards & Labeling from www.energymanagertraining.com revisited (contd.)

STANDARDS & LABELLING PROGRAMME – ELECTRICITY SAVING POTENTIAL PRIORITY

Equipment (1)	Annual electricity consumption of equipment GWh ¹ (2)	Annual sales of equipment in 2002-03 millions (3)	Annual electricity consumption of new stock GWh ² (4)	Electricity consumption of new stock to total electricity % ³ (5)	Estimated improvement in efficiency of new stock % ⁴ (6)	Annual electricity savings GWh ⁵ (7)	Organised sector ⁶ % (8)	Informal sector ⁷ % (9)
Industrial motors	99,317 ⁸	4,350 MW	24,618	6.3	5	1,231	98	2
Fluorescent tube lights	?	190	11,096	2.8	10	1,110	90	10
Agricultural pump sets ⁹	84,486	0.8	6,000	1.6	15	900	55	45
Refrigerators	25,550	3.4	2,172	0.6	32	695	100	0
Air conditioners	12,113	0.8	2,100	0.5	21	441	85	15
Ceiling & table fans	?	12.5	1,313	0.3	21	276	6	94
Industrial pumps ¹⁰	18,906	8% ¹¹	3,781	1.0	7	265	90	10
Ballasts	?	30	720	0.2	31	223	30	70
Industrial fans	18,167	15%	2,725	0.7	8	218	85	15
Distribution transformers	12,709	16,600 MVA	843	0.2	24	202	50	50
Geysers (hot water)	?	0.8	864	0.2	17	147	?	?
CFLs (60 W Incandescent lamp replacements)	?	1.94	57	0.01	80	40.8	?	?
Compressors	13,137	12%	1,576	0.4	5	79	95	5
Total			57,957			5,845		

¹ Energy Sales was 390,168 GWh in 2002-03

² Yearly energy consumption of new stock on business as usual basis including replacement.

³ Percentage contribution of new stock to total energy sales of 390,168 GWh in 2002-03

⁴ Estimated Improvement potential in % over old stock by moderately efficient products.

⁵ Estimated annual savings if all new stocks would have been more efficient by the % indicated in column 6.

⁶ Percentage of equipment manufacturers in the organized sector, meaning large and medium enterprises

⁷ Informal Sector refers to equipment manufactured in small scale sector, unorganized assembly sector such as kit pump manufacturers in agriculture pump sets.

⁸ Industrial motive load had been taken at 60% of industrial consumption (utility+ captive) @ 165,528 GWh.

⁹ Sample calculation for agricultural pump sets is given below. Similar estimates were made for other equipment.

Column 4 = Annual electricity consumption of new stock = column 3 * 1500 hours per year * average 5 kWh consumption per hour = 6000 GWh

Column 5 = Electricity consumption of new stock to total electricity = Column 4/ 562572 *100 = 1.1%

Column 6= Estimated Improvement in efficiency of new stock = 5kW pump replaced by 3.1 kW high efficiency pump delivering the same quantity of water = 100* (5-3.1)/5 = 38%

Column 7 = Annual electricity savings = Column 4* column 6/100 = 2280 GWh

¹⁰ For industrial pumps, fans and compressors the efficiency improvements are only due to equipment and not motors, to avoid double counting.

¹¹ Figures in % in these columns represent sales growth rate of the equipment

The Cheer Columns

Enough of those technical buzzwords. Let's cheer up and laugh awhile!

"The best way to cheer yourself is to try to cheer someone else up."

- Mark Twain

Following the recent crash of global stock markets, the editor received the following e-mails in his inbox:

1

TIPS FOR RETIREMENT INVESTMENT PLAN in this current Financial Markets

If you had purchased \$1000.00 of Nortel stock one year ago, it would now be worth around \$49.00.

With Enron stocks, you would have \$16.50 left of the original \$1000.

If you had bought WorldCom stock, you would have less than \$5.00 left.

If you had \$1000.00 of Delta Air Lines stock, you would have been left with probably \$49.00 worth.

If you had purchased shares of United Airlines, you would have nothing left.

But, if you had purchased \$1000.00 worth of beer one year ago, drank all the beer, then turned in all the empty cans for the aluminum recycling refund you would now have \$214.00.

Based on the above, the best current investment advice is to drink more beer and recycle the cans.

This is called the 401-Keg Plan

2

On Wall Street, the bankers now have a popular saying: "Dubai, Shangai, Mumbai or Goodbye"

3

The market may be bad, but I slept like a baby last night. I woke up every hour and cried.

Sir Isaac Newton and his Atheist friend

The story is told of an atheist scientist, a friend of Sir Isaac Newton, who knocked on the door and came in after he had just finished making his solar system machine - one of the machines that you find in the science museum where you crank the handle and the model planets and moons move round.

