

A monthly newsletter of  
*Indian Association of Energy Management Professionals*

# THE URJA WATCH

November 2009, Vol. II/Issue 17

*It is about "Conscience Keeping on Energy Matters"*

## CONCERNS OVER CARBON FOOTPRINTS



## CONCERNS OVER CARBON FOOTPRINTS

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#### **Editorial Board**

*S. Subramanian (Editor)*

*Sunil Sood, Amit Gupta, R.V. Ramana Rao, S.K. Panigrahi*

**Reporters:** *Vikas Apte – Regulatory affairs, D.K. Agrawal, Jaipur*

**Website:** [www.iaemp.org](http://www.iaemp.org)

**Editor Contact:** [tellsubi@gmail.com](mailto:tellsubi@gmail.com)

#### **Contributors this issue:**

*M.R. Menon, Sunil Sood, Prakash P Dhamangaonkar, K.D. Bairagi*

## From the Editor's Desk...

### Low-Carbon Diet for Power Consumers

Living in harmony with Mother Nature is not new to India. Over centuries of time, India is following a tradition of holding the five elements, known as “Panchabhutas” (Air, Water, Earth, Fire and Ether) in great reverence. What is happening to this ancient and glorious tradition? It is getting diluted due to the impact of several dramatic changes taking place in the country. Increasing pressures caused by population growth, rapid urbanization, energy-guzzling industries and demanding lifestyles are pushing the country to face formidable environmental challenges.



Globally, the invention of automobiles and electricity led to burning excessive amounts of fossil fuels and releasing more carbon into the atmosphere. India is no exception to the environmental impacts caused by these inventions. We are now witnessing millions of vehicles on roads, industrial/commercial facilities with great appetites for energy and an ever-expanding range of consumer products. Evidently, the demand for energy has dramatically surged and so has pollution on all fronts. We keep hearing more about carbon footprints that follow human activities.

#### **What is a carbon footprint and why there are concerns about it?**

As Wikipedia defines, a carbon footprint is "the total set of greenhouse gas (GHG) emissions caused by an organization, event or product." For simplicity of reporting, it is often expressed in terms of the amount of carbon dioxide, or its equivalent of other GHGs, emitted. Carbon footprints are caused by emissions from different activities such as:

1. Direct emissions that result from activities an organisation controls such as combustion of fuels in a plant, emission of gases during operation, production and manufacture, and running of vehicles.
2. Emissions from electricity usage: Although the organisation is not directly in control of the emissions, by using the electricity it is indirectly responsible for the release of CO<sub>2</sub>.
3. Indirect emissions from products and services: A company that manufactures a product is indirectly responsible for the carbon that is emitted in the preparation and transport of the raw materials for its use.

Knowing the size of a carbon footprint helps to devise a strategy to reduce it through improved technology, and energy-efficient processes.

Though India's carbon emissions are over 250 million metric tons (of carbon equivalent), it ranks low in terms of Per capita greenhouse gas emissions. Most of these emissions are caused by burning of fossil fuels. The supply and use of fossil fuels accounts for about three-quarters of mankind's carbon dioxide (CO<sub>2</sub>) emissions.

Let me elaborate taking the example of power plants. Due to abundance of coal availability, over 70% of India's electricity is produced by burning coal. Coal is the most carbon intensive of all fossil fuels. When burnt, it emits massive amounts of CO<sub>2</sub> that is associated with global warming. While many power plants have installed air-pollution controls, these are not adequate to curb emissions. Other options need to be explored. Reducing the electricity demand through programs like Demand-Side Management (DSM) is one effective option. Texas, the oil-rich state in the U.S. and producer of more CO<sub>2</sub> than any other state has reduced the power generation emissions by adopting clean technologies and lowering industrial energy demand. If customers can reduce their energy costs by turning off some equipment at certain times or switch-over to more efficient equipment, it helps to reduce the overall peak demand on power plants, making them more efficient and thereby minimize carbon emissions. It is a clear "win-win" situation for both the power producer and the consumer.

Programs that encourage energy consumers to avoid wastages and adopt more efficient ways of using energy - or what may be called "low-carbon diet" programs - can help to cut carbon footprints.

Green-minded people are already adopting "low-carbon diet" programs by conserving energy. Others need some incentives. Through innovative programs, it is possible to persuade organizations and people to accept "low carbon diet" programs that minimize carbon footprints.

Mitigating carbon footprints is an economic opportunity for the nation as it can earn carbon credits to generate foreign exchange and create millions of clean energy jobs. There are plenty of technical resources available within the country to work on the carbon-reduction projects. What's more - India's talents in the green field hold considerable promise to create global business opportunities similar to what the professionals contributed in the field of Information Technology.

As always, I welcome your comments and suggestions.

Energetically,

S.Subramanian  
Editor

## LETTERS TO THE EDITOR

### Implementing the EC Act

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Thanks for an excellent issue of “The Urja Watch,” October’09 issue.

I am very much impressed by the article written by Mr. G.G. Dalal titled “Energy Efficiency-A Key to Economic Growth”. He has brought out the ground realities in the energy sector and focused the critical areas to be taken care by the Government of India especially by the Ministry of Power (MoP) and the Bureau of Energy Efficiency (BEE) to achieve energy independence. As he rightly said, the time is running out and the government should act immediately to implement the EC Act without further delay

My personal thanks to Mr. Sood for compiling the Minutes of Meetings of all the GC and EC meetings of BEE which were not known to most of us.

Lastly but not the least, your editorial is really heart-touching. Thanks a lot.

