

What is Home Energy management Programme?

The subject of energy conservation is very dry and thus not taken seriously by many of us. There is a misconception that the conservation means sacrifice or trouble taking. The middle class does not take much interest in saving electricity; thanks partly to lower tariffs and partly to their ignorance. They do not have proper information on how exactly the electricity can be saved without sacrificing comfort and safety. The rich who can afford the higher tariff do not bother since the electricity bill for them still accounts for an insignificant percentage of their earnings.

It is now well accepted fact that the root cause of Global Warming and its adverse effects is the misuse and abuse of energy and resources. Some awareness level already exists about the mitigation measures need to be taken up. But a huge gap exists between awareness level and implementation due to acute shortage of trained manpower to implement those measures.

It has been observed that the public is not really aware how to implement such measures in their homes and work places. Questions like- what exactly is needed to be done, what gadget is to be bought, what are the makes available and how much they cost and how much savings will be realized remain unanswered. Further, there are people who would like to invest in switching over to energy efficient gadgets/appliances but due to lack of time at their disposal and unavailability of trained manpower they are not able to do so. Hence, there is a basic need to take awareness level to implementation stage in every household and commercial establishment.

IAEMP, through this course intends create a grass root cadre and 'demand side' chain to facilitate the proper implementation. Finally, it is aimed that the trained manpower would be able to fulfill the primary objectives of energy and water conservation and efficiency, increased use of renewable energy, reduction in wasteful practices, increased use of recycled products, besides meeting secondary objectives of improved air quality and environment. Through this programme, the association also aims to generate 'Green Jobs, and self-employment opportunities. The households and commercial establishments would be benefited monetarily with reduced energy bills and minimisation of wastes. The association would at later date launch a cash incentive scheme to motivate the public in large scale participation

Thus, there is a strong need for a nation wide launch of a systematic training programme for practical demonstration of energy saving ideas and options available in homes, offices, commercial establishments etc. The contents of the training have been made interesting and capable of creating and maintaining the enthusiasm and motivation for the consumers.

1.0 Contents of Home Energy Management Programme

Before starting with the programme the aspects related to safety (especially electrical safety) shall be clearly understood and explained to the participants(See page-3)

In the following paragraphs, the contents of a training programme for the target sectors of domestic and commercial consumers of electricity are explained

1.1 The Concept of Home Energy Manager

To begin with, a suggestion is made to the participants of the training programme to appoint a family member as Home Energy Manager (HEM) for keeping a constant check on home energy consumption. Step by step guidelines (Pl see box) is explained to them.

The Concept of Home Energy Manager -Step by step guide

1. Appoint a member of your family as 'Home Energy Manager' (HEM) , and offer 1/3rd share of the savings achieved over the last years consumption.(You can self-appoint yourself as 'HEM' for obvious gains)
2. The job of your 'HEM' should be clearly defined and explained to him as to be the 'conscience keeper of your home on energy matters' and "to first establish the past years consumption and then try to bring it down to a lowest possible level as soon as possible and to maintain it at that level"
3. 'HEM' should start with collecting the past data and maintaining file of energy consumption. We all normally keep record of electricity bills, but LPG Bills are rarely preserved. HEM should start keeping record of LPG and Petrol/Diesel purchased for your home. As a good measure, record of water consumption must also be included.
4. Next step for 'HEM' will be to estimate average consumption of each type of energy consumed in the previous year.
5. 'HEM' must make it a habit of taking electricity and vehicle meter readings twice (morning and evening) a day so as to get an idea of the consumption pattern.
6. Next job of HEM will be to refer the 'Best Practices Check List' for identifying energy and resource wastages and saving opportunities
7. Finally, 'HEM' has to prepare a plan and monitoring schedule to see that energy consumption starts coming down.
8. In the meantime you must keep aside the savings realized assuming that you are continuing with your old habits.
9. At the end of the year calculate the net savings realized and honestly pay 1/3rd of the amount to 'HEM' (or to yourself, if you are the 'HEM'!)
10. Of the remaining amount 1/3rd can be spent on family members (as an incentive to other members to co-operate) while the balance 1/3 rd amount should be invested in purchasing energy efficient/lower capacity gadgets

Similar Steps can be taken in your office. Here 'HEM' will be replaced with 'OEM' i.e. Office Energy Manager. Schools can start similar programme and appoint a 'SEM' i.e. School Energy manager' etc.etc.

