CEEC 2000 epn INDIA

Energy Productivity News

A Forum for the Views of Council of Energy Efficiency Companies

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EARTH DAY SPECIAL

CEEC

In This Issue

From the Editor's Desk

Dear Readers,

The addiction of human beings to polluting, outdated fossil fuels causes global warming, which, in turn, leads to rising sea levels, severe climatic events (such as hurricanes, droughts and floods), increasing occurrences of asthma and other respiratory diseases, changed animal and bird migration patterns, spread of tropical diseases, and disappearance of sea ice and glaciers. The extraction and burning of fossil fuels also produces strip mines, air and water pollution, deforestation, habitat loss, and acid rain, in addition to affecting issues of national security and global equity. These are high prices to pay for energy sources that only benefit a minority of the world's population.

The year 1970 saw the birth of a revolution that was soon to become a global phenomenon, a phenomenon that changed existing mind-sets and established new norms. Earth Day, celebrated on the 22nd day of April each year since, has seen the maturity of the Environmental Movement into an Industry, the Energy Efficiency Industry.

The growth of energy efficient technologies over the last few years has been spectacular. Numerous innovations have been converted to products, in an attempt to bring the benefits of these concepts to the masses. At the same time formation of organisations such as CEEC (Council of Energy Efficiency Companies), government support to energy conservation by creation of 'Energy Regulatory Authority', concepts such as ESCO (Energy Services Companies) and programs such as the ECO (Energy Conservation and Commercialisation) Project of USAID are a major step forward in the direction of making energy efficiency a more common phenomenon in Indian households.

And yet, in developing countries such as India, as much as 50% of the energy consumed is wasted. The environmental and economic repercussions of this energy wastage are colossal. Energy Productivity News attempts to provide India's Energy Efficiency Industry with a forum to bring these issues to the fore. Achievements in Energy Efficiency, by organisations as well as individuals, are highlighted in the newsletter in order to encourage the wide spread use of energy efficient practices. Information about the latest technologies, products and services available in this field is also provided.

This issue of the newsletter is dedicated to the Earth Day movement, with an objective of making this concept more widespread in India. Greater industry participation will result in higher awareness, which is a primary concern of this newsletter.

The editorial board wishes to thank the readers for their enthusiastic responses and appreciation for the inaugural issue of Energy Productivity News.

We try to provide you with meaningful information that you can use and hope that together, we can & we will make a difference.

The Editorial Board :
Rahul Walawalkar
Maneesh Mittal
Kevin James
Joe Loper

Members' Views

The subsequent issues of Energy Productivity News will carry a section "Members' Views", which will list opinions and views of CEEC members on contemporary issues and policies related to energy efficiency.
Readers are invited to send their contributions & comments about the newsletter to the editorial team by email at rahul.walawalkar@tatainfotech.com, by telephone at +91-22-8291261, by fax at +91-22-8290214, or by mail at Rahul Walawalkar, Tata Infotech Ltd., SEEPZ, Andheri (East.), Mumbai - 400096, India

In Remembrance

The Indian Energy Movement looses a friend with the demise of Ranga

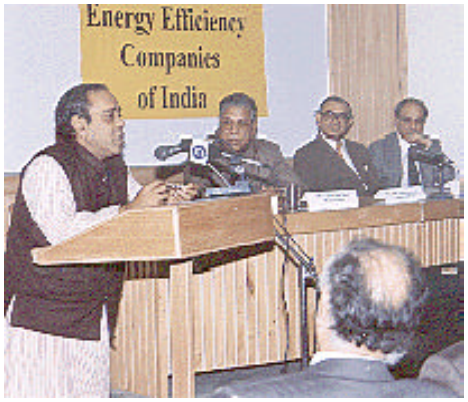
The Indian Power Minister, P. Rangarajan Kumaramangalam, passed away at the age of 48 in Delhi on 23rd August 2000 after being diagnosed for leukemia.

Kumaramangalam, or "Ranga" to his wide circle of friends, was an cheerful personality and a spirited presence in Delhi's political life till virtually the end of his life. As an individual who had traversed the ideological spectrum in over 15 years as an active politician, he had left his imprint in numerous places and developed strong and enduring personal associations that transcended ideological commitments. The media remembers him as the most articulate and accessible of politicians, transparent in providing information and straightforward in explaining himself.

In his last assignment as Union Minister of Power, he gave a new thrust and direction to the country's power sector and helped launch a national movement on power sector reforms, in a brief span of two years. His pursuit of radical reforms was targeted at the improvement of the ailing power sector and at the installation of additional capacity to relieve India's chronic power shortages.

During this period, the dedication and farsightedness of Ranga enabled wide-ranging legislative changes to facilitate private sector participation in the power sector.

An avid supporter of the energy movement in India, he had officially launched the Council of Energy Efficiency Companies (CEEC) on 16th December 1998. He was in close touch with the council, holding interactions with members for various policy related matters.