S.K. Nayak  
Senior Manager  
IL & FS Ecosmart Ltd.  
Vadodara

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### Circulate “The Urja Watch” to key government officials

The October '09 issue of “The Urja Watch” wields enough fists in velvet gloves from Shri. Subramanian's effective editorial, Mr. S.K. Sood's praise & impressive article 'start to sorry state' and other contributions.

Would it not be worthwhile & relevant to circulate hard prints to key officers of BEE, MoP, and Planning Commission Members as early as possible, at some cost?

G.G.Dalal  
Mumbai

## **Quantify Energy Savings and Intensify IAEMP Efforts**

Your esteemed organization has understood the importance of Energy Efficiency Programmes since last few years. You are propagating the same through your house magazine (The Urja Watch), programmes and publications for creating all-round awareness.

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I am also working in the field of Energy Efficiency, Management, and Conservation for the last 5-6 years and have achieved about 20% energy savings in the Roha unit of Excel Industries through Energy Efficiency, Energy Conservation/Management programmes. I wonder why, in spite of simple, less expensive, and fast solutions, this subject of energy efficiency is not gaining momentum.

One answer seems to be that the savings achieved are rarely quantified, and hence, its impact in monetary terms is never visible. Recently, I had gone through the BEE report on Energy Savings achieved in 2008-09 in India. The report has not quantified the impact of savings either in terms of money or reduction in CO<sub>2</sub> emissions.

I have attached some material that may be of interest to your readers.

As an energy-aware organization and magazine, you must intensify propagating Energy Efficiency/Conservation in the Energy Week starting from 14<sup>th</sup> December 2009.

Looking forward for a good association with you to achieve bright results in Energy Efficiency/Conservation/Management.

P.P. Dhamangaonkar  
General Manager – Special Projects  
Excel Industries Limited, Roha

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“Compared to what we ought to be; we are only half awake. We are making use of only a small part of our physical and mental resources. The human individual possesses powers of various sorts which he habitually fails to use.”

WILLIAM JAMES, 19th –century psychologist

## **India Needs Transition from a High-carbon To a Carbon-frugal Nation, but Who Cares?**

*By M.R. Menon*

We read in newspapers, magazines and websites telling us that our country is facing acute energy crunch. They also tell us that the main problem rests largely with our overdependence on coal, as India's coal reserves had shaped all our energy policies. And, depending solely on coal, the thermal power stations in the country were built. But we never ventured to seek a change replacing this old habit, because old habits never die. Over and above, to hide our weaknesses, we always argued that we depend on coal mainly for the sake of our country's energy security! This mindset has to change and that, too, very quickly.



If we stand in the middle of metropolitan cities like New Delhi or Kolkata on an overcast day at high noon, we are immediately engulfed in the heavy, polluted air, or even darkness. Half a century ago, Pittsburgh, Birmingham, or Chicago had the same experience. Sooty smoke and sulfurous odors, the residues of coal burning in buildings, factories, power plants and automobiles, hung in the air. But today, the air quality in U.S. cities is vastly improved, not because the United States has abandoned coal as a fuel—it is second only to China in total volume of coal produced and used—but because it has learned to use it more cleanly.

Expertise in the clean, efficient, and economic production and use of coal has been acquired slowly, over time, in the industrial countries. To speed up the transfer of this expertise to developing countries, the World Bank launched its Clean Coal Initiative in 1996.



Given the potentially adverse impact of coal use on the environment in the absence of appropriate abatement measures and the high social and economic costs that can be associated with this abundant source of energy, the need for reforms in the coal sector is a pressing issue.

***Dangerously, the forecasts indicate that coal will continue to be an important source of energy well into the twenty-first century.***

Developing countries use about 55 per cent of the world's coal today and this share is expected to grow to 65 per cent over the next 15 years. The World Energy Council projects that even as late as 2050, coal will account for more than 20 per cent of the world's primary energy. Therefore, expanding production and use of coal while improving environmental performance is a challenging task for India and other developing nations.

Increased availability of energy, especially electricity, is important for India to help advance its economic and human development. Coal, which currently accounts for more than 50 per cent of total primary commercial energy supply in the country and for about 70 per cent of total electricity generation, is likely to remain a key energy source for India for at least the next 30–40 years, if we remain silent and do nothing to change this catastrophe!

There are four major aspects of the energy-environment problem namely: (1) Air pollution, (2) Water pollution, (3) The emission of carbon-di-oxide in the atmosphere that causes global warming, mainly from the burning of coal, and (4) Shortage of future energy supply that relies on exhaustible resources. Environmental pollution from coal combustion is damaging human health, air and water quality, agriculture and ultimately the economy. India is facing all these four problems.

However, it is not the end of the road. There are solutions to these problems. They are:

(1) Reduce the use of conventional energy in production and consumption,

(2) Increase the use of energy-saving and environmental-friendly methods in production and consumption and

(3) Promote technological innovations that will reduce the use of energy per unit of output (reduce energy intensity or increase energy efficiency) or reduce pollution per unit of output to achieve.



The air and water in India, especially in the urban areas, are among the most polluted in the world. According to a report of the World Health Organization (WHO) in 1998, of the ten most polluted cities in the world, at least five can be found in India. Sulfur dioxide and soot caused by coal combustion are two major air pollutants, resulting in the formation of acid rain. Industrial boilers and furnaces consume almost half of India's coal and are the largest sources of urban air pollution. The burning of coal for cooking and heating in many cities accounts for the rest.



Mercury released into the air by coal-fired power plants is captured by raindrops, and transferred to the soil, surface water and groundwater. Surface water affects the fish consumed. Groundwater is polluted by runoff from factories, smelters and mining operations, and then used

downstream to irrigate crops. Heavy use of fertilizers has also contributed to contamination.