Remember, before you preach others on the importance of energy savings- "Charity begins at Home". It has to start from you. Did you say it is unnecessary waste of time? But if you have sufficient time to argue with vegetable vendors, domestic helps, coolies, milk and newspaper suppliers to save some petty amount at the cost of the poor people; then you can certainly find time to do this in your home. Forget the benefits to the nation and to environment, it is YOU who will be benefited most.

What is the role of HEM? The participants are explained as to how the HEM should start by collecting past data, and maintain a file on energy consumption - by keeping a record of electricity bills, LPG bills and petrol/diesel purchases. Then, HEM can estimate the average consumption of each type of energy consumed in the previous year, identify energy saving opportunities, and prepare and enforce a plan to bring the consumption down. In the similar lines, the concepts of Office Energy Manager (OEM), Shop (or Showroom) Energy Manager (SEM) can be introduced at respective offices and shops (show rooms).

Initially, the training is confined only on use of electrical energy. For the LPG and Petrol saving ideas, the participants are requested to follow the "Best Practices Check List". This check list will be included in the January,2010 issue of the HEM News.

To provide an incentive, the HEM might be rewarded with a payment one-third the net savings realized at the end of the year. The remaining two-thirds can be spent on family members as an incentive for their co-operation, and to purchase energy-efficient gadgets for the home.

1.2 Learning to Understand the Electricity Bills

The participants are then told about how billing is done for electricity consumption. Many consumers do not even know the meaning of a unit of electricity. It is explained by doing a sample calculation. The concepts of Fixed Charges and the Energy Charges are then explained. The electric power tariff structure is also explained to them to drive home the point that higher consumption of electric power attracts a higher rate per unit.

As an example, Bangalore Electricity Supply Company (BESCOM)'s tariff as applicable for domestic consumers is given (Please Refer Table-1)

TABLE-1 Tariff Schedule - LT-2(a)(ii)		
Rate Schedule :	Applicable to areas coming under: Areas under Urban local Bodies other than those under LT2(a)(i) category	
Fixed Charges :	For the first KW	Rs.20
	For every additional KW	Rs.30
Energy Charges :	For the first 30 units	185 paise/unit
	For the next 70 units	290 paise/unit
	For the next 100 units	360 paise/unit
	For the next 100 units	410 paise/unit
	For the next 100 units	435 paise/unit
	For consumption exceeding 400 units	460 paise/unit

1.3 The Accounting of Electricity Consumption

Where there is no accounting there can be no saving. If you don't know how much goes into which head of expense, how can you identify areas where you can save? Most of us know how to account for household expenses. We know how much is spent on milk, vegetables, grocery etc. We can even give the rates of each item. But when it comes to analyzing electricity bills, most of us do not give it any thought. Therefore the importance of the accounting of electricity consumption is explained to the participants. As an example, accounting of electricity consumption in our own home is explained to them. Nothing is much simpler to explain than the case study of own home. It also helps in building our credibility.

1.4 Best Practices

The training then focuses on the best practices of saving electricity. For practical demonstration of the wastages and saving potential an electronic energy meter is used. The following points shall be covered for explaining the best practices:

- i) Identification of ghost consumers
- ii) Scope for installation of energy efficient appliances
- iii) Use of renewable energy based devices
- iv) Use of human powered devices
- v) Correct sizing and smart use of appliances
- vi) Optimum use of water and other resources
- vii) Development of innovative ideas.

1.5 Standby (Phantom loads or Ghost) Consumers

Not many are aware that the Standby consumers (Phantom loads or ghost consumers) may sometimes account for as much as 10% of the total electricity consumption. This fact is explained to them by practical demonstration of the wide spread practice of switching off TV with remote. The TV keeps consuming 6 watts. Left in this manner for 15-20 Hrs per day, this single ghost consumer may waste electricity to the tune of 4-5 units per month. A proper understanding of these consumers and practices is important. Similar other practices like leaving the mosquito mats ON even during day time, not disconnecting the mobile charger, wrong settings of thermostats in Geysers and Refrigerators etc is explained.

