A monthly newsletter of
Indian Association of Energy Management Professionals

THE URJA WATCH

June 2009, Vol. II/Issue 12

It is about "Conscience Keeping on Energy Matters"

INNOVATIONS IN ENERGY

FOCUS ON

INNOVATIONS IN ENERGY EFFICIENCY

What's inside…

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K.R. Chari and Many Other Energy Professionals

From the Editor's Desk...

Leveraging Ideas for Innovation

My dear readers,

'The Urja Watch' has successfully completed the first year of its publication. I take this opportunity to express my gratitude to all my editorial team members, authors, reporters and readers for their support and co-operation.

This month's issue focuses on 'Innovations in Energy Efficiency'. In today's highly competitive environment, the growth of any enterprise is related to it's ability to innovate. We have witnessed the amazing growth of global markets for innovative energy-saving products such as the CFLs and LEDs. So also, the concepts of Demand Side Management (DSM) and Energy Service Companies (ESCO) represent innovative approaches to improve energy efficiency.

Ideas lead to innovation

Innovations are created from ideas. History indicates that many innovations were born from weird ideas. Thirty years ago, Sony launched the Walkman - an innovative product created from an idea to make a compact personal music system that is convenient to carry. The Walkman revolutionized the way people around the globe listened to music and sold over 50 million pieces within a decade of it's launch.

Yet another example - The Japanese farmers thought of an easy and cheaper way to ship odd-shaped water melons. They grew cube-shaped melons that made handling and shipping a lot more convenient. At home, the cubic melons fit nicely in the refrigerator next to a carton of milk.

What drives innovation? Continuous changes that take place around us drive technology to expand in new directions. Increasing concerns about costs, climate change, the need for improving environment and great economic opportunities are seen as important drivers for energy innovations.

Take a look at some of the advancements. With growth in electronics technology, automation systems make use of sensors to address challenges ranging from material handling to energy management.

Most people don't think about energy conservation when staying in a hotel. Key-card is an innovation to make sure that when a guest leaves the room, taking the key card, the electricity to the room is automatically turned off.

Innovative practices in industry are slashing process cycle times and improving all round productivity.

Promoting innovation

We live in a society where people shun or laugh at wild ideas. To promote innovation, it is imperative that we encourage generation of ideas - however weird. Having been trained in Japan, I am tempted to say that members of Quality Circles (QC) are strongly encouraged to "brain storm" and speak out ideas without any fear of criticism or ridicule. Such encouragement helps to generate numerous ideas from many brains.

The quest for innovations need not be confined only to R&D labs. Common belief is that innovation goes hand in hand with R&D spending, but that's just not true, says a Booz Allen Hamilton study of the world's top 1,000 R&D spending companies. The human brain has tremendous potential. We must recognize that valuable ideas for innovation may come to us from almost anybody including children.

There must be a greater interaction between industry and academic institutions. The pooling of talents from the two sectors will help a great deal in creating more ideas. Recently, IIT- Madras joined hands with BHEL to work on joint research in specific areas including desalination and pollution control systems. This is a laudable effort.

Rewards motivate people to think harder and develop ideas. Rewards may be monetary and/or public recognition. A recent example of rewards in the energy field: In collaboration with University of Dayton, U.S.A, PSG College of Technology, Coimbatore is organising 'Greenergy', a national level competition on 'Innovative Product Design for Alternative Energy.' (see www.psgtech.edu/greenergy). The rewards include prices upto Rs. 50,000 and full-tuition scholarship to the University of Dayton.

Read this issue at your leisure. You will discover how much of hidden talent we have amongst us. Do write to me on what you think about this issue.

Energetically,

S.Subramanian
Editor

Letters to the Editor

Dear Editorial Team,

The issue on Lighting was excellent in content. The only thing missed was probably development of solid state HID ballast for HPSV and HPMV lamps which save energy to a great extent without changing luminaires. However the efforts behind 'The Urja Watch' month after month shows the commitment of the team to bring out such an educative and informative magazine.

I have used the soft copy of Urja watch to propel IAEMP in all forums and it has been taken well. I am getting 10 copies of same from POTHI to display in various occasions. It is a strong tool to attract new members.

Please keep up your good work with whatever little recognition that comes your way.

If IAEMP is the conscience keeper of the nation, then 'The Urja Watch' is playing the same role for IAEMP.

Best Regards for the Urja Watch team.

Sunil Biswal
Secretary, IAEMP

CRAZY POWER IDEAS

by K.R. Chari, Life Member,IAEMP

Why not make use of the Sea – the Perennial Source of Energy?

I am narrating just a set of three conceptual frameworks of ideas (From out of about 100 such ideas, covering Wind, Solar and Sea water, which I have been propagating and discussing over the past 25 years) for generating power from the sea, which India is lucky to have spread over more than 5000 kilometers of coast line.