Some crucial points to ponder:

- To curb excessive growth of the sectors that consume too much of energy and cause serious pollution, India must tighten land use and credit supply and set stricter market access and environmental standards for new projects amid efforts to rein in the rapid expansion of energy-gorging industries including power, steel, oil refinery, chemicals, construction materials and metals.
- Outmoded production methods must be eliminated at a faster pace. The implementation of this policy by governments and enterprises should be open to the public and subject to social supervision (and not that one has to spend his money and wait for ages to get the information under the present Right To Information Policy). Nationwide energy saving programs, such as developing oil alternatives, upgrading coal-fired boilers and saving energy indoors will thwart burning of several million tons of coal augmenting the reduction of greenhouse gas emissions (GGE).

**Note:** For each metric tonne of coal burned, 3.6 metric tonnes of carbon-dioxide is produced (one gets a carbon credit of US \$10 per MT of CO<sub>2</sub> reduced).

*While India's energy producing companies (both conventional and non-conventional) can earn millions of rupees by selling carbon credits under CDM (Clean Development Mechanism), the Government of India may have to spend billions of rupees to save the lives of people in our country. This may also affect the profits of insurance companies like LIC to a large extent!*

- Environmental protection policies should include (1) restricting the quantities of outputs, especially those that are environmentally polluting and high-energy consuming (2) setting environmental standards for production, especially in new projects, and (3) improving method of production to make it environmental-friendly. Category (1) includes the restriction of export production that affects the environment by means of "adjusting exports rebates, levying more exports tariff, and reducing exports quotas.
- To reduce the amount of sulfur dioxide emitted from the burning of coal in the factories, the government should impose heavy penalties to such emissions and encourage the building of equipment to capture sulfur dioxide. However, the use of such equipment is costly even after it is built and many factories do not use it except when they are being inspected.
- To reduce the use of coal and encourage a switch to cleaner burning fuels, the government should introduce a tax on high-sulfur coals. A system of emissions trading for sulfur dioxide, similar to that used in the United States. The government should advance reforms in the pricing of natural gas, water and other resources, raise the tax levied on pollutant discharge, establish a "polluter pays" system and severely punish those who violate the environmental protection laws. To insure that fees charged on pollutants are higher than abatement costs and to strengthen existing laws, the government should impose large fines on pollutant emissions. The rationale for charging higher fees than the abatement cost may be the expected imperfect enforcement. Potential polluters will equate expected fine (equal to the fee charged times the probability of being caught) to the benefit of abatement.
- The government should provide incentives to companies that use more energy efficient production facilities and techniques. Besides economic incentives, efforts should be made to introduce technologies that will treat wastewater, prevent air pollution and improve environmental monitoring systems.

Space within a city should be reserved for planting trees in order to improve air quality.

- In the global arena, India should work together to make sure the international community upholds the goals and framework established in the United Nations Framework Convention on Climate Change and its Kyoto Protocol [in 1997] and the principle of common but differentiated responsibilities. India should also carry out active, practical and effective cooperation. Considering both historical responsibility and current capability, India should take the lead in reducing carbon emission and help other developing countries ease and adapt to climate change. For India, achieving economic growth and improving the lives of our people are top priorities. At the same time, we also need to make every effort to pursue sustainable development in accordance with our national conditions.

'Kyoto Protocol' that requires industrialized countries to cut greenhouse gas emission by 5 per cent from 1990 levels will expire in 2012. Parties concerned hope to launch negotiations for its replacement during end of this year. Skepticism, however, was evident at the summit for reaching fixed, quantifiable targets for reducing the greenhouse gas emission.

India should consider the creation of clean and renewable energy as an important national policy, and should develop in mass scale, hydropower, solar power, wind power, tidal, natural gas, biomass fuel and methane.

In solving India's energy-environment problems three areas require our special attention. First, although the central government recognizes the use of economic penalties and incentives for promoting the use of clean energy, such as fines, taxes and subsidies, specific laws to deal with different environmental problems are yet to be enacted and a set of consistent policies is yet to be formulated. The work involves listing all polluting activities in production and consumption, estimating their costs to society as externalities and specifying a set of most suitable penalties for violation and economic inducements for the adoption of clean energy alternatives.

*"Everybody thought somebody will do it and the somebody thought that anybody can do it (why me?) and finally nobody did it".* This is what happening in our country. Our politicians go on introducing policy after policies to woo the voters but in reality, there is none to implement any of those policies, which were safely dumped in the dusty storerooms and corridors of the government offices.

Therefore, much work needs to be done to enforce existing laws. The successful enforcement of these laws and implementation of such policies are difficult mainly because of the lack of cooperation between the politicians (policy-makers) and the bureaucracy (the implementers). Strong resolve on the part of the Union Government and State Governments would be required to change the behavior of these officials by severe punishment but such resolve may not be forthcoming. A likely prospect is that energy and environmental laws will not be strictly enforced for some time to come!

To conclude, our country urgently needs *transition from a high carbon nation to a carbon-frugal nation*. To achieve this, our policy makers must try to protect the environment by reducing energy intensity in production and increasing the use of clean energy (renewable energy sources to a large extent) through the provision of economic incentives for energy saving, energy efficiency, energy conservation and the reduction of the relative price of clean energy. Designing a set of suitable incentives and appropriate action plans to achieve this Himalayan task in practice is indeed a challenging problem before the nation.

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*About the author:*

*Mr. M.R. Menon is a Manager – Business and Media of energy<sup>n</sup> manager (A quarterly energy/ environmental magazine from Energy Press).*

*He may be reached at: [moothedathramanathan@gmail.com](mailto:moothedathramanathan@gmail.com)*

## 3Rs: reduce, reuse & recycle

**Jayalakshmi Venugopal** BANGALORE

Students chalked out entrepreneurial plans to market green business ideas at Rang De Basanti, a one-day fest on energy conservation on the occasion of International Day of Climate Action.