(From left to right): P.R. Kumaramangalam, Yog Dhyan Ahuja, Mayor of Delhi; V.K. Pandit, Secretary, Ministry of Power; Anil Razdan, Joint Secretary, Ministry of Power

Born on May 12, 1952, he was one of the founding members of the National Students Union of India (NSUI). By 1973, he had also been elected a member of the All India Congress Committee.

He plunged into active politics in 1975 when he became a prominent youth Congress activist. In 1977, armed with a degree from Delhi University, he shifted base to Chennai to begin a practice in labour law. He also acquired a reputation as a labour union leader of substance and commitment.

In 1980, when the Congress recovered from the temporary eclipse in its fortunes, Ranga began gravitating once again towards an active political role. He was given the Congress ticket from Salem for the 1984 Lok Sabha polls and won by a mammoth margin. He was subsequently to win this seat in 1989 and 1991. He became a minister at the age of 34, later switching from left-wing leanings to join the right-wing BJP.

A strong proponent of economic liberalisation and free-market reforms, Ranga was the quintessential modern politician. He was seen as an industry-friendly minister who had a good rapport with various industry chambers.

He had a fascination for science and technology that manifested itself in two ways. He had "computer-mapped'' his entire constituency; each voter, his/her voting history and preferences were listed. He was also fascinated with space-launch vehicles, satellites and space technology. As minister for Science & Technology, he made great efforts to persuade the government to hire out-of-work Russian scientists en masse in 1992.

"He was an exceptional leader, a good orator, an able parliamentarian and a multifaceted personality from a very young age. It is tragic that he was taken away before he reached his destination."
Prime Minister Atal Bihari Vajpayee

"He was an eminent parliamentarian, outstanding administrator and a crusader of the common man's cause."
Vice President Krishan Kant

Members in News

Tata Infotech's Eco Lumen team among the awards

Within a year since it's launch on Earth Day 2000, Eco Lumen, the energy efficient lighting design software by Tata Infotech Limited has received great acclaim from various organisations. Recently, the Eco Lumen team won the IBM-CSI Young IT Professional 2000 award for the western region and followed it up with runners up award at the national event. The product was adjudged on various criteria including innovation, quality, and customer satisfaction.

Readers will remember that Eco Lumen was developed as a decision support software for professional building designers.

It facilitates the complex process of designing aesthetic, and yet energy efficient lighting layouts. Not only does the software assist the professional users in the energy efficient design of new facilities, it is also useful for the end users of the facilities for optimising the energy consumption of their existing lighting layouts.

Tata Infotech has made a freeware version of the software available on its website (www.tatainfotech.com) in interest of the general public. Eco Lumen has earlier received a 4 star rating from ZDNet, USA.

It is the only Asian software to be selected for the forthcoming International Light Fair to be held at Las Vegas, USA in May 2001.

Eco Lumen has also been featured in the 'Bulletin of Energy Efficiency' (the IREDA newsletter) and the CADDET (Centres for the Analysis and Dissemination of Demonstrated Energy Technologies) newsletter.

Tata Infotech plans to launch an enhanced commercial version of Eco Lumen by August 2001. The company plans to launch many other software products and services for energy management & is already recognised as India's only IT Company with a leadership in the Energy Efficiency industry.

TATA INFOTECH

USAID approves Thermax EPS project for reducing green house gas emission

Thermax Energy Performance Services (TEPS) is developing the Energy Conservation Project for ITC.

This was one of the four projects, worldwide, approved by the USAID (U.S. Agency for International Development) supported International Climate Change Project Fund (ICCPF).

These projects are all the more prominent since they enjoy an impressive range of energy generation and efficiency technologies while reducing the effects of climate change.

The objective of the ICCPF is to promote, encourage and facilitate energy efficient environmentally sound international projects.

The lead objective of the Energy Conservation Project is to complete the development of a financing framework and implement identified energy efficiency and supply projects at the ITC Tribeni Tissues Plant at Kolkata. Over the 10-year lifetime of this greenhouse gas initiative project, 312170 metric tons of carbon dioxide will be avoided. The U.S. partner for the project is Energy Performance Services Asia, Inc.

The ICCPF established in 1999 by the International Utility Efficiency Partnership, Inc. (IUEP) and the United States Energy Association (USEA), is funded by USAID through a cooperative agreement.

The goal of ICCPF is to provide funding support to U.S. investor owned utilities that are seeking to assess and implement specific projects, which avoid, reduce, and mitigate the climate change impacts of greenhouse gas emissions in USAID-assisted countries in Asia, Africa and Latin America. USAID assists the U.S. energy industry to transfer its experience in market-based energy production, transmission, distribution and regulation to developing countries.