Idea 1: Using the force available in the lashing of the sea waves on the beach line and coast line of the country. An alternative to the conventional wave breakers:

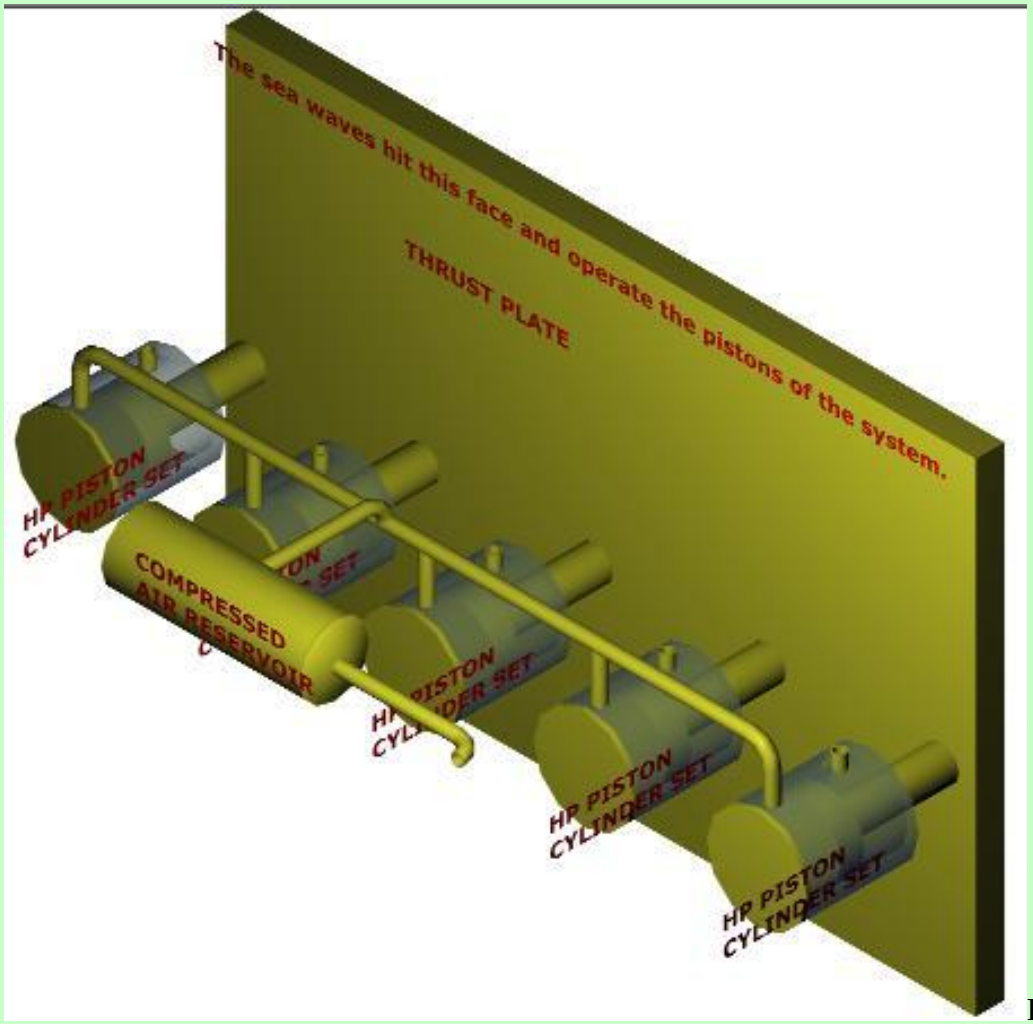


Fig.1

This concept (see figure 1) is based on the fact that the sea waves that keep lashing at the shore, not only create problems but also result in land erosion. The wave power can be acting upon a large area of a plate, which in turn will activate the plungers or pistons of a compressor like arrangement in a series.

The cylinder will have two non return valves for air intake and delivery. The compressed air can be stored in a high pressure reservoir. Using this reservoir, perhaps a gas or air turbine can be run and electricity generated.

Considering the more than 5000 miles coast line of India, this concept throws large potential for generation of power through a perennially available source of power.

Idea 2: Using the buoyancy principle of sea waves.

Project that can be demonstrated effectively at points like Gate way of India in Bombay, Marina Beach in Chennai, VGP Beach in Chennai, Vishakapatnam, Kakinada, Vizag port or any other such points wherever there is a launch service operating, as it would be easier for people to understand the huge potential that lies in this concept.

The energy thus generated can be used for lighting the area.

This concept (see figure 2) is based on the observation that when we get on to a launch or a ferry boat, or for that matter, even a large sized ship, the whole mass of the boat together with the passengers is being lifted up and down (pitching and towing). This oscillating nature of the waves can be used for capturing it through a buoyant hollow shell, which in turn will work upon a vertical piston cylinder system and compress the atmospheric air in to a conservator or reservoir. The compressed air can be used to run an air turbine and which in turn can be connected to a generator.