Hosted by the Indian Association of Energy Management Professionals (IAEMP), this fest was meant to create awareness among youngsters on environment-friendliness and methods of energy management. IAEMP comprises a group of energy experts and professionals who are working in the area of energy efficiency and renewable energy. This eco-fest also talked about the Home Energy Management Programme (HEMP), a project by IAEMP, which attempts to reduce electricity



A Veeramani

**PLANET OF TRASH: A climate fight group recreated the earth, the sun and the moon with junk on Saturday**

consumption of consumers.

“We plan to train at least a hundred interested people to read the electricity bill and understand how much energy is consumed in households, what are ghost consumers (appliances like

TVs and thermostats which consume electricity when not switched off properly) and know more about renewable energy options (solar-powered appliances) and effective ways to reduce electricity bills,” said BR Sathyakeerthi, member, IAEMP.

These trained individuals are expected to help further the cause of energy conservation by educating other consumers. The eco-fest was held at Surana College. Students from the college put up stalls to sell saplings and eco-friendly gifts like recycled paper folders and envelopes. The winning entries for the Green Business Ideas competition were eco-friendly, flavoured cigarettes by Karthik and eco-bicycles by Nithin Shenoy. Participants also made posters on eco-friendly themes like Reduce, Reuse and Recycle; and Think Global, Act Local.

## **Best Way to Save our Planet – Implement Eco-Friendly Laws and Policies**

**By :Sunil Sood,Former President,IAEMP**

In the recent past there has been lot of talk about likely dangers due to 'Global Warming' and how it is going to adversely affect our day to day life. Everyday newer phrases are coined to attract the attention of the people. Reducing 'Carbon foot-print' and becoming 'Carbon-neutral' are some of the favorite ones. Despite so many (much) hue and cries, there is hardly any activity visible on the ground. A few corporate houses doing something as 'social responsibility' may not make any dent. People have to understand that the single largest reason for the climate change is the inefficient use of energy and resources. We need to realize that at the end of the day, we are all governed by the laws of the nature. Besides, there are other man made laws which must be followed for a sustainable life style.

### **The 'Eco-not for me' Growth!**

The word 'Economy' itself contains the word 'Eco', but in our pursuit for higher and higher superficial growth, we went on neglecting the ecology and environment. Finally, the 'Economic Growth' has come to mean "Eco-not for me". Growth. We have not only refused to obey the laws of the nature but do not even bother to understand several eco-friendly laws and policies passed by our law makers after lot of deliberations. The business and industry lobbies mistakenly resist their implementation thinking it will hamper the growth rate. The lazy and indifferent bureaucracy only helps them by going slow on the actions needed.

These laws and policies relate to conservation and efficient use of energy, prevention of water and air pollution, conservation of forests, wildlife protection, bio diversity and so on. Proper implementation of such laws and policies will only help the growth not retard it while simultaneously ensuring that the fruits of development reach the under-privileged without adversely affecting the environment. Let us take a look on the eco-friendly laws and policies already in place but wanting for their proper implementation.

### **Acts and Policies under the Ministry of Environment & Forests**

- The Water (Prevention and Control of Pollution) Cess Act, 1977, amended 1992
- The Water (Prevention and Control of Pollution) Act, 1974, amended 1988



- The Air (Prevention and Control of Pollution) Act 1981, amended 1987
- The Environment (Protection) Act, 1986, amended 1991.
- Eco-marks Scheme
- The Public Liability Insurance Act, 1991, amended 1992
- The National Environment Appellate Authority Act, 1997
- The National Environment Tribunal Act, 1995
- The Prevention of Cruelty to Animals Act, 1960
- The Indian Wildlife (Protection) Act, 1972, amended 1993
- The Wild Life (Protection) Amendment Act, 2002
- Forest (Conservation) Act, 1980, amended 1988
- The Indian Forest Act, 1927
- State/Union Territory Minor Forest Produce (Ownership of Forest Dependent Community) Act, 2005
- Biological Diversity Act, 2002
- National Environment Policy - 2006
- National Forest Policy - 1988
- National Zoo Policy
- National Conservation Strategy and Policy Statement on Environment and Development - 1992
- Policy Statement for Abatement Of Pollution-1992
- Wildlife Conservation Strategy 2002

#### **Acts and Policies under the Ministry of Power**

- The Energy Conservation Act,2001
- The Electricity Act,2003
- National Electricity Policy,2005
- Rural Electrification Policy,2006
- Tariff Policy,2006
- National Electricity Plan ???

#### **Policies under the Ministry of New & Renewable Energy**

- The Renewable Energy Policy Statement, 2005
- The Renewable Energy Plan-2012
- Policy Support For Grid Interactive Renewable Power

#### **Other Important Policies**

- Integrated Energy Policy,2006 prepared by the Planning Commission
- Science & Technology Policy prepared by the Ministry of Science & Technology.

And above all- (Pl. refer its status on pages-20-23 of this issue)

**National Action Plan on Climate Change as prepared by the PMO.**

Let us take an example of one law which can make a huge difference in terms on not only business profitability but also reduction in the Global warming. The law is called “The Energy Conservation Act,2001.