The popular misconception about the so-called 'zero watt' bulb that it does not consume electricity is removed by showing that the bulb consumes 10-15 watts and not 'zero' watt. All these can be easily demonstrated to the participants with the help of an electronic energy meter.

The poor or old wiring can also be one of the 'Ghost Consumers' is also pointed out as a matter of investigation requiring expert advice.

1.6 Energy Efficient Appliances

The programme provides the participants with information on a wide range of energy efficient products like fans, electronic regulators, CFLs, T8 tube lights with electronic chokes, and LED Lamps. The cost economics of replacing the existing ones with energy efficient products is explained in terms of return on investment.

1.7 Renewable Energy Devices

Solar water heater is the unsung hero of renewable energy. About 6 percent of the energy in India is used for low grade heating applications like water heating for bathing; cleaning laundry etc. which can be brought down by 80% with proper application of solar thermal devices

A Solar Water Heater can easily and most economically provide hot water for bathing and cleaning purposes for at least 300 days in a year. This calculation is explained to the participants.

The solar home light applications are not very encouraging. However, Solar Lanterns in place of emergency lamps is recommended.

Wherever possible, use of Solar Cookers is recommended.

1.8 Other Ideas and Innovations

The programme provides opportunities to learn ideas like correct sizing and smart use of appliances, optimum use of water and other resources, effective use of human powered devices in place of electric devices and others.

Development of some innovative ideas like not ironing the lower part of the shirt since it goes inside the pant or not ironing the top of the pant if you keep the shirt out are told to them so that they are encouraged to think of similar innovative ideas to maintain the interest.

The training ends on an emotional note so as to leave a lasting impression. This is achieved by showing the picture of a typical rural house (See Photo below) that uses a kerosene oil lamp. The participants should be told that about 40 % of the households in India do not have access to electricity and that almost 30 percent of the world' population without electricity lives in India.



It is explained as to how the rural and many urban households manage to provide some lighting at home with the help of make shift kerosene lamps.

In order to create a sense of responsibility amongst the participants, a sample calculations as to how even a watt saved can help is explained.

Every day we hear or read newer words and phrases being coined on Global Warming like – ' Carbon Neutral' , Carbon Foot Print', 'Low Carbon Economy', 'Climate Refugees', 'Climate Criminals' ,'Green Currency' and so on prompting us to do our bit to fight the climate change. It is felt that bringing down our own energy consumption to a lowest possible level and maintaining it is the best way to fight the Climate Change from the comfort of one's home! And office! All that is needed is commitment and proper training.

TIPS ON ELECTRICAL SAFETY FOR HOMES

Though an excellent servant, electricity can be lethal if not used with certain precautions. A few of them as guide line are listed:

1. The biggest cause of electrical accidents resulting in death is electrocution i.e. contact of human body with an electrical conductor carrying current. This may cause irritation, shock and death depending upon the intensity. The general precautions are:
 - Use good quality wires, switches and other accessories
 - Install ELCB (Earth Leakage circuit Breakers at the mains
 - Keep a regular check on electrical gadgets, connecting cables/wires regularly. Replace in case of doubt
 - Minimize use of two pin sockets and replace with three pin sockets with earth connection
 - Install an earth pit at your house (Costing around Rs 6-8000/-) as the earth provided by the electricity companies are unreliable. Check continuity of earth circuit at least once every six months.
 - Do not provide electrical switches in wet regions i.e. inside bath rooms, wash areas
 - In case of any doubt , switch of the mains and seek professional advise
 - Use rubber slippers while operating electrical switches or put rubber mats on the floor under a switch board
2. The over loading of electrical circuits causes over heating, deteriorating the insulation causing short circuit leading to fire accidents.
 - Seek help of professionals for calculation of load, wire sizes, load distribution, type and rating of MCCBs etc. in the initial stage. Keep adequate margins for increase in future consumptions
 - Do not put too many wires in a conduit pipes to save money. As a practice ,33 % space to be left vacant in conduit pipes
 - Be ware of all know electricians, they can cause serious damage to your life and property
 - Switch off supply mains when leaving the house for longer periods
 - Check before installing a new gadget for adequacy of circuit especially for Air conditioners, Hot water Geyser, Micro wave ovens etc
 - Do not force too many plug sockets in a plug point even using a multiplier. Wherever necessary insist for a permanent switch board with pug sockets
 - Check the flexible cables and plugs/sockets regularly and replace if damaged
 - The cost of electrical installation is merely 5-7 % of the cost of the house, but more then 70 % problems are caused due to electrical system