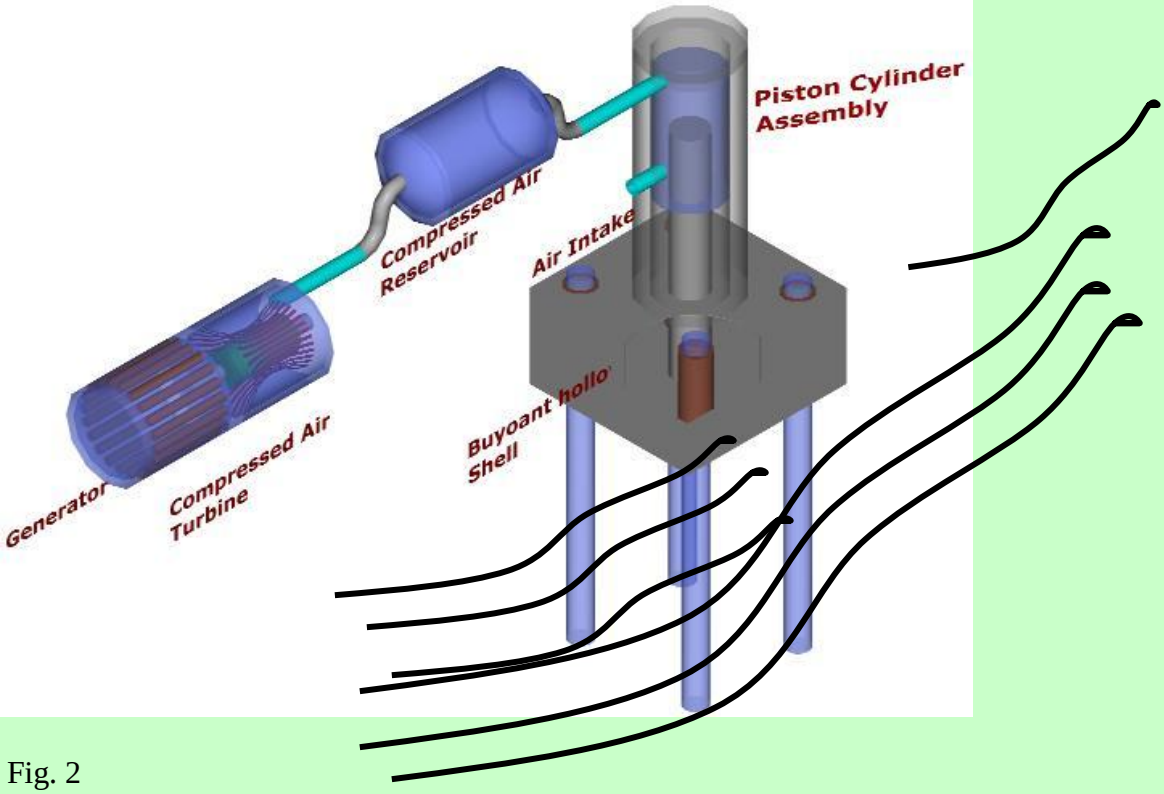


Fig. 2

Idea 3: Though it may sound Wilder and Crazier.

Generating power from sea water through a battery principle.

Sea water has Salt, which is Sodium Chloride or NaCl in short. On the principles of any cell operation through the ionization route, it may be possible to use a set of two appropriate electrodes. The sea water may probably be split in to Na and Cl as ions, which will exchange their charge on the electrodes, just like a battery. In the process, there is a possibility of extracting Na as a bye product, which incidentally also is a very good conductor of electricity. The Na thus generated can be pumped through hollow conductors and collected at the shore. The Chlorine which is thus generated can perhaps be used for treating the water used in the power house.

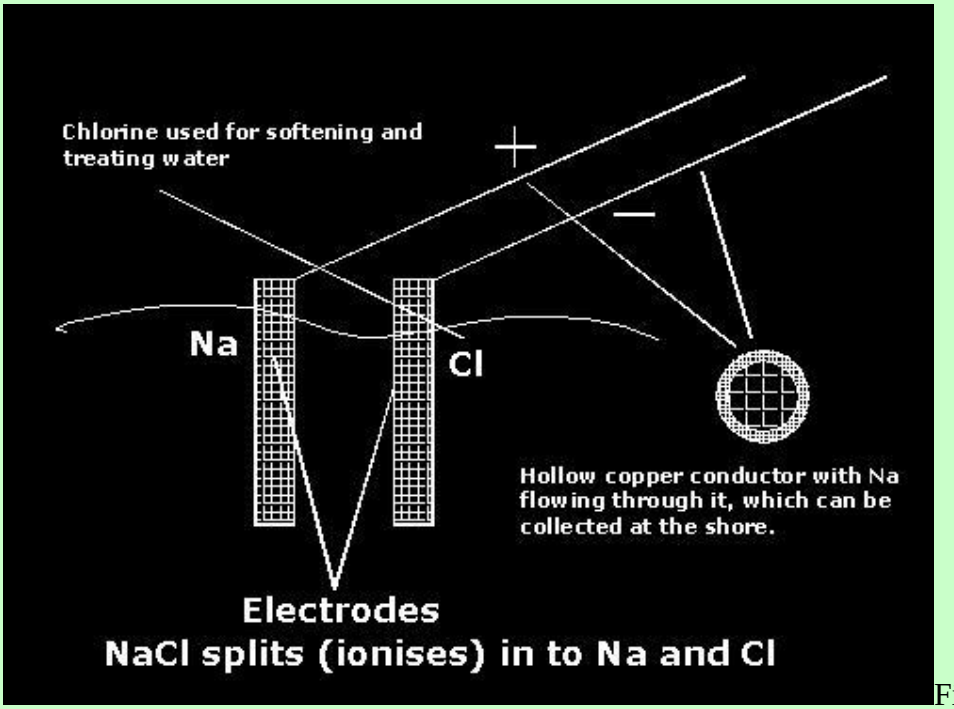
- 

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Fig. 3

At one point of time, I had tried this idea with a large group of R&D members of BHEL during one of my creativity workshops. When I told them that this kind of power project has already been developed by a German firm, each one of them had welcomed the concept and wanted more details. Unfortunately for me, when I told them that it is only my dream, they said that it is not possible.

With a view not to waste your precious time, I would like to bring to your kind notice the following.

I am primarily working in the Waste Minimisation area with various industries. A few of the successful projects I had worked on are:

- Recovery of 35,000 Kilolitres of process water per day in Sago Processing units in the Samarlakota area of AP. This has been extended in to five other units. Apart from savings in the electricity which was otherwise used for pumping this amount of water, it has also resulted in to precious water conservation too.