### **The Salient Features of ‘The Energy Conservation Act, 2001’**

It is an ‘Act to provide for efficient use of energy and its conservation and for matters connected therewith or incidental thereto’. The Act includes mandatory provisions such as periodic energy audits, codes for design of energy efficient buildings, efficiency labeling of equipment and appliances, energy consumption norms for equipment and processes, appointment of energy managers, preferential treatment to energy efficient equipment and appliances. It also provides for prohibiting manufacture or sale or import of energy inefficient equipment and appliances. There is also a provision for appointment of Inspectors with powers to inspect any premises where energy is being used inefficiently. It also provides for imposition of penalty for any non-compliance. However, these provisions are not effective since the relevant notifications are not in place.

### **‘Inconvenient Truths’ about Indian energy sector**

Believe it or not but it is a fact that 25 % of world’s population without access to electricity lives in India. As per the Census, 2001 figures, 44% of households in our country did not have electricity connection. Majority of households still depend on the firewood and kerosene for cooking and lighting their dwellings. This is despite the fact that we spend about 30 % of budget allocation to meet our energy requirements. Our net Oil import bill has crossed Rs.2,50,000/- crores mark. We even import coal and electricity! Soon import of nuclear fuel will start. At the same time we continue with our policies to provide subsidy on petroleum products and electricity to the tune of more than Rs.2,00,000 crores! Most of the subsidy is cornered by the undeserving population.

An estimated capital investment of more Rs. 50,00,000 crores in the 10th and 11th five year plans is earmarked for energy sector while our social sector continues to live on lip sympathy. It might also be hard to digest but the facts remain that every 7th Child in our country sleeps hungry and that the majority of our population has no access to drinking water and sanitation. Our farmers are committing suicide everyday.

### **Generating wealth from nothing?**

The EC Act, 2001 is a law which could help generates wealth from nothing. Wealth generation by way of conservation and efficient



utilization of energy and resources is something which is entirely in our control and easily implementable

There is no dispute that there exists a huge energy saving potential to the extent of 20 to 40% depending on the sector. This saving can be realized if the EC Act, is implemented in right manner. An estimated amount of more than Rs.1, 50,000 crores could have been saved every year by following the law in letter and in spirit. Similarly other 'Eco-friendly' laws and policies have tremendous scope for generating wealth from 'nothing'. Of-course, the wealth is not generated from 'nothing' but by avoiding wastages, pilferages and by using the energy and resources efficiently.

### **How it will help the business will grow?**

The energy savings will help increase profitability for the business while simultaneously making available the saved energy to the large population living in rural areas. Presently without access to electricity if these homes are assured of power supply there will be tremendous growth for all electric and electronic goods. This will have cascade effect as all other sectors in the supply chain will see growth. Steel, Cement, Copper and Aluminium sectors will grow as there will be need for laying of transmission and distribution network, increased production of transformers, cables, etc. One can imagine the growth of service sector.

This is an example of only one law i.e. 'the Energy Conservation Act, 2001. Just imagine the potential of business growth from conservation sector if all the well meaning, eco-friendly laws and policies are implemented sincerely. The Industry and business would do well by taking pro-active part in ensuring their implementation for the long term benefits.

### **The best way to save our planet- work to ensure the implementation of the existing laws & Policies**

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. I feel that if we focus on ensuring the implementation of all existing eco-friendly laws and policies in letter and in spirit we would be doing a great service to our Planet. It should be our duty to start it from home and implement all measures in our own homes and ensure that the bureaucracy does its job of implementing those laws. How to do that? Simple- Use your right under the RTI Act. Get the information and be after them- without any bias- without any fear!



## **BENEFITS AND IMPACT OF 0.9% ENERGY SAVINGS IN 2008/09**

*By Prakash P Dhamangaonkar*

### **Introduction**

Over the last 7-8 years, the issue of Energy Efficiency, Conservation and Energy Management is being discussed on different platforms.

Non-availability of energy/energy prices were the main issues hampering the Industrial GDP growth & competitiveness in Global Market.

During the same period, issues of climate change, global warming, and GHG emissions started showing its adverse/destructive effects on the whole mankind. It was confirmed by the scientists that emissions due to fossil fuels for energy are mainly responsible for this effect.

This scenario locked us as growth without energy is not possible but existing/proposed energy sources increase the GHG emissions.

The impact of climate changes affecting the human life was draining the money for rehabilitation without leaving any scope for improvement and up-gradation of mankind.

It was realized that the end-user is mainly responsible for this problem as it is he who is using energy inefficiently. Realizing this, the end-users started implementing EE/EM/EC programmes seriously. However, the achievements of these programmes were never quantified.

### **\*\*\*BEE Report**

A recently released report by BEE about energy savings in India in 2008-09 (verified by the National Productivity Council), first time quantified the energy savings achieved during 2008-09. The savings are mainly achieved by the Industries standards and labeling programme, and the building efficiency programme.

### ***Few Mind Boggling!***

- 1. The significant problems we face today cannot be solved at the same level we were at when we created them.*
- 2. Scientists have done their job by finding out the reasons of Global Warming, now*

### **Findings of the BEE report:**

Total energy consumption during 2008-09 was 570 million ton of oil equivalent (MTOE).

- Fuel saving: 3.21 MTOE\*\*
- Electricity: 1.77 MTOE (6.3 billion kwh equivalent to 1505 MW generation cap.)
- Total : 4.98 MTOE.

=0.9% of total actual consumption.

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*P Dhamangaonkar is a Certified Energy Auditor and General Manager - Special Projects with Excel Industries Limited.*

*His work has been acknowledged by BEE, MEDA, and ICC by awarding for best Energy Management Systems during the years 2004 - 2008. Phone: +91 2194 263977, Cell : 09423093606; Email: ppd@excelind.com*

*engineers have to do their job for avoiding Global Warming.*

- 3. We are not passengers on earth spaceship, but we are the crew members.*
- 4. About 15,000 MW additional capacity equivalent creation is possible in a span of 3-4 years with an incremental investment and minimization of CO<sub>2</sub> emission only by changing habits and ways of working by improving 10% efficiency...*
- 5. To get different results..... Change: - We must do things differently.*
- 6. Instead of concentrating on growth, nations have to concentrate on rehabilitation.*

\*\*MTOE=Million MT Oil Equivalent

More details on the next page.