THERMAX EPS
A JOINT VENTURE

Showcase

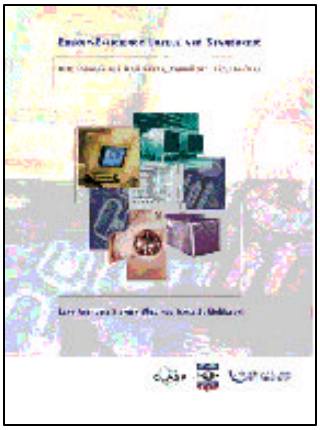
CLASP Unveils Free Guidebook For Energy Policy makers Worldwide

At a time when energy issues are in the forefront, the Collaborative Labeling and Appliance Standards Program (CLASP) has debuted a free turn-key manual for energy policy makers worldwide. This manual can provide the foundation to make energy-efficiency standards and labeling, a routine course of business across the globe.

"Energy efficiency standards and labels for appliances, equipment, and lighting help governments meet their need for clean and reliable energy services while fostering economic prosperity," states Christine Egan, executive director of CLASP, which has produced the *S&L (Standards & Labeling) Guidebook*. Since 1995, countries as diverse as Mexico, India, Poland, Ghana and Saudi Arabia have incorporated energy labeling or appliance standards in their energy policy.

"The *S&L Guidebook* is an extraordinary tool to learn and understand the elements and process of standards development and implementation. It encapsulates the knowledge of the best experts and practitioners," said Odón de Buen R. general director Mexico's National Commission for Energy Conservation, a CLASP partner.

The S&L Guidebook introduces key steps in setting standards and gives a detailed description, of how to pursue the key elements involved in the process, in the most direct and effective manner. Copies of this book are being distributed worldwide at no charge for general public benefit. The S&L Guidebook can be downloaded from the web at www.clasponline.org.



With support from USAID, the UN Foundation, the Energy Foundation, the US Department of Energy, and the US Environmental Protection Agency, CLASP develops global technical and policy support tools, conducts regional workshops, and provides technical support to partner countries.

The goal of CLASP is to encourage each participating country to enhance the institutional capacity for implementing standards and labeling programs, increased production of energy-efficient products by manufacturers, improved average energy efficiency of appliances and equipment, significant reductions in electricity consumption, and lower energy-related emissions of greenhouse gases and other pollutants.

"Energy efficiency standards and labeling are the smartest first steps toward satisfying our energy appetite," said Stephen Wiel department head at Lawrence Berkeley National Laboratory, the primary author of the *S&L Guidebook*. "I expect that our children and grandchildren will experience the full benefits of our current undertakings perhaps 60 years from now, and that their lives will be better for our efforts. In the meantime, we can create the foundation for energy efficiency standards becoming a routine course of business worldwide."

CLASP was formed in 1999 by the Alliance to Save Energy, the International Institute for Energy, and Lawrence Berkley National Laboratory Conservation to facilitate the design, implementation and enforcement of energy efficiency standards and labels for appliances, equipment, and lighting products in developing and transitional countries throughout the world.

For Further Information contact :
Christine Egan (202) 530-2218

CEEC releases 2nd Edition of Indian Energy Efficiency Industry Directory

The Council has recently released the 2nd edition of the very popular bound version of the Indian Energy Efficiency Industry Directory.

The directory is intended to facilitate communication among Indian Energy Efficiency Companies. Additionally, Indian consumers interested in reducing their energy bills can sue the directory as buyer's guide for energy efficient equipment and services.

The 1st edition, launched by the late Mr. P. R. Kumaramangalam (then Minister of Power), received wide acclaim from energy consumers in the industrial, commercial and government sectors as well as suppliers of energy efficiency services who used the directory to make contacts and access suitable partners for projects. The 2nd editions is the result of a joint project between Conserve and Alliance to Save Energy.

Nearly 300 companies are currently listed in the Directory. To add your company to the Directory or to request changes to your company's information in the Directory, contact the Council via phone or the website.

The Council's web site, located at www.ase.org/ceeci, contains a searchable directory of companies offering energy-savings products and services in India.

Earth Day – a global phenomenon

From its relatively humble beginning, the concept of Earth Day has come a long way today, evolving into a modern Environmental Movement of global proportions. It has come to signify a common platform for addressing the environmental concerns of all strata of the society. Earth Day has enlisted massive support from all corners of the world with active participation of over 5000 environmental groups from 184 countries. Earth Day is simultaneously a concept – a new way of promoting environment friendly habits – and a brand – an entity with associated image and recognition.

Earth Day is celebrated on April 22nd every year with a different set of objectives each time, built around the fundamental aim of creating a cleaner environment. Various environment groups worldwide conduct rallies, seminars and other events on this day every year to achieve the objectives of Earth Day. The Earth Day Network tries to concentrate these events towards the vision of Earth Day. Earth Day Network's push for clean energy is vital, but so is the fact that it honors all member groups, irrespective of issues they focus on, and the size of their actions. Earth Day is partnering with global organizations in its clean energy campaign, in an effort to reach as many people as possible. But it is the grassroots groups that are and will always be the heart of Earth Day.