- Savings in electricity to the tune of up to 25% in Heat Treatment furnaces at Gajra Gears (Dewas, MP), Vijai Electricals (Rudraram, Hyderabad), MIDHANI, Hyderabad and many other places. The savings were accrued through modification of the process without any significant investments.

- Yield Improvements in Cement Plants in Nalgonda district of AP.

- Electrical energy conservation in 4 Textile Printing units.

- Making a Mini Hydro Project feasible from a Non feasible state. (Active Power Corporation, Hyderabad. The site is on Budameru Canal of Vijayawada Thermal Power Plant. While initially the project was projected @ about Rs. 11 crores for one megawatt capacity, our further work made it feasible @ about Rs. 8 crores for 1.5 megawatt. The power station is running non stop for three years now and working to the fullest capacity. I was associated with Mr. A. M. Marathe, the chief consultant of this project.

There are in fact more than 25 such assignments where I have been actively and primarily involved during my career.

Finally,

We may perhaps start with a national level workshop where we can go through the Value Engineering route and use the extended creativity session to generate many of these ideas in to a workable model.

Needless to say, I will be more than happy to be associated with any such venture, with whole hearted participation.

About the author:

K. R. Chari is a Professor in Operations Management. He may be reached on Cell: 9958349199

Qualities of a real leader

- He is an honest person (honesty of thoughts included) to the core, in an absolute and true sense of the word.
- He is fiercely upright in his dealings while espousing the cause.
- He is treacherously hard working and sincere in his approach and is always on toes for anyone's help (under distress) and rescue.
- He is an absolute down to earth person.
- He keeps no vested interest and therefore, fearless.
- He is like a Raj Rishi who carries out his duties with full Dharma with no sense of attachment.

Energy Professionals Gone Wild

The response to our invitation to ideas for energy conservation and efficiency improvement has been overwhelming. As I write this, ideas continue to flow in. Here is a compilation of "Wild Ideas for Energy Conservation" contributed so far by our esteemed readers. The Urja Watch invites your comments on these great ideas. – Editor

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Wild Ideas for Energy Conservation

1. *Sunil Sood asked:*

Is it feasible and economically viable to provide an extra battery in Cars which can until be charged during idling for use with inverter to generate electricity during night?

2. *Vaidyanathan Ramanathan has made the following suggestion:*

Animal Drawn Power

In the villages the power position is very bad and the state Electricity Boards feel the pinch when the government insists on free power to the farmers.

This problem can be offset at least to some extent by using the animals to drive a horizontal wheel which can be coupled by gears to a generator. The power obtained from four bullocks driving the wheel can be around 11 kW, sufficient to run a pump.

There are plenty of animals in the villages which have now become redundant as tractors have taken their place for ploughing the fields. Many a time these animals are sent to a *'go shala'* where they are fed form the donations from well intended persons. I suggest these generator wheels can be installed in these *goshalas* themselves and the power generated can be used by the farmers. The wheel can even be designed for harnessing some other animals like horses or camels. But the availability of such powerful animals is less these days. Horses may be tied to the wheel when the marriages are not scheduled and the demand for them is reduced.

The old cows which are past their milk yielding capacity can also be used for the purpose if there is no objection from the staunch Hindus.

The possibility of using the animal power as above can be analyzed.

Prof. Ajay Chandak responded as follows to Idea # 2:

Using Animal power is one of a better option. Few concepts need correction.

- Bull power is almost equivalent to horse power. Four bulls will be able to generate not more than 3 kW for a longer duration.

- There is substantial power loss in transmission, especially in speed step up. Normally we need to step up from 2 RPM to 1800 RPM or so (Generator RPM) and there is substantial power loss.

- There is a need of a good electronic control circuit, with battery (capacitors preferred) something like flywheel, to absorb variation in speed of bulls and provide constant voltage to the application. If we can eliminate the batteries, nothing like it. Most of the people working in this field are O.K. with the mechanical part, but the controller is the key and people need to work on it.

- For remote villages, applications like water pumping and flour mill should be directly used, mech. power to mech. power, without going in for electricity generation.

There are few isolated efforts in utilisation of Animal Power, but practically nothing has come out as reliable product that can be commercialised.

I am planning to take some development work in this regards with the help of engineering students, if we get appropriate sponsors.

3. *Pradeep Mandre said:*

This is an excellent platform. I want to know "why capacitors are not used in operating auxiliaries of power houses." I have noticed this in 4 Power Stations of MAHAGENCO. It is surprising that they make it compulsory for all consumers to fix Capacitors before giving connection. If Mahagenco provide power capacitors, they can save some power. E mail: pradeepmandre@ yahoo.co. in

4. *T. Jayaraman (Teejay) wrote from Chennai:*

Research has shown that 50% of the body comfort is by the radiation from surrounding objects - of which walls play an important route.

It is also known that most parts of India, including the coastal areas - the wet bulb temperature is only 25 deg C .

Thus, if the partitioning walls can be made of "water walls" with provision for air flow, the walls can be kept at less than 25-27 deg C - the water for this can be recycled water with high TDS - (no need for cleaning for at least 20 years) - As long as the room temperature is maintained slightly higher than water wall temperature and the humidity is kept low, there would be no need for air-conditioning at all. Energy saving can be more than 90%.

The cost can be comparable to the existing partitions, without affecting aesthetics.