\*\*\* BEE- Bureau of Energy EfficiencyPrakash

#### **Editorial Note:**

While appreciating the author's attempt to quantify the impact of savings achieved in terms of money or reduction in CO<sub>2</sub> emissions based on the report prepared by BEE and verified by NPC, we wish to bring out to the following facts to the notice of all:

1. BEE has arrived at the calculation of energy savings based on the data furnished by the industrial units/ manufacturers. It does not take any responsibility on the correctness of the claims.
2. The verification report by BEE does not specify the procedure adopted by them to check/verify the claims.

## **BENEFITS OF THE 0.9 % ENERGY EFFICIENCY IMPROVEMENT**

<b>1. FUEL</b>			
Particulars	Qty	Rate	Total
<b>Savings</b>	<b>3.21 MTOE</b>		
Savings in Fuel cost	3.21 MTOE	Rs. 2000 MT	Rs. 6420 Crores/Annum
Reduction in CO <sub>2</sub> emissions	3.21 MTOE	3.11 MT CO <sub>2</sub>	9.98 MMTCO <sub>2</sub> /Annum
<b>2) ELECTRICITY</b>			
<b>Savings</b>	<b>6.33 Billion KWH</b>		
	<b>1505 KW equivalent avoided generation cap.</b>		
Capital exp. for addl. Gen. cap.	1505 MW	Rs.5.5 Crore/MW	Rs. 8277 Crores
Reduction in CO <sub>2</sub> emission	1505 MW	7100 MT CO <sub>2</sub>	10.68 MMT of CO <sub>2</sub> /Annum
Reduction in CO <sub>2</sub> savings due to savings in power	6.33 Billion KWH/Ann	0.986 Kg CO <sub>2</sub>	6.24 Million MT/CO <sub>2</sub>
By selling of power wasted in transmission losses (30%)	1.99 Billion KWH/Ann	Rs. 5.5/KWH	Rs. 1095 Crores
Amount saved by consumers	6.33 Billion KWH	Rs. 5.5/KWH	Rs. 3481 Crores
Add. revenue to utility company	6.33 Billion KWH	Rs. 2 / KWH	Rs. 1266 Crores
<b>Total Saving</b>			<b>Rs. 14.120 Crores</b>
<b>Reduction in CO<sub>2</sub> emission.</b>			<b>Rs. 16.92 Million MT of CO<sub>2</sub></b>
<b>Total Savings Fuel + Elect.</b>			<b>Rs. 20,540 Crores</b> <b>26.9 Million MT of CO<sub>2</sub>/ Ann.</b>

**Total Impact-** 0.9% savings in energy and Rs. 20540 Crores in money. Reduction in carbon emissions by 27 million MT/annum in a period of 1 year with very little investment in the year.

**What next?**  
If the EE/EC/EM Programmes are taken seriously and implementation is accelerated with a target of achieving further 9.1% saving in next 3-4 years we will save Rs. 1,86,900 Crores / and lower down CO<sub>2</sub> emissions by 250 Million MT.

More importantly, these savings are not one time savings but continuous/recurring in nature.

What is most important is no other solution to energy shortage/climate change can be available with such a speed at minimum or incremental investment.

This once again proves that EE/EC/EM is the only effective and reliable solution to overcome present problems of energy scarcity, energy price, energy security, climate change, global warming and sustainable growth.

This money saved from this can be invested in developing Green Power from Atomic, Renewable Resources.

This is not a very difficult task as 15 – 20 years back energy losses were at a level of 20-22% only.

This will definitely take us one foot forward to fulfill our Carbon Footprint Programme. If we can achieve 0.9%, why not 10% is the question we have to ask ourselves and start working.

# Status of National Action Plan on Climate Change

Right to Information

PRIME MINISTER'S OFFICE

South Block  
New Delhi – 110 101

No. RTI/1003/2009-PMR

Dated: 01 July 2009

To:

Shri Sunil Kumar Sood  
E-73, Ashok Vihar  
P.O. - Doranda  
Ranchi – 834 002  
Jharkhand

Subject: Application under right to information – information related to the National Action Plan on Climate Change

Sir,

I am to refer to your application dated 5.6.2009 on the above noted subject and to state that the information furnished by the office in response to your requests is enclosed (four pages).

2. For the purpose of section 19 of the Right to Information Act, 2005, Smt. Vini Mahajan, Joint Secretary is the appellate authority in respect of this office.

Yours faithfully,



(Amit Agarwal)  
Director and  
Central Public Information Officer  
☎ : 2301 2613


Encl: Four pages, as above



**RTI Matter**  
**RTI/1003/2009-PMR**

**Subject: Application under the right to information – information sought by Shri Sunil Kumar Sood relating to 8 National Missions on Climate Change**

Information sought under RTI	Inputs
(i) Please furnish the progress made in each of the 8 National Missions on Climate Change	<p>The Mission Documents relating to the following Missions have been circulated among the Members of the Prime Minister's Council on Climate Change and will be considered by the Council at its next meeting:</p> <ul style="list-style-type: none"><li>(i) National Solar Mission</li><li>(ii) National Mission on Sustainable Habitat</li><li>(iii) National Mission on Enhanced Energy Efficiency</li><li>(iv) National Water Mission</li><li>(v) National Mission on Sustainable Agriculture</li></ul> <p>As far as the National Mission on Green India is concerned, the matter has been discussed with the States and follow up action is being taken by the Ministry of Environment and Forests, while keeping in view of relevant Supreme Court orders,</p> <p>The Mission Documents are being finalized in respect of the other two Missions:</p> <ul style="list-style-type: none"><li>(i) National Mission for Sustaining the Himalayan Ecosystem</li><li>(ii) National Mission on Strategic Knowledge.</li></ul>
(ii) Please provide names and addresses of the Prime Minister's Council on Climate Change.	List is attached.
(iii) Please let me know the funds and resources allocated for the 8 Missions separately.	Allocation of funds will be considered once the Prime Minister's Council on Climate Change is considers the Mission Documents.