contributed by : S.K. Mall, Electrical & Energy Consultant, Bhopal

About IAEMP

Indian Association of Energy management Professionals (IAEMP) was conceived on Republic Day, 26th January 2006. Most of our members are Certified Energy Auditors/Energy Managers. It was registered under A.P. Societies Registration Act,2001 on 29th August,2006 (Regn.No 1185 of 2006). Call for formation of an all India level association was given by Mr Sunil Sood on 26.01.06.The association was formed on . 26.02.2006 with considerable initial support from Mr R.A.Sharma, Mr G.G.Dalal, Mr B.Satyanarayana, Prof.K.R.Ramana, Mr. S.Khandekar, Mr GG Dalal, Mr Vikas Apte, Mr S.P.Nanda and others.

IAEMP is the only association of its kind in India with presence in all parts of the country. Our members are invited in conferences/seminars/TV programmes and other mass media channels to speak on energy conservation and efficiency.

IAEMP is managed by Central Council elected from the members from all parts of the country .Election for Central Council members & Office Bearers were held in Feb'07.The office bearers, Central Council members and State Coordinators of the association for the period 2007-09 are as follows:

Office Bearers

1. President : Shri Bhupal Singh, CEA Ghaziabad
2. Vice President Shri S. Khandekar, CEA, Nagpur
3. Secretary Shri Sunil Biswal, CEA, Bhubaneswar
4. Treasurer Shri Prakash Magal, Bangalore
5. Dy.Secretary Shri F T Kanpurwala,CEA Ahmedabad
6. Jt.Secretary Shri Nitin Sharma, Mathura
7. Jt.Secretary Shri N.Ravishankar,CEA,Chennai

Central Council Members: S/Shri

Sunil Sood,Ranchi ;G.G.Dalal,CEA, Mumbai;Prof. Ajay Chandak,CEA Dhule

Ravindra Datar,CEA, Mumbai;Pradeep Kumar, New Delhi

Kuntal K Mitra, CEA, WB; Paritosh Awasthi, Bhopal;S.Mahadevan,CEA,Chennai

Rakesh Sahay,CEA, Bangalore;G.H.Iyer,CEA,Bhubaneswar

K.D.Bairagi,Bhopal; Prof K R Ramana,CEA, ,Hyd.,;M.Krishnamurthy CEA,

P A Johny, CEA,Kerala;AK Verma,CEA, Raipur;T. Srinivas, CEA,Vizag

State Coordinators : S/Shri


KD Bairagi,MP; D.Agarwal,CEA,Rajsthan; Amit Gupta ,Karnataka;S C Sabat, CEA,Orissa; N.Ravishankar,CEA,TN; Kuntal K.Mitra,CEA,WB; Sunil Sood,Jharkhand

We have a very active Yahoo group.iaemp@yahoo.com to enable members to exchange information and ideas. Many good ideas are exchanged through e-mails within hours.IAEMP also brings out an e-magazine 'The Urja Watch' which is edited by Dr S.Subramanian.

IAEMP has prepared a 'Vision Document' with a 'Time Bound Action Plan' on "How India can become 'Energy Independent' by the year 2022".For the first time such an exercise has been attempted in the country.

IAEMP started an "Energy Information and Training Centre" at Bangalore on 1st August'08 to provide practical training on Home/Office Energy Management. More details about our activities are available in our web site www.iaemp.org The site is maintained by Mr Amit Gupta.

Invitation
to Join



IAEMP

Electricity Saving Incentive Scheme

To
Save money
Save electricity
Save environment
Minimise wastages
Increase 'Green Jobs'
Help Business Growth
Reduce Carbon Foot print
Help growth of 'Green Economy'
Win Attractive Cash Incentives & Prizes
Most importantly- Live a 'Guilt-free life'

Let
Us
Join
Hands to
Think global
And act local

To make our planet a better
place to live in and be the change
that you want to see in others

Pl. Contact:



IAEMP

**INDIAN ASSOCIATION OF ENERGY MANAGEMENT PROFESSIONALS
APPLICATION FOR PARTICIPATION IN
“ IAEMP Home Energy Management Programme”**