5. *Chari Kumanduri has many wild ideas. Here are just a few of them:*

5.1 Whenever a heavy (or for that matter any) vehicle passes through the neighbourhood, we feel the vibrations in our house, especially during night because there is silence.

If we could install some kind of vibration sensors (based on some kind of piezo electric effect), it is perhaps possible to provide continuous lighting on the highways and main roads passing through the cities.

5.2 The movement of tens of thousand of passengers in railway stations or the airport can be captured to convert back in to electricity, which should be enough to light the local area.

5.3 There is a boon in disguise in the modern day fad of gyms. When people visiting gyms sweat out in various exercises like the weight lifting, cycling, tread mill and others, the energy can be converted to electricity so that that much can be used by the gym itself. Perhaps they can call themselves as self-sustainable and carbon neutral gym.

6. *Sundaresan Subramanian expressed the following idea:*

I am back in Chennai in the sweltering heat. More than the heat, I think it is the high humidity that causes excessive sweating and discomfort. Why not have cost-effective dehumidifiers to lessen the discomfort? Just a wild idea from me. Perhaps our HVAC experts can comment.

(*T. Jayaram replied*: The concept of desiccant-based cooling is already beyond the concept stage and I am halfway in trial of liquid desiccant based cooling system. Part of the scheme is available in our website)

Time to Wake Up?

The Editor of 'The Urja Watch' had a conversation with Ms. Jayalakshmi Menon, Head-Knowledge Management of ENZEN Global – a leading energy and environmental company based in Bangalore. Interestingly, the conversation touched on innovations – a topic relevant to the current issue. We are pleased to provide excerpts from the article that appeared under the above title in the ENZEN Global Monthly, June 2009.

Dr. Sundaresan Subramanian Ms. Jayalakshmi Menon

A gold mine of opportunity awaits the nation. To realize the fruits of this will require manifold innovation, says Dr Sundaresan Subramanian.

IN CONVERSATION

'There is fantastic opportunity in the country today as far as management of resources goes.' Realising the opportunity will require innovation in four areas, viz., technology, finance, management and

behaviour, says Dr Subramanian who has a vast experience in the area of energy and environment.

As Program Director at the Council of State Governments (CSG), USA, he planned, promoted and implemented the twin-track "State Environmental Initiative (SEI)" – a $5.6 million matching grants program funded by USAID through US-AEP to link American expertise in environmental management, policy, and technology with Asian demand for environmental improvements.

As part of his work, he interacted with many government agencies and NGOs to identify potential clean energy and environmental project opportunities in Asia and U.S. partners for Asian projects. Through the SEI mechanisms, he administered 30 grants and facilitated an equal number of energy and environmental projects in six Asian countries including India, Indonesia, Philippines, Sri Lanka, Thailand, and Vietnam.

The projects included Water and Wastewater Purification, Watershed Development, Renewable Energy for Poverty Reduction, Remote Sensing of Vehicular Air Pollution, Feasibility for Municipal Waste Landfill, Canal Clean-up and several others.

As Regional Director, United States-Asia Environmental Partnership (US-AEP) at the American Consulate General in Chennai, he worked successfully with several governments and a spectrum of US and Asian partners to promote energy and environmental projects and business partnerships.

He has won prestigious international energy and environmental awards including meritorious honor award from the U.S. government.

That's a lot of ground he has covered. Visiting Enzen, he spent some time discussing some of the work he had overseen, and shared his opinion on what needs to be done while marching ahead into the next century.

"Technology is already available and there is no need to reinvent the wheel. All it requires is a facilitation of transfer/deployment of this technology." And he has been doing that for a while, so he should know how it works.

It should be no big task to find a suitable technology for most situations. And most are adaptable. Like the deep pond technology or the ReCip technology to treat wastewater. He cited some examples.

In Loyola College, five years ago the management used to buy about 60,000 litres of fresh water everyday. By bringing in the "ReCip" Reciprocating Water Technology developed by the Tennessee Valley Authority, the problem was effectively addressed. The treatment system is capable of treating around 50,000 litres of wastewater every day and recycles it for sanitary and gardening purposes.

In Thailand, drinking water supply was inadequate because of clogged, contaminated or dried up wells. Well rehabilitation equipment mounted on mobile trucks facilitated delivery of fresh water without the need to drill a costly new well. The technology represents increased availability of clean drinking water to Thai communities.

Micro-turbine technology is making use of cattle waste to generate electricity in a dairy farm in West Bengal.

Innovation in finance could be the catalyst for successful projects, he points out. “It can help bankrupt municipalities turn the situation to their advantage, while management needs to set goals and be accountable.” As an example, he pointed out the pooled financing arrangement developed in the US in the early 1970s after the Clean Waste Water Act was passed. A similar innovative model has been adopted in some of the urban water projects in Tamil Nadu with USAID guarantee for 50 per cent of the principal.

Finally, there is need for a change in behaviour of consumers. In this area, NGOs should play a prominent role, he thinks. He also believes that small entrepreneurs in the country needs lot more encouragement to bring out hidden talents in the promotion of innovative products and services.

What are the challenges facing the country?

“One, there is no reliable baseline data when you talk energy or water. Two, the government has never been able to meet its power targets. India will have to accelerate building power stations in the conventional and renewable sectors”, he says.

Energy and Environmental management is a ‘gold mine’ he exclaims, noting how it keeps throwing up new aspects, products and jobs like nuggets. The potential for innovation is immense.