The history of Earth Day

Earth Day was founded in 1970 by Gaylord Nelson, a U.S. Senator from Wisconsin. He proposed a nation-wide environmental protest, "to shake up the political establishment and force this issue onto the national agenda". At the time, Industry belched out smoke and sludge with little fear of legal consequences or bad press. Air pollution was commonly accepted as the smell of prosperity. *Environment* was a word that appeared more often in spelling bees than on the evening news. "It was a gamble," he recalls, "but it worked".

On April 22, 20 million Americans took to the streets, parks, and auditoriums to demonstrate for a healthy, sustainable environment.

Denis Hayes, the national coordinator, and his youthful staff organized massive rallies. Thousands of institutes organized protests against the deterioration of the environment. Groups that had been fighting against oil spills, polluting factories and power plants, toxic dumps, pesticides, and the extinction of wildlife suddenly realized they shared common values.

The protest achieved a rare political alignment, enlisting support from both sides of politics, rich and poor, city slickers and farmers, tycoons and labor leaders. The 1st Earth Day, led to the creation of the US EPA and the passage of the Clean Air, Clean Water, and Endangered Species Acts. Senator Nelson was awarded the Presidential Medal of Freedom, the highest honor given to civilians in the United States, for his role as Earth Day founder.

As 1990 approached, environmental leaders asked Denis Hayes to organize another big campaign. This time, Earth Day went global, mobilizing 200 million people in 141 countries and lifting the status of environmental issues on to the world stage. Earth Day 1990 gave a huge boost to recycling efforts worldwide and helped pave the way for the 1992 UN Earth Summit.

As the millennium approached, Hayes agreed to spearhead another campaign. Earth Day 2000 combined the big-picture feistiness of the first Earth Day with the international grassroots activism of Earth Day 1990. Earth Day 2000 saw environmentalists from the most remote corners of the globe come together in an unprecedented call for sustainability and hope.

For 2000, Earth Day had the Internet to help link activists around the world. By the time April 22nd rolled around, 5000 environmental groups around the world had joined the network, reaching out to hundreds of millions of people in a record 184 countries.

Highlights from Earth Day 2000 include the following:

- Earth Day festivals were held throughout the world, including in **Washington DC**, where 500,000 people came to listen to speakers ranging from Vice President Gore to Earth Day Chair Denis Hayes and Goldman Environmental Prize winners.
- At **Mexico City's** popular Parque Chapultepec, the Mexican government collaborated with NGOs to host a fair on renewable energy technologies (including a solar-powered car) and other issues. Three hundred thousand people attended the fair.
- In **Nagoya, Japan**, a 2-day festival involving 320,000 people was held on the theme of environmental education and international friendship.
- Under the slogan, "Clean Energy Is our Constitutional Right!" the **South African** NGO groundWork organized march of local residents in the centre of Durban.

Earth Day in the new millennium

With an established presence in the major part of the world, Earth Day now looks to consolidate it's presence, and to bring up issues that have far-reaching consequences and are considered critical by environmentalists. The year 2001 has seen the Earth Day Network mount a powerful clean energy campaign to mobilize international forces on some of the most critical aspects of energy and global warming.

Earth Day Network has adopted the theme of energy and global warming for Earth Day 2001. No other environmental issue is as pervasive, and its consequences as severe, as energy consumed and the sources employed to produce it. In April 2001, thousands of groups around the world will take action in their local, national and international communities to push for change in relation to the critical environmental issues that face them.

The aim of the campaign is to expose the dangers associated with fossil fuels and nuclear power, and to point the way toward a clean energy future, for all life on Earth. Some of the key campaigns planned by the Earth Day Network are listed below.

- **The Power Save:** *Habits for Energy Efficiency* campaign shows schools, individuals and businesses particularly in the USA, how they can use less energy and use it more wisely, for the sake of environment, and economy.
  Partner: Alliance to Save Energy.
- **The Green Energy Funding** campaign is steering the international funding that pours into developing countries away from polluting fossil fuel projects and towards clean, sustainable energy sources such as the sun, the wind, and hydrogen.
  Partners: Rainforest Action Nwk, IPS/SEEN, Friends of the Earth, and Worldwide Fund for Nature.
- **The Green Energy Commitments** project is fostering government commitments to renewable energy, particularly in island nation states, whose very existence is threatened by the rising tides associated with global warming.
  Partners: Climate Institute, Counterpart Int. and Winrock Int.
- **The Safe Power:** *No More Nuclear* campaign aims to stop nuclear power, and all its associated dangers, from being accepted by the international community as part of the solution to global warming.
  Partners: World Information Service on Energy (WISE), and Nuclear Information and Resource Service (NIRS).
- **The Human Rights and the Environment** campaign defends powerless communities in developing countries who suffer human rights and environmental abuses when big oil companies extract and transport oil, coal and gas from and across their lands.
  Partners: Amnesty Int., Sierra Club and Oilwatch.
- **The Earth Car Free Day** event on 19 April will see hundreds of thousands of people the whole world over stay out of cars as part of a coordinated global call for sustainable transportation. www.carfreeday.com.
  Partner: The Commons.