  
(UTTAM CHAND)  
Section Officer  
22 0 00

**List of Members of the Prime Minister's Council on Climate Change**

1. Finance Minister, Govt of India, North Block, New Delhi
2. External Affairs Minister, Govt of India, South Block, New Delhi
3. Minister of Agriculture, Govt of India, Krishi Bhawan, New Delhi
4. Minister of Water Resources, Govt of India, Shram Shakti Bhawan, New Delhi
5. Minister of Science and Technology, New Mehrauli Road, New Delhi
6. Minister of New and Renewable Energy, Govt of India, CGO Complex, Lodhi Road, New Delhi
7. Minister of Environment and Forests, Govt of India, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi
8. Minister of Power, Govt of India, Shram Shakti Bhawan, New Delhi
9. Deputy Chairman, Planning Commission, Govt of India, Yojana Bhawan, New Delhi
10. Chairman, Economic Advisory Council, Vigyan Bhawan Annexe, New Delhi
11. Cabinet Secretary, Cabinet Secretariate, Rashtrapati Bhawan, New Delhi
12. Chairman, National Manufacturing Competitiveness Council (Shri V. Krishnamurthy), Room No.-227, Vigyan Bhawan Annexe, Maulana Azad Road, New Delhi
13. Principal Scientific Adviser to Government (Dr. R. Chidambaram), Vigyan Bhawan Annexe, New Delhi
14. Foreign Secretary, Ministry of External Affairs, South Block, New Delhi
15. Secretary, M/o Environment and Forests, Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi
16. Shri Ratan Tata, Chairman, Investment Commission, Bombay House, 24, Homi Mody Street Fort, Mumbai-40001
17. Dr. R.K. Pachauri, Director General, The Energy and Resources Institute, Darbari Seth Block, IHC Complex, Lodi Road, New Delhi-110003
18. Shri Nitin Desai, B-63, Defence Colony, First Floor, New Delhi 110024



19. Shri Chandrashekhar Dasgupta, Distinguished Fellow, The Energy and Resources Institute, Darbari Seth Block, IHC Complex, Lodi Road, New Delhi-110003
20. Dr. Prodipto Ghosh, C-1/53, Bapa Nagar, New Delhi
21. Ms. Sunita Narain, Director, Centre for Science and Environment, 41, Tughlakabad Instl. Area, New Delhi-110062
22. Dr. Jyoti Parikh, Executive Director, Integrated Research and Action for Development (IRADe), C-50, Asiad Village Complex Chhota Singh Block, New Delhi 110049
23. Shri Ajay Mathur, Director General, Bureau of Energy Efficiency, 4<sup>th</sup> Floor, Sewa Bhawan, R.K. Puram, New Delhi-110066
24. Shri Raj Chengappa, Executive Editor, India Today, F-14/15, Connaught Place, New Delhi
25. Dr. R. Ramachandran, Special Correspondent, The Frontline, 3<sup>rd</sup> Floor, PTI Building, New Delhi
26. National Security Adviser, Prime Minister's Office, South Block, New Delhi.
27. Principal Secretary to PM, Prime Minister's Office, South Block, New Delhi
28. Shri Shyam Saran, Special Envoy of PM, Prime Minister's Office, South Block, New Delhi

# Green Quiz

*Most of our readers are technical or other professionals. For your interest, the Editor has compiled the following quiz.. Answers on the next page.*

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**1. What is a “Zombie Server” in IT?**

- A. It is a server that causes frequent troubles in usage.
- B. It is just a fancy technical name given to old computers.
- C. It is a huge main frame computer that you see in some movies.
- D. A server that keeps running though it has little or no work to do.

**2. Which country is number one in carbon emissions?**

- A. U.S.A
- B. India
- C. China
- D. Brazil

**3. What items are covered in your individual carbon footprint?**

- A. The size of shoes you wear.
- B. Your personal consumption of electricity.
- C. The amount of petrol you put in your vehicle.
- D. All the goods and services that make up your lifestyle.

**4. Lithium-ion batteries are commonly used in laptops and cell phones. Which country provides the most of lithium?**

- A. India
- B. Chile
- C. China
- D. Australia

**5. Which of the following is the fastest growing source of energy consumption in data centers?**

- A. Networking devices
- B. Storage devices
- C. High-end servers
- D. Midrange servers

## Answers to Green Quiz

### 1. D

Data centers have many servers. Some of them have nothing much to do but still use a lot of electricity. Such servers are good candidates for elimination. A study of four unidentified data centers by McKinsey & Co. found that 146 out of 458 servers were running at less than 3 per cent of their capacity.

### 2. C

The US is no longer number one emitter of carbon dioxide, having been overtaken by China. Official figures indicate that the Total Carbon Dioxide Emissions from the Consumption of Energy (Million Metric Tons, in 2007) for the two countries are: China: 6383.56 and U.S.A.: 6006.71 (*Source: U.S. Energy Information Administration*)

### 3. D

As an individual your carbon footprint covers emissions from all the goods and services that make up your lifestyle. This includes for example: how you travel and how often, what you buy, what you eat, and how much of water, electricity, gas and fuel you use. People with frugal lifestyles generally contribute less carbon footprints.