Government policies are not often conducive. He recalled the instance of electric supply where industries were allotted a quota by the state utility based on past consumption. To hike the quota, industries consumed more and wasted more electricity!

This is in direct contradiction to the EC Act. It shows how our policies are working at cross-purposes and encourage a mindset of wastage. The change has to come through community pressure.

There was a potential landfill gas recovery project pursued with the Hyderabad municipality. The EoI was submitted but a change in the structure of the municipality and leadership meant the project was either delayed too long or not taken up again!

Energy responsibility has to be extended to all ministries and policies so that all have a stake in energy efficiency and environmental conservation, says Subramanian. “When doing an energy audit, an environment audit must also be done. For example, look at the water usage and wastage. When looking at incandescent lamps it is not just power consumption directly but indirectly – through heat generated and AC load increase – that must be accounted.”

Energy conservation has not been accorded its rightful importance. The scope is vast whether in lighting, HVAC or materials used. Lighting which accounts for almost 15 percent of energy used is an area that needs more attention, he believes. Energy audits could really help companies realize large amounts of cost reduction through simple measures.

“Traditionally, we have worshipped the sun, wind, land, trees, plants, and water that is the very base of human survival. It is imperative that we adapt innovations without diluting our long cherished traditions and values which include energy and environmental conservation.” he concluded.

- Do something, either lead, follow or get out of the way.
- It is easier to prove that a problem doesn’t exist than to find a way of solving it.
- Leadership without authority is not only possible but also durable.
- You can tell when you are on the right track-it is one hell of a climb
- Half the world’s misery comes from ignorance & the other half from intelligence

How to think of wild ideas?

by Sunil Sood,Former President,IAEMP

We often hear of people saying that the ideas are available at dime a dozen but when we actually invited ideas for saving energy and resources not many came forward even with wild ones. Some thought that we will steal their idea and get it published in our name! Here are few thoughts and tips on the need and mechanism of idea development.

Firstly, realize the importance of ideas to make life easier. To quote a famous philosopher - “Any opinion at its beginning is precisely at the minority of one”. Similarly, any new idea whatsoever wild or absurd may sound today has the potential of becoming a great one at some later date. May be its time has not yet come. Remember, to quote again from the same philosopher – “No army of the world can withstand the strength of an idea whose time has come”

How to think of ideas? For an idea to come not only our mind has to be open but it should also be fertile. The fertility of mind again depends on your habit of reading and study. Can we devise a suitable mechanism to generate ideas? Do brain storming sessions help? My experience is that such sessions tend to create more storms where hardly any brains are used. Do the ideas come when we are alone such as in complete privacy of bathrooms? But such ideas are often easy come and easy go type!. Can we develop an idea factories and stores? (What an idea Sir ji!)

The development of ideas is basically need or greed based. Some people out of need try to develop ideas to save time, money while there are few people who develop ‘ideas’ to cheat people ! These people have very fertile mind and their success rates are quite high in comparison to those who want to develop ideas for genuine purposes. Here motive plays a great role. In this article, I am confining myself to devising a suitable mechanism for generation and development of ideas to save energy and resources.

We all use energy and resources directly or indirectly for accomplishment of any activity. Hence, the first step should be to break down these activities into many smaller ones. Then take each one of them one by one and by application of value engineering, method study/Time and Motion Study and energy management principles you may be able to develop some innovative idea which no one had even thought of!

Let me give example of my original idea about ironing of shirt. Most of the people iron the complete shirt even if they do shirt-in. Now, when the lower part of the shirt has to go inside the pant then it does not make any sense to iron the same. If you are keeping the shirt out then upper part of the pant need not be ironed. Hence, we can instruct the Dhobi accordingly and demand some discount on ironing charges! When I discussed this idea with the children during a school presentation on 'Home Energy Management'; one of the clever ones suggested to do away with even washing of the lower part of the shirt (or upper part of the pant as the case may be) and save soap and water!

Now coming back to my idea; how this idea of not ironing the lower part of the shirt came into my mind? By application of value engineering principles! The activity of ironing of lower part of shirt was not doing any value addition to my personality. So why do that? Similarly, whenever I open my 80 Litres capacity Videocon make fridge, the idea of not having freezer compartment keeps troubling my mind. In the last so may years, we have never used ice. Then why do we have a fridge which has a ice compartment working at -15 deg C causing unnecessary energy consumption with additional headache of defrosting?

There is a need for such refrigerators which will work at a temperature of about 5-6 deg C. This will save tremendous amount of energy while simultaneously doing away with the need of defrosting mechanism altogether. Can we not a have small ice maker separately (to be used whenever needed) instead of running the fridge at -15 deg.C temperature throughout the year just for occasional need of ice! This is an example where energy management principles and value engineering both are involved.

I feel that the syllabus of Industrial Engineering should be included in the CEA/CEM exams since there are many energy saving ideas which can be developed by application of these principles. In my final year of degree course I had Industrial Engineering as an elective subject and I had developed a great liking for this subject. I know many highly technical competent persons with excellent knowledge of the subject but lacking in simple techniques and ideas which actually can save a lot. Too much emphasis on the technical knowledge and use of instruments has only helped in closing down our minds and the windows from where ideas can flow like a fresh breeze of air. Remember-'Ideas occur to people whose mind is ready to receive it'.

I hope that one day the world will recognize the 'Dime a Dozen' idea persons (like me) and give them due respect!