A message from Earth Day Network

The fight for a clean environment continues. In April 2001, thousands of groups around the world will take action in their local, national and international communities to push for change in relation to the critical environmental issues that face them. We invite you to be a part of this history and a part of Earth Day. Discover energy you didn't even know you had. Feel it rumble through the grass roots under your feet and the technology at your fingertips. Channel it into building a clean, healthy, diverse world for generations to come. Earth Day Network is working hand in hand with 5,000 groups in 184 countries. Together, who says we can't change the world?

Earth Day Network can be contacted by email at worldwide@earthday.net, by telephone at +1 206 876 2000, by fax at +1 206 876 2015, or by mail at 811 First Avenue, Suite 454, Seattle, Washington 98104, USA.

- Tata Infotech, a member of Council of Energy Efficiency Companies, India launched a freeware **'Eco Lumen'** for promoting energy efficient lighting design practices as part of their Earth Day 2000 celebrations.
- Linking climate change to human rights and the ecological impacts of fossil fuel exploration, representatives from **indigenous peoples on five continents** released a joint Earth Day Solidarity Statement that called for a global transition to clean energy.
- In the **United Kingdom**, Earth Day was successfully launched with a festival involving 40,000 people at the Millennium Dome in London, and with many activities in Northern Ireland, Scotland, and Wales.
- **Car-Free Day** events were held in major world cities on Earth Day 2000 to draw attention to air pollution. Hundreds of thousands of people stayed out of their cars and participated in open-air festivals or bike rallies in Italy, Indonesia, South Korea, Nepal, Australia, Japan, India, Kenya, Croatia, Hungary, Romania, Yugoslavia, Argentina, Brazil, Mexico, Ecuador and Palau.

Technical Article

Justifying Utility and Steam Improvement Projects

Christopher Russell,
Alliance to Save Energy

Very often, industrial facility managers must convince upper management that the investment in steam efficiency is an effort worth undertaking. The communication of this message can often be more difficult than the actual engineering behind the concept. The corporate audience will respond more readily to a dollars-and-cents impact than to a discussion of Btus, pounds of steam, and efficiency ratios.

By adopting the financial approach, the facility manager relates steam efficiency to corporate goals. Collaboration with financial staff can yield the kind of proposal that is needed to "win over" the hearts and minds of the corporate officers who have the final say-so over capital investments like steam system upgrades. Before laying out some recommendations for how to justify steam improvement projects, it is useful to understand the world as the corporate office usually sees it.

Understanding Corporate Priorities

Corporate officers are held accountable to a chief executive, a board of directors, and an owner. It is the job of these officers to create and grow the equity value of the firm. The corporation's industrial facilities do so by generating products with a market value that exceeds the cost of owning and operating the facility itself. Plant equipment, including steam system components, are assets that must generate an economic return.

The annual earnings attributable to the sale of goods produced by these assets, divided by the value of the plant assets themselves, describe the *rate of return on assets*. This is a key measure by which corporate decision-makers are held accountable.

Financial officers, in particular, are conservative decision-makers. They are averse to risk and would rather not spend money on the plant itself, if possible. When forced to do so, financial officers will then seek investments that are most certain to demonstrate a favorable return on assets.

When faced with multiple investment opportunities, the officers will favor those options that lead to both the largest and fastest returns.

This corporate attitude may impose (sometimes unpleasant) priorities on the facility manager: assure reliability in production, avoid unwanted surprises by sticking with familiar technology and practices, and contribute to cost control *today* by cutting a few corners in maintenance and upkeep. It is no wonder, then, that industrial decision-makers often conclude that steam efficiency is a "luxury" that cannot be afforded.

Fortunately, our story does not end here. What follows is a discussion of ways that industrial steam efficiency can save money and contribute to corporate goals while effectively reducing energy consumption and cutting noxious combustion emissions.

Measuring the Dollar Impact of Steam Efficiency

Steam efficiency improvements can move to the top of the list of corporate priorities if the proposals respond to distinct corporate needs. Corporate challenges are many and varied, which in turn opens up more opportunities to "sell" steam efficiency as a solution. Steam systems offer many opportunities for improvement. Once the selections are made, the task is one of dressing the proposals in corporate language.

The first step is to identify and enumerate the total dollar impact of a steam efficiency measure. One framework for this is known as "life-cycle cost analysis." These analyses capture the sum total of expenses and benefits associated with an investment. The result, a net gain or loss on balance, can be compared to other investment options or to the anticipated outcome if no investment is made.