Admn. Office: Golden Square,102,Eden Park,
20,Vittal Mallaya Road,Bangalore-560001 www.iaemp.org
Local Office: E-73, Ashok Vihar,P.O.Doranda,Ranchi-834002, mobile: 9386778963



I. General Information

Name & Address	Sunil Kumar Sood, E-73,Ashok Vihar, P.O.Doranda,Ranchi-834002
Telephone with STD Code	Mobile No. 9386778963
E-mail address	sunilsolar@yahoo.co.in
Type of Building	Double Story –GF occupied by self, FF occupied by another tenant.
Orientation and surrounding areas.	West facing surrounded by equally tall buildings from 3 sides, road on west side. East and West sides have open spaces. S/N sides gap only 2 feet from other buildings
Total Built-up area, Sq.m.	Area occupied by us is about is 80 Sq.m. on the GF.
Family Size (Pl. give brief description about your family)	Myself and wife (Housewife)
Other Details, if any	This house was occupied by me on 16 th April'09.Previously I was in Bangalore. April month consumption includes both and is approximate. I installed a sub meter on 3 rd June'09. I have brought 100Litre capacity Solar Water Heater from Bangalore which was installed in Oct'09. FF tenants are also partly using solar heated water.The Dec'09 month consumption is projected figure.

II. Information about Present Energy Consumption

Electricity (kWh)	Month	Jan	Feb	March	April	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
	2008	59	60	75	74	91	69	67	75	48	75	45	49
2009	57	56	48	60	145	120	77.5	80.6	73.8	45.3	60.7	60	
LPG (Kg/year)	Petrol (Litres/year)	Diesel(Litres/year)		Kerosene(Litres/year)		Wood//Coal (Kg/year)							
Approx 40 Kgs /year	Approx 300 Litres / year	—		—		—							

III. Information about electricity consuming gadgets/appliances

Location	Sl. No.	Item Description with Rating	Actual Cons.	Sl. No.	Item Description with rating	Actual Cons.	Remarks
Kitchen (3.75 sq.m.)	1.	CFL-11W	9-10*	3.	LED Lamp (Red Colour)	0.5	*Depending on Voltage
	2.	Mixer 500 W (rarely used)	300				
Drawing –Cum-Dining Room (23.76 Sq.m)	1.	T5 FTL 28W	35w	5.	T.V Samsung 21"	50-60W	# Consumption range at lowest to full speed
	2.	Fan 'Havel' make 50W with 'Anchor' Make Electronic Step Regulator with 5 Steps	14-54 #	6.	Table Lamp-9 W CFL	7-9W*	@ UPS keeps consuming 18W even when the battery is fully charged.
	3.	Videocon Make 80 Litres Fridge	0.7 to 1.0 units/day	7.	Transistor- 9W	9W	
	4.	Microtek UPS -800VA	18w @	8.	Telephone battery	3W	
Master Bed Room (MBR) (13.44Sq.m)	1.	T5 FTL 28W	34W	4.	Mosquito Mat-5W	4-5W	One 0.5 Watt LED lamp is kept ON from 6 pm onwards
	2.	Havel Fan 50 W with Step Regulator	14-54#	5.	Air-cooler 3 speed fan@	143, 154 & 165 W	
Bed Room-2 (13.44Sq.M)	1.	T-12 FTL with electronic ballast	33W	3.	CFL-11W	10W	This Room is used for Demonstrations.
	2.	Incandescent Bulb-60 W	54-58W	4.	LED Lamps 0.5W	0.5	
Bed Room-3 (Used as Puja Room)-9.28 Sq.m.	1.	Pedestal Fan (rarely used)	60-72W	3.	LED 0.5W	0.5	*FTL is used for Demonstrations
	2.	CFL-9W	9W	4.	T-12 FTL with ordinary ballast*	39W	
Bath Room-1	1.	CFI-5 W	4-5W			Attached with MBR	
Bath Room-2	1.	CFL-5W	4-5 w			Used rarely	
Verandah	1.	CFL-8W	7-8W		LED lamp	0.5W	
	1.	Lap Top	20W	3.	Mobile Chargers	3 watt*	*3 nos.
Others	2.	Philips Iron -1000W	900W	4.	Borewell Pump 1 HP	970W*	* common with FF

I solemnly affirm and declare that the information furnished above is true and correct and that I shall be bound by the guidelines as may be laid down by the Association and made available to me for participation in the programme.