The man saw the machine and said "how wonderful" and went over to it and started cranking the handle and the planets went round. As he was doing this he asked Newton "Isaac, who made this wonderful machine?". Sir Isaac stopped writing and said "nobody did". Then he carried on writing. The man said "You didn't hear me. Who made this machine?". Newton replied "I told you. Nobody did." The man stopped cranking and turned to Isaac "Now listen Isaac, this marvelous machine must have been made by somebody - don't keep saying that nobody made it."

At which point Isaac Newton stopped writing and got up. He looked at him and said "Now isn't it amazing. I tell you that nobody made a simple toy like that and you don't believe me. Yet you gaze out into the solar system - the intricate marvelous machine that is around you - and you dare say to me that no one made that and it is a natural creation. I don't believe it."

The atheist friend was dumbstruck and had no words to respond.

Physics examination - A TRUE STORY

(Contributed by Rohinton Kamdin)

The following concerns a question in a physics degree exam at the University of Copenhagen:

'Describe how to determine the height of a skyscraper using a barometer.'

One student replied:

'You tie a long piece of string to the neck of the barometer, then lower the barometer from the roof of the skyscraper to the ground.

The length of the string plus the length of the barometer will equal the height of the building.'

This highly original answer so incensed the examiner that the student was failed.

The student appealed on the grounds that his answer was indisputably correct, and the university appointed an independent arbiter to decide the case.

The arbiter judged that the answer was indeed correct, but did not display any noticeable knowledge of physics.

To resolve the problem it was decided to call the student in and allow him six minutes in which to provide a verbal answer which showed at least a minimal familiarity the basic principles of physics.

For five minutes the student sat in silence, forehead creased in thought.

The arbiter reminded him that time was running out, to which the student replied that he had several extremely relevant answers, but couldn't make up his mind which to use.

On being advised to hurry up the student replied as follows:

'Firstly, you could take the barometer up to the roof of the skyscraper, drop it over the edge, and measure the time it takes to reach the ground.

The height of the building can then be worked out from the formula $H = 0.5g \times t^2$. But bad luck on the barometer.'

'Or if the sun is shining you could measure the height of the barometer, then set it on end and measure the length of its shadow.

Then you measure the length of the skyscraper's shadow, and thereafter it is a simple matter of proportional arithmetic to work out the height of the skyscraper.'

'But if you wanted to be highly scientific about it, you could tie a short piece of string to the barometer and swing it like a pendulum, first at ground level and then on the roof of the skyscraper.

The height is worked out by the difference in the gravitational restoring force $T = 2\pi \sqrt{l/g}$.'

'Or if the skyscraper has an outside emergency staircase, it would be easier to walk up it and mark off the height of the skyscraper in barometer lengths, then add them up.'

'If you merely wanted to be boring and orthodox about it, of course, you could use the barometer to measure the air pressure on the roof of the skyscraper and on the ground, and convert the difference in millibars into feet to give the height of the building.'

'But since we are constantly being exhorted to exercise independence of mind and apply scientific methods, undoubtedly the best way would be to knock on the janitor's door and say to him, 'If you would like a nice new barometer, I will give you this one if you tell me the height of this skyscraper'.'

The student was Niels Bohr, the only person from Denmark to win the Nobel prize for Physics.

IAEMP MEMBER IN NEWS

On the occasion of Gandhi Jayanthi (October 2, 2008), at a function held at Raj Bhavan in the august presence of His Excellency the Governor of Karnataka, IAEMP member Mr. R.S. Hiremath demonstrated the e-charkha invented by him.

The 'e-charkha' is a yarn-spinning and electricity producing device developed by R S Hiremath, a Bangalore-based entrepreneur. It is an improvement over the conventional charkha . It is a simple and innovative machine. While the E-charkha's wheel produces yarn, electricity is produced by a AC generator which in turn is connected to lead acid batteries. The energy from the battery is used to light up a LED based lamp. 2 hours of the charkha operation produces enough electricity to provide 9 hours of continuous light.

This is a REAL solution for power generation and lighting up a rural home BUT in a Micro manner , but it is a reliable and cheap solution. Operation of the 'charka' for four hours as is the average, can generate electricity to operate a LED light and play a radio for over seven hours.

Hiremath, whose main focus is to empower the rural folks, was looking for simpler solutions when he hit upon the 'e-charka' idea. It took him two years to develop the machine.

The Urja Watch extends congratulations to Mr Hiremath on his success!