As a comprehensive accounting of an investment option, the life-cycle cost analysis for a steam efficiency measure would include projections of:

- search and selection costs for seeking an engineering implementation firm
- initial capital costs, including installation and costs of borrowing
- maintenance costs, supply and consumable costs
- energy costs over the economic life of the implementation
- depreciation and tax impacts, scrap value or cost of disposal
- impacts on production such as product quality and downtime.

One revelation that typically emerges from this exercise is that fuel costs may represent as much as 96 percent of life-cycle costs, while the initial capital outlay is only three percent, and maintenance a mere one percent. These findings are true for boilers with a 20-year life operating at high rates of capacity utilization. Clearly, any measure that reduces fuel consumption (while not impacting reliability and productivity) will certainly yield positive financial impacts for the company.

Presenting the Economics of Steam Efficiency

As with any corporate investment, there are many ways to measure the economic impact of steam efficiency investments. Some are more complex than others, and proposals may use several analytical methods side-by-side. The choice of analyses used will depend on the sophistication of the presenter and the audience. A simple measure of project economics is the *payback period*.

Payback period is defined as the period of time required for a project to "break even." It is the time needed for the net benefits of an investment to accrue to the point where they equal the cost of the initial outlay.

For a project that returns benefits in consistent, annual increments, the *simple payback* equals the initial investment divided by the annual benefit. Simple payback does not take into account the time value of money; in other words, it makes no distinction between a dollar earned today versus a dollar of future (and therefore uncertain) earnings. Still, the measure is easy to use and understand and many companies use simple payback for a quick "go/no-go" decision on a project.

Five important factors to remember when calculating a simple payback:

- It is an approximation, not an exact economic analysis;
- All benefits are measured without considering their timing;
- All economic consequences beyond the payback are ignored;
- Thus payback calculations will not always find the best solution; and
- Payback does not consider the time value of money or tax consequences.

More sophisticated analyses take into account factors such as discount rates, tax impacts, the cost of capital, etc. One approach involves calculating the *net present value* of a project, which is defined in the equation :

Net present worth (net present worth) = (Present worth of benefits) – (Present worth of costs)

Another commonly used calculation for determining economic feasibility of a project is *internal rate of return*, which is defined as the discount rate that equates future net benefits (cash) to an initial investment outlay. This discount rate can be compared to the corporation's interest rate at which it borrows capital.

Many companies set a threshold (or hurdle) rate for projects, which is the minimum required internal rate of return for a project to be considered viable. Future benefits are discounted at the threshold rate, and the net present worth of the project must be positive in order for the project to be a "go."

Relating Steam Efficiency to Corporate Priorities Saving money, in and of itself, should be a strong incentive for adopting steam efficiency. Still, that may not be enough for some corporate observers. The facility manager's case can be strengthened by relating a positive life-cycle cost outcome to specific corporate needs. Some suggestions for interpreting the benefits of fuel cost savings include the following :

A new source of permanent capital. Reduced fuel expenditures - the direct benefit of steam efficiency - can be thought of as a new source of capital to the corporation. The investment that makes this efficiency possible will yield annual savings each year over the economic life of the improved steam system. Regardless of how the steam efficiency investment is financed - borrowing, retained earnings, or third-party financing - the annual savings will be a permanent source of funds as long as the steam efficiency savings are maintained on a continuous basis.

Reduced cost of environmental incidents. Facility managers can pro-actively seek to limit the corporation's exposure to penalties related to environmental emissions issues. Steam efficiency, as total-system discipline, leads to better monitoring and control of fuel use. Combustion emissions are directly related to fuel consumption: they rise and fall in tandem. By implementing steam efficiency, the corporation enjoys two benefits: decreased fuel expenditures per unit of production, and fewer incidences of emission-related problems.

Improved worker comfort and safety. Steam system optimization requires on-going monitoring and maintenance that yields safety and comfort benefits in addition to fuel savings. The routine involved in system monitoring will usually identify operational abnormalities before they present a danger to plant personnel. Containing these dangers precludes threats to life, health, and property.

Improved reliability and capacity utilization. Another benefit to be derived from steam efficiency is more productive use of steam assets. The efforts required to achieve and maintain *energy* efficiency will largely contribute to *operating* efficiency. By ensuring the integrity of steam system assets, the facility manager can promise more reliable plant operations. The flip side, from the corporate perspective, is a greater rate of return on assets employed in the plant.

Call to Action

A proposal for steam efficiency implementation can be made attractive to corporate decision-makers if the facility manager does the following:

- Identify opportunities for achieving steam efficiency.
- Determine the life-cycle cost of attaining each option.
- Identify the option(s) with the greatest net benefits.
- Collaborate with financial staff to identify current corporate priorities
- Generate a proposal that demonstrates how the steam efficiency project's benefits will directly respond to current corporate needs.

Energy Efficiency In News

Council organises a seminar on "Implementing and Financing Energy Efficiency Projects"

As a part of the CEEC's mission to promote energy efficiency policies, programs and technologies to create jobs as well as to foster economic growth & environmental improvement, a seminar titled 'Implementing & financing energy efficiency projects; was organised in Bangalore on 12th February 2001'.