Innovative Proposal Submitted to BEE on National Home Energy Management Programme

The awareness level about the need to conserve energy is now quite high but still a yawning gap exists between the awareness level and implementation level. IAEMP prepared an innovative proposal to BEE to bridge the gap.

1.0 Objective

The objective of the proposal is to create an organisation structure and cadre for providing a single point solution on awareness creation, training and implementation of energy saving measures with verifiable results for the target group of energy consumers in domestic sector.

2.0 Need of the proposal

The domestic sector is the largest group of energy consuming sectors in terms of numbers. Despite media campaigns by various agencies to create awareness on energy saving measures required in the sector, people are not really aware how to adopt such measures in their homes. 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.

Like supply chains which exists and works in an organised manner to ensure almost uninterrupted supplies of any commodity, an 'energy efficiency and conservation chain' needs to be created for Demand Side Management. Hence, this proposal is submitted for the kind consideration of Bureau of Energy Efficiency.

3.0 Brief Description of the proposed programme

The programme will provide for practical demonstration and implementation of energy saving ideas and options available in domestic sector. It should be implemented in 2 Phases:

Phase-1: Creating Cadre of Home Energy Management Trainers and Implementing Agencies. The content of the training programme shall be as per 'Annexure-I'.

Phase-2: Launch of "Domestic Energy Saving Incentive" (DESI) Scheme. The details of the scheme shall be as per 'Annexure-II'

The Phase-1 is proposed to be launched simultaneously in 50 Cities comprising of all State Capitals and major towns. Later, the programme can be taken up in other smaller towns and districts .Under this phase 20 participants from each city will be trained to further carry out the activity under phase-2.The Phase –1 activity can be completed within 3 months from the date of availability of funds.

The Phase-2 activity can be started immediately after the completion of Phase-1. The publicity for the Phase-2 can be started at the beginning of the Phase-1, so that action on Phase-2 can begin immediately without loss of time. The phase-2 activity will be for a period of 15 months.

Thus, the entire programme will be completed in 1 year 6 months. Certified Energy Auditors and Certified Energy Managers and other professionals from all over the country will be involved in both the phases under the guidance from BEE.

4.0 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)

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.

Our association 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.Elections for new council members and office bearers will be held in Feb'09.

We have a very active Yahoo group, iaemp@yahoogroups.com to enable members to exchange information and ideas. Many good ideas are exchanged through e-mails within hours. Yahoo! India had recognized our group as one of the best and was selected for publicity.

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.

"The Urja Watch", a monthly magazine is published by the association to address issues related to energy sector.

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 and on the links given in Annexure-III

5.0 Financial Requirements

The cost of Phase-1 activity for training of 20 participants is estimated to be Rs1,00,000 per city as per the following details:

1.	Advertisement in Newspapers	=	Rs. 10,000/-
2.	Training Kit	=	20 Nos.x Rs.3,000
		=	Rs. 60,000/-
3.	Training Manual/CDs/ Forms etc.	=	Rs. 10,000/-
4.	Rent of Hall, Projector, chairs, etc.	=	Rs 6000/-
5.	Working lunch	=	20 Nos x Rs. 100 x 2 days
		=	Rs 4,000/-
6.	Tea and snacks	=	20 Nos x Rs. 25 x2 days
		=	Rs.1000/-
7.	Travelling expenses	=	Rs. 2000/-
8.	Photography & video shooting	=	Rs. 2000/-
9.	Honourium	=	Rs,3000/- (for 2 days)
9.	Miscellaneous Expenses like Telephone, Stationery, etc.	=	Rs.2000/-
	Sub total Total per city	=	Rs.1,00,000/-
	Estimate for 50 Cities	=	50 X Rs.1,00,000/-
		=	Rs. 50,00,000/-

IAEMP will arrange 50 % of the funds from own resources/donations /fee from the participants etc. Balance 50 % is sought from BEE. The incentive amount payable will be realized through revenue generation from implementation activities. Thus, the finance from BEE is required only for the Phase-1 activity. However, BEE will be kept fully apprised of the progress and monthly progress report will be submitted to BEE.

ANNEXURE-I

Course Contents For
Home Energy Management Trainers and Implementing Agencies.

The participants would be provided with an Energy Audit Kit comprising of the following:

1. Portable Single Phase Meter with capabilities of measuring and recording 6 days kWh, Maximum demand kW, Last Six months kWh, instantaneous watt and cumulative kWh. The meter can measure up to 5.5 kW. The meter would be mounted on wooden board and will have 15 amps plug and 3 m long cable.
2. Training Manual with details of Govt. incentive schemes.
3. CD giving details about BEE and the Domestic Energy Saving Incentive Scheme.
4. Forms and awareness material for distribution to the residents

In the following paragraphs, the proposed contents of a training programme for the target sectors of domestic energy consumers are explained in brief.

1.0 The Concept of Home Energy Manager

To begin with, the concept of Home Energy Manager will be explained to the participants

What is the role of HEM? The program shall explain 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.

2.0 Learning to Understand the Electricity Bills

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

3.0 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 a sample home will be explained

4.0 Best Practices

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

4.1 Electrical Energy

i) Identification of standby losses and inefficient consumers
ii) Scope for installation of energy efficient appliances
iii) Use of human powered devices
iv) Correct sizing and smart use of appliances

v) Development of innovative ideas.

4.2 Thermal Energy

Several ideas to save LPG/Petrol/DIESEL/KEROSENE are already available on Internet. The ideas will be compiled and practically possible ones will be explained.