### 4. B

The world's largest lithium miner is Sociedad Quimica y Minera de is located in Chile with mines in Chile and Argentina. Bolivia is considered to be a good prospect for future.

### 5. B

According to the U.S. Environmental Protection Agency (EPA), the consumption of electricity by storage devices almost doubled between 2000 and 2006. They rose from consuming the least power in the four categories to the most, at 32.3 % of energy usage.

### **Small Ideas May Have Big Potential**

A nut called 'Don Quixote' is remembered by millions of people even today. Using his name, there is even a word coined 'Quixotic'. Single handedly, Don Quixote fought a windmill. Now you need a big lobby to fight against the installations of windmills, saying that they produce much noise, they kill the birds, or invent other reasons.

In the year 1666, Sir Isaac Newton discovered universal gravitation while watching an apple fall from a tree in his garden. He was in the right place (under an apple tree) at the right time (when the apple was falling) and he had very keen observation.

What if something happened differently? Let's suppose he was in Kerala (India) standing under a coconut tree and a coconut had fallen on his head? Perhaps, the world may not have known the theory of his three 'LAWS OF MOTION' until now.

What if Archimedes had his bath using a shower instead of a tub filled with water, the world may not have known about 'the law of equilibrium of fluids.'

So, scientists were not born but were made through circumstances. No scientist can write a theory beforehand and make a new invention in accordance with his theory. Because every invention that happened was through sheer accident.

In science nothing is small. Take for example, four hardware items, the nuts, the bolts, the screws and the washers. Without these ordinary things no scientist in NASA or anywhere can send a rocket to the moon. Similarly, even a small idea or a view shared with others by an ordinary man like me should not be ridiculed but should be considered in its right perspective.

- *Contributed by M.R. Menon*

## **IAEMP NEWS ON HEMP TRAINING**

IAEMP's Madhya Pradesh Chapter conducted a 2-days Trainers' Training on **"Home Energy Management Program (HEMP)"** at the Hotel Arch Manor in Bhopal (October 26-27, 2009). The event was a great success in as much as it achieved the purpose of training its member professionals & other participants from various parts of India. A press conference was held on October 24 (The International Day of Climate Action) and there was a good coverage in leading Hindi and English news papers.

On the first day of event October 26, 2009, there was presence of around 20 persons including officials from SDA - MPUVN Mr. B. K. Patel – Chief Engineer, Mr. S. Bajpayee – Executive Engineer and citizens of Bhopal.

8 persons from Yahoo group & other invitees have taken HEMP training. They included Mr. R. Vaidyanathan from Alwar (Rajasthan), Mr. Jyotirmaya Khara from Orissa, Mr. Biswjit Das & Mr. Vinay Jaju from Kolkata (W, Bengal), Mr. Suhas Patwardhan from Pune ( Maharashtra ), Mr. S. K. Mali, Mr. G. E. H. Kumar Shrivastava, Mr. Shubham Dubey & myself (K. D. Bairagi) from Bhopal. The Association's Bhopal chapter has issued certificates to the trainers.

All the trainers are authorized to conduct Home Energy Management Awareness and Implementation programs of our association including 'Electricity Saving Incentive Scheme' for all domestic and commercial consumers of electricity subject to guidelines and other terms and conditions provided by IAEMP.

The training on HEMP, ESIS, ECBC, ECHVAC, EA/EM & other EERE subjects like Hydel/Wind/SPV/ Biomass etc. will be as regular activities of the association at Bhopal now onwards. The schedule of program and fees will be announced time to time.

The implementation of various programs and execution of work orders will be under a separately proposed business entity founded at Bhopal as a profit organisation.

More reports will follow.

K. D. Bairagi  
9907270259

**AN INVITATION TO JOIN-**  
**Home Energy Management Programme (HEMP)**

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*10- in-1 benefits programme promoted by IAEMP*  
*On how to lead a 'Lean','Clean' & 'Green' life without sacrificing comfort and safety and simultaneously helping create wealth out of nothing!*

**Right from comfort of your Home!**

To

Save energy

Save money

Save environment

Minimise wastages

Increase 'Green Jobs'

Help Business Growth

Reduce Carbon Foot print

Help growth of 'Green Economy'

Generate Revenue and regular funds

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

---

**HEMP IS ABOUT - CREATING WEALTH FROM NOTHING WHILE PROTECTING OUR PLANET**

Pl.Contact : [sunilsolar@yahoo.co.in](mailto:sunilsolar@yahoo.co.in) Mobile 09386778963

# UPCOMING EVENTS

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**POWER India 2009**

Mumbai

November 25-27, 2009

Visit [www.indiapowershow.com](http://www.indiapowershow.com)

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**Balance of systems and Balance of plants Conference and Expo**

San Diego USA

December 3-4, 2009

[www.newsolartoday.com/bosbop](http://www.newsolartoday.com/bosbop)

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**EUEC 2010: 13th annual energy and environmental conference and expo.**

Phoenix, AZ, USA

February 1-3, 2010

[www.euec.com](http://www.euec.com)

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**Renewable Energy World Conference & Expo North America 2009**

Austin Convention Center, Austin, TX, USA

February 23-25, 2010

Contact

Amanda Kevan

International

P: +44 (0) 1992 656 645

F: +44 (0) 1992 656 700

[amandak@pennwell.com](mailto:amandak@pennwell.com)

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## Share your experience

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](mailto: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](mailto: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. Editor does not accept responsibility for the views expressed in the articles published.*