The seminar was organised in cooperation with Alliance to Save Energy, US Department of Commerce, Tata Energy Research Institute, Tata Infotech, Thermax EPS, Saha Sprague, Atco Controls and other CEEC member companies.

Mr. V. Balasubramanian, Additional Chief Secretary to the Government of Karnataka inaugurated the workshop. This was followed by a keynote address by Ms. Felicia Ruiz from Alliance to Save Energy.

The seminar covered presentations by eminent speakers from various companies in the field of energy management.

These included Mr. Bhavin Soonderji, (ATCO Controls), Mr. Shishir Joshipura (Thermax EPS), Mr. Manoj Saha (Saha Sprague), Mr. Rahul Walawalkar (Tata Infotech), Mr. Janardhan Rove (Asian Electronics), Mr. Sachidananda (TERI), Mr. R. Kumar (INTESCO Asia) and Mr. R.K. Iyer.

The seminar was based on the importance of productivity and efficiency for keeping organisations healthy and competitive in the years to come. It covered areas related to Government Support for energy efficiency, Identification of areas of efficiency , auditing and Performance contracting.

Towards Widespread Commercialization of Energy Efficiency Technologies and Services

The US Agency for International Development (USAID) launched the Energy Conservation and Commercialization (ECO) project in 2000 focusing on "widespread commercialization of energy efficiency technologies and services in India" [see EPN, Vol. 1 No. 1].

The five-year, US$25 million ECO project supports the development of policy and market interventions to enhance the capabilities of the private, financial and government sectors for deploying market-based mechanisms for end-use efficiency investments.

The Ministry of Power and ICICI Limited are the implementing partners and US-based Nexant, Inc. through its ECO project offices in New Delhi and Mumbai, is mainly responsible for executing the technical assistance and training activities on behalf of USAID. Under ECO, a US$5 million Loan Fund is being managed by ICICI Limited on behalf of USAID. This fund is being used to provide financial incentives. Resources from this fund will be utilized for leveraging investments for energy efficiency from the private sector and other financial institutions to support the development of energy efficiency markets, e.g. Energy Service Company (ESCO), utility demand-side management (DSM) and non-sugar co-generation projects. A Lenders Forum, comprised of potential sponsors from the development, commercial and multilateral banking community, has been established. Using the innovative financial incentive instruments that are being developed under the project, this Forum will help expand the energy efficiency-lending portfolio to capture the cost-effective potential into real investments. The operating guidelines of the ECO Loan Fund are currently under preparation.

Current Status, Progress and Plans

Several milestones have been achieved under the Markets and Policy Components of ECO with the assistance from Nexant and its US-based and local sub-contractors.

Performance Measurement and Verification Protocol : An India-specific Performance Measurement and Verification Protocol (PM&VP) has been developed. Based on the International PM&VP, this document lays a generic but robust framework for independently verifying savings from energy efficiency and ESCO projects and performance contracts, which is applicable for industrial, commercial and residential sectors. Feedback received at the ESCO, PM&VP and Financial Strategies workshops and courses held in Mumbai, Kolkata, Chennai, and New Delhi indicates that these guidelines will help increase the comfort level of sponsors and end-user clients in dealing with ESCOs while investing in energy conservation projects. USAID is also assisting the New Delhi Municipal Council (NDMC) for developing an ESCO/Performance Contract-based project for procuring cooling energy "services" for their Palika Kendra Building in New Delhi.

Energy Efficiency Market Assessments : A detailed assessment of energy efficiency markets covering seven products in the lighting, HVAC, and drives segments and all sectors – industrial, residential, commercial and others — indicates a savings potential of over 50,000 GWh/year. While CFL lamps have the largest technical potential for energy savings, its high upfront cost is certainly an impediment to high market acceptance. On the other hand, efficient products like ballasts are constrained by supply-chain barriers.

In order to commercialize energy efficiency, appropriate market and government interventions have to be designed to address the specific market constraints, financial constraints and supply chain constraints pertaining to these technologies. Energy efficient technologies in these three segments and their marketing aspects were covered in several workshops and courses held in Baroda, Chennai, and New Delhi.

Another study which looks at non-sugar cogeneration potential estimates the total potential at over 8,700 MW of which over 5,600 MW is yet to be tapped.

The study recommends advancing this technology in four industrial sectors. Between textile, pulp and paper, sponge iron and soda ash sectors only, there is a total potential of 2,000 MW, with almost half of it being available for exports.

Based on another recent ECO-funded study [conducted by PA Consulting Group] on "Greenhouse Gas Emissions (GHG) Pertaining to Groundwater Pumping in India", it is estimated that for every percentage improvement in pump and motor efficiencies, GHG emissions fall by 0.9% and 0.85% respectively. Each percentage increase in diesel pump-sets causes GHG emissions to drop by 0.75%, The study further concludes that a drop of 1m of ground water level results in 4.7% and 6% increase in GHG emissions in the states of Haryana and Andhra Pradesh respectively.