Signature of the applicant : (Sunil Kumar Sood)

Place : Ranchi

Date : 10.12.09

For Participation in HEMP and Advertisement in 'HEM News' Pl. contact:

IAEMP

INDIAN ASSOCIATION OF ENERGY MANAGEMENT PROFESSIONALS
Admn. Office: Golden Square,102,Eden Park,20,Vittal Mallaya Road,Bangalore-560001
Mobile: 09901911910, e-mail: iaemp@yahoo.com, Web Site: www.iaemp.org

HEM News

web : www.iaemp.org • e-mail : sunilsolar@yahoo.co.in • Mobile : 09901911910, 09386778963

Rs. 10/-

A monthly newsletter on "Home Energy Management Programme" of IAEMP

“Think Global- Act Local”: Right from the comfort of your Home!

I am very happy and delighted to present the first issue of 'HEM News', a monthly newsletter on Home Energy Management Programme (HEMP) started by Indian Association of Energy Management Professionals (IAEMP). After launch of Vision Document on 'How India Can Achieve Energy Independence by 2022'; and monthly e-magazine – 'The Urja Watch'; the publication of 'HEM News' is the next big step taken by IAEMP to achieve its mission to make India an Energy Independent Country.



HEMP is the first ever grass root level programme of its kind in the country and perhaps in the world to take up the awareness level about need for energy and resource conservation to implementation stage and publication of 'HEM news' will help in achieving the objectives of the HEMP.

I am thankful to the Office Bearers and Central Council members of IAEMP led by Shri Bhupal Singh ji.President for giving me complete freedom to take up the task of publishing the newsletter and for appointing me as the 'National Convener' for the HEMP.

I gratefully acknowledge the contributions made by all the members of IAEMP specially Prof Ajay Chandak, Shri S.K.Mali, Shri Ravindra Datar and others. I am also thankful to Mr K.D.Bairagi and Mr R Vaidyanathan for extending necessary help in conduct of HEMP activities.

Since this is the first ever attempt made to publish a newsletter of this kind, there are likely to be some omissions and errors, I would welcome the readers and participants of the programme to kindly point out such errors and omissions. Any other suggestions are also welcome and would be included in the next issues of 'HEM News' with due acknowledgement.

(Sunil Sood)

National Convener, Home Energy Management Programme, IAEMP
e-mail: sunilsolar@yahoo.co.in, mobile: 09901911910,09386778963

ऊर्जा संरक्षण जागरूकता अभियान
भोपाल । राष्ट्रीय ऊर्जा संरक्षण सप्ताह अंतर्गत म.प्र. ऊर्जा विकास निगम द्वारा ऊर्जा संरक्षण जागरूकता अभियान चलाया जा रहा है। इसी क्रम में आज चूना भट्टी क्षेत्र में विद्युत उपभोक्ताओं को विभिन्न उपकरणों के उपयोग पर होने वाली बिजली की खपत संबंधी जानकारी दी गई। निगम अध्यक्ष दिलीप सिंह शेखावत तथा प्रबंध संचालक रामानंद शुक्ल के मार्गदर्शन में आयोजित इस अभियान में निगम के ऊर्जा प्रबंधन संचालक अश्वय स्वस्व अभिषेक, सुनेंद्र वाजपेयी, संदीप शरण तथा परामर्शदाता एस.के. सूद ने उपभोक्ताओं को तकनीकी जानकारी दी।
Newspaper Coverage & Photograph of first awareness programme held on 14th Dec. 2004 at Bhopal

All India Coverage about "Home Energy Management Programme" of IAEMP

The collage features several newspaper articles in Hindi and English. Key headlines include: 'Govt to encourage energy efficiency', 'बचाई जा सकता है 50 फीसदी बिजली', 'Save electricity, the easy way', 'Two-day training programme begins', 'एनर्जी सेविंग के लिए पर चर्चा', 'व्यय को कम करने के लिए बिजली बचाने के बतौर गाए आसान उपाय', and 'Spare some the less for'. The clippings show a speaker addressing a convention, a group of people in a meeting, and a training session.