H.E. The Governor of Karnataka Shri Rameshwar Thakur Ji congratulating Mr.R.S.Hiremath on the development of the 'e-charkha'

UPCOMING EVENTS

POWER-GEN Asia, October 21–23, 2008

Kuala Lumpur Convention Centre

Kuala Lumpur, Malaysia

www.powergenasia.com

Carbon Foot Prints –

Sources, Strategies, and Solutions, November 13-14, 2008

Hyderabad

Organized by The Institution of Engineers, APSC and APTRANSO

Contact: ecmhyd@gmail.com

SAVE ENERGY 2008 - Xchange Mela and Exhibition, November 14-16, 2008

Hyderabad

Organized by The Institution of Engineers, APSC and APTRANSO

Contact: ecmhyd@gmail.com

Sustainable Manufacturing Summit Europe, November 17-18, 2008

Brussels, Belgium

www.greenpowerconferences.com

Clean Tech Summit, November 19-20, 2008

The Palace Hotel, San Francisco, USA

Organized by Gerson Lehrman Group (GLG)

Contact: ebassett@glgroup

Green build International Conference & Expo, November 19-21, 2008

Boston, USA

www.greenbuildexpo.org

Ist Envirotech'08, and "Energy Tech'08", December 14-17, 2008

Pragati Maidan, New Delhi

Organised in collaboration with The Energy and Resources Institute (TERI) and Bureau of Energy Efficiency, Govt. of India, with support from concerned ministries and other stake holders.

www.indiatradefair.org

www.envirotech-india.com

12th Annual Conference on

Clean Air, Mercury, Global Warming & Renewable Energy

Energy & Environment Conference & Expo, February 1-4, 2009

Phoenix Convention Center, Phoenix, Arizona, USA

www.euec.com

We Need Your 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.

Disclaimer: This newsletter is published by the Indian Association of Energy Management Professionals (IAEMP). It is intended for IAEMP’s existing and potential members who are interested in energy management and IAEMP’s activities. It does not imply endorsement of the activities, individuals or organizations listed within. Views expressed in this newsletter are entirely those of the authors and not necessarily that of IAEMP or the editorial board.

I am very thankful to all the present members for all your time and effort. I need more strength and am looking for more members.

Request to every member to spread awareness about me and make me a national level group of committed and learned energy conservationists.

Application form is attached on next page. Do send it to your knowns.

Indian Association of Energy Management Professionals



IAEMP

INDIAN ASSOCIATION OF ENERGY MANAGEMENT PROFESSIONALS

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Near Kamath Hotel, S.D. Road, Secunderabad -500 003, A.P., Ph. 27810214, 27818831

Admn. Office: 304, 20th Cross, 6th Block, Jayanagar, Bangalore-560082

Ph. 09241778871, 09901911910, e-mail: sunilsolar@yahoo.co.in,

Web Site: www.iaemp.org

APPLICATION FOR INDIVIDUAL MEMBERSHIP

**State /
Local
Centre
Name**

MEMBERSHIP APPLICATION FOR: -

(a) Student/ *Member Life Member*

(b) Upgradation from _____ to _____

Name: - _____
(Surname) (First Name) (Middle Name)

Father's Name _____

Date of Birth _____

Business _____

Address _____

_____ Pincode: _____

Telephone with _____ Fax _____
STD Code

Mobile Phone _____ *Email* _____

Home Address _____

_____ Pincode: _____

Telephone with _____ Fax _____
STD Code

Brief Description
of Specialisation

Preferred _____ *Email/ Business Address/Home Address*

Mailing option

Please
Paste
Your
photo
Here

Educational Record: (Pl. attach separate sheet if required)

Course	Name of Institute/ University	Location (City/Town)	Period (From-To)

Employment Record: (Pl. attach separate sheet if required)

Period(From-To)	Name and Address of Employer	Designation	Specific Duties

REFERENCE (Preferably by IAEMP member)

I know the applicant by _____(personal/business) association for approximately _____ years. To the best of my knowledge, the above information is correct and as such. I recommend the applicant to be elected to membership, Additional comments:

Reference Name /Address: - _____

Membership Number: - _____ Signature: _____ Date: _____

CERTIFICATE BY APPLICANT

I solemnly affirm and declare that the information furnished above is true and correct. I hereby undertake that if admitted as a member of the Association, I shall be bound by the Rules and Regulations and Bye-laws made there under and as amended from time to time and shall abide by such bye-laws, rules, standing orders, directions, conditions or guidelines as may be laid down by the Association and made applicable to me from time to time.

Witness my hand this.....day ofyear.....

Signature of the Applicant..... Place

FEE STRUCTURE

	Admission Fee	Annual Fee
1. Student Member (studying at university)	Rs 300	Rs 200
2. Member	Rs 1000	Rs 500
3. Life Member	Rs.6000 (One time)	

Mode of Payment :

Demand Draft payable at Bangalore or any where banking cheque of ICICI, HDFC , SBI etc. in favour of " Indian Association of Energy Management Professionals" .

Filled-in application along with cheque / DD may be sent to :

Indian Association of Energy Management Professionals
304,20th Cross, 6th Block, Jayanagar,
Bangalore-560082

Application form may also be sent by e-mail to sunilsolar@yahoo.co.in .The Fee may be deposited electronically to IAEMP SB account no. 0883101060759, Canara Bank,Sarakki Layout Branch,Bangalore

Payment Details

Cheque/Draft Number: - _____

Amount: - _____

Drawn on : - _____
& Date

Date : - _____

Signature

For office use: Admit <input type="checkbox"/> Reject <input type="checkbox"/>	Membership grade: Membership No:
Remarks :	(Processed by) (Approved by)