Demand Side Management in Rajasthan : On the utility front, a DSM cell has been established in Jaipur Vidyut Vitran Nigam (Jaipur DISCOM), one of the three unbundled distribution utilities in Rajasthan, the ECO focus state. Headed by a Chief Engineer, this dedicated cell currently comprises of five officials. With the help of consultants, and involvement of the electricity regulatory commission and local NGOs, load research and consumer surveys are being carried out in the service territory.

USAID is also collaborating with the World Bank through their Power Sector Restructuring Loan program. Officials from Jaipur DISCOM and other utilities and regulatory commissions from AP, Delhi, Karnataka, MP, Gujarat, etc. have been trained through workshops held in Jaipur and Bangalore on DSM cell formation and on consumer advocacy/access to regulation.

Upcoming programs include a US Study tour for NGOs, regulatory and utility officials in May, and workshops on Load Research to be held in Bangalore and Jaipur in May/June.

The following activities have also been completed: Energy Auditor Certification Infrastructure/Needs Assessment; ESCO Association Business Plan Development; Training Needs Analysis for Promotion of Energy Efficiency through Regulation; Life-cycle cost based energy efficiency potential in Government buildings' procurement

Energy Partnerships : Continuing on USAID's previous successful efforts, ECO will support the establishment of several new electric utility and regulatory agency partnerships, under the India Energy Partnership Program.

Being executed by United States Energy Association (USEA), these long-term twinning arrangements with US-based partners fosters exchanges between practitioners and peers for improved policy and regulatory reform in the power sector, more efficient production and use of electricity, and reduced environmental pollution.

Website : A ECO project web site is currently being developed by Nexant, with assistance from the Federation of Indian Chambers of Commerce and Industry (FICCI). Project information, including project reports and training schedules, will be made available on this web site.

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Details about ECO Seminars on page 12

Seminars / Workshop

A Seminar on " Opportunities for Energy Efficiency in Industry and Municipalities"

United States Asia Environmental Partnership, U. S. Agency for International Development, The Alliance to Save Energy, Council of Energy Efficiency Companies, and Maharashtra Chamber of Commerce, Industries and Agriculture have come together to organize this seminar in Pune on 25 April, 2001 at Holiday Inn.

This seminar will introduce to the municipal corporations, local industries, and other key stakeholders in and around Pune the fundamentals of energy efficiency, the opportunities of Energy Service Companies (ESCOs), and the latest energy efficiency technology.

The seminar will feature presentations by eminent speakers from companies such as Thermax EPS, Saha Sprague, Tata Infotech, Asian Electronics, INTESCO Asia, Nexant, USAID, Alliance to Save Energy etc.

Another seminar with the same theme will be organised at Hotel Taj Residency at Indore on 30th April.

For further details contact
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Seminar on 'Energy Generation, Consumption and Conservation'

The Gujarat State Office of WWF-India is planning a seminar at Vadodara to educate the urban user about the non-renewable energy sources and the amount of natural resource used to generate electricity, gas, petrol, etc.

This event will promote a change in consumption patterns of the various sources of energy, and will highlight the immediate need for Energy Conservation and minimise the use of such energy.

For further details contact
Email : wwfgso@icenet.net

International Conference on Sustainable Development & Sustainable Lifestyles

This conference is being organised by the Bhoovigyan Vikas Foundation and will be inaugurated by Mr. Krishna Kant, the Vice-President of India.

Highlights include an Earth Day Lecture by Ms. Bruntland, Chairperson, W.H.O. It will also include a keynote address by eminent Indian scientist and Magsaysay award winner Dr. M. S. Swaminathan. Social awareness campaigns and the involvement of school children are also planned.

The conference will be held at National Informatics Centre, A Block, CGO Complex, New Delhi –110003

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USAID's ECO Seminars

Various seminars and courses associated with on-going technical assistance activities are conducted under USAID's ECO Project.

These programs are targeted at Utilities, Regulatory Commissions, Policy Makers, Manufacturers, vendors, Consultants, Financial Institutions, ESCOs and NGOs. These training programs intend to build the capacity of various stakeholders in the Indian markets by providing useful information about various tools and methods to promote commercialization of energy efficiency technologies and services.

Programs scheduled between May to August 2001 include a 2 day seminar on 'Load Research' to be held in Bangalore and Jaipur on the 29th May and the 6th June respectively. Mumbai and Hyderabad will host 'The Role of Energy Efficiency' seminars on the 2nd and 9th July respectively, while Delhi will host a 2 day seminar on the 1st Aug titled 'International Experience in Power Sector Regulation and Restructuring'. A 2 day seminar on 'Innovative Marketing' will also be conducted on the 1st of Aug at Chennai and Mumbai simultaneously.

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