4.3 Application of Renewable Energy Devices

The application of viable renewable energy products like solar water heaters, solar lanterns and solar cooker/dryers etc will be explained with their cost economics.

4.4 Energy savings in use of Water & Resources

The ideas for judicious use of water and resources to minimize energy consumption will also be part of the training material.

4.5 Green Concepts and Climate Change issues

The latest concepts on ‘Green’ way of lifestyles and issues related to climate will also be included.

ANNEXURE-II

Domestic Energy Saving Incentive Scheme

We have schemes to encourage small monitory savings by which we are able to collect huge amount of money at low interest rates. These schemes not only encourage saving habits but also provide employment opportunities. There is a Directorate of Small Savings in each state which co-ordinates implementation of such schemes and gives cash prizes to those who deposit their savings in these schemes.

The government is spending huge amounts by way of subsidies in electricity, LPG/Diesel and Kerosene. Hence, an incentive scheme designed to reduce energy consumption by the subsidized population makes a business sense too and will result in overall benefits to the nation.

Thus, in line with cash saving schemes, we should have an incentive scheme to encourage energy savings. This scheme may be called “Domestic Energy Saving Incentive” Scheme (DESI Scheme). The scheme shall be applicable for use of electricity and LPG or Kerosene only. The schemes may be operated as follows:

Step-1 : Last 2 years average consumption in terms of kWh and kg of LPG/ Liters

of Kerosene may be obtained. Application forms for participation in the incentive scheme will be filled up with a minimum commitment of 15% reduction in energy consumption in terms of kWh or kg/liters of LPG/Kerosene

Step-2 : The Home Energy Audits will be performed and ideas to save

energy will be explained to the ‘Home Energy Manager’ (HEM)

Step-3 : HEM will prepare the necessary plan and implement the same

with or without the help of implementing agency.

Step-4 : At the end of 1 year from the start date average consumption will again be worked out with proofs of bills. The savings achieved will be calculated and depending on the savings achieved, suitable cash award will be recommended by the implementing agency.

Step-5 : All participants who fail to achieve the desired results will be issued only a certificate of participation.

Step-6 : All successful participants be honored with cash prizes and certificates in an annual function and case studies will be prepared by the implementing agency and presented in the function.

The DESI Scheme will not only help in bringing down the energy consumption in the homes of the participants but will slowly and surely spread into the homes of their acquaintances. This saving habit will transform the entire country into an energy efficient nation. It is needless to discuss how such a scenario will help the employment generation and associated benefits to the country's economy.

The details of cash awards etc can be worked out once the scheme is accepted in principle.

ANNEXURE-III

Links about IAEMP's activites on Home Energy Management

http://www.deccanherald.com/CONTENT/Jun252007/state200706259314.asp

http://www.livemint.com/articles/2008/01/29001118/This-group8217s-really-shou.html

http://www.deccanherald.com/Content/Aug152008/city2008081584705.asp

http://www.datacenterdynamics.com/ME2/Sites/dirmod.asp?sid=&nm=&type=staff&mod=Speakers&mid=9DDE7B615A6548A6A818FF1878D84769&tier=3&sfid=666F1B3F2CE7424AB85AC61653D38293&SiteID=2007%20%2D%20Bangalore

http://www.jagrancityplus.com/storydetail.aspx?cityid=9&articleid=8708&editionid=55&catgid=6

http://digitalmarketing.deccanherald.com/DeccanHerald.com/Content/Aug262008/state2008082586579.asp

http://www.deccanherald.com/content/Aug262008/state2008082586575.asp

http://www.ciol.com/Enterprise/Feature/Dynamic-cooling-for-data-centres/17708108059/0/

http://www.businessgyan.com/content/view/5267/554/

ANNOUNCEMENT

CD with useful information available on donation

This is to inform all that a CD containing compilation of useful information/presentations including Govt. notifications /policies/ IAEMP Vision Document, Codes/ Reports and Mr Sood's presentations etc is available against a donation of Rs.500/- . The detailed contents of the CD are given in the attached excel file. It is really a very good compilation with some very good free down loads from internet.

Members desirous of ordering the CD may do so by sending a DD/ at par cheque for an amount of Rs 500/- favouring 'Indian Association of Energy Management Professionals' to the following address:

Indian Association of Energy Management Professionals
Golden Square, 102, Eden Park,
20, Vittal Mallya Road,
Bangalore-560001

Order may also be sent by e-mail to keerthibankapur@yahoo.com **.The donation may also be deposited electronically to IAEMP SB account no. 0883101060759, Canara Bank,Sarakki Layout Branch,Bangalore**

For any query pl. contact Mr Sathyakeerthi on mobile no. 09844437759 after 7.30 pm or e-mail: keerthibankapur@yahoo.com

UPCOMING EVENTS

17th European Biomass Conference and Exhibition
Conference Centre, Hamburg, Germany June 29-July 2, 2009
www.conference-biomass.com

3rd Renewable Energy India 2009 Expo, New Delhi. August 10-12, 2009
Pragati Maidan, New Delhi.
www.renewableenergyindiaexpo.com

National Renewable Energy Summit, August 18-19, 2009
Kuching, Sarawak, Malaysia
www.renew.com.my

ICEE 2009 - International Conference on Energy and Environment
Singapore August 15, 2009
www.waset.org/wcset09/singapore/icee/

We Need Your Active Participation…

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

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

Please note the following points while making your submissions:

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

We Need Your Feedback Too!

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

We appreciate your feedback and thank you for your support.

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