

NATIONAL INSTITUTIONS PROMOTING ENERGY CONSERVATION

India has a long history of promoting energy efficiency through various national level institutions, which include BEE, PCRA, IREDA, NPC, NCB, TERI, CII and FICCI. After the enactment of Energy Conservation Act -2001, these institutions have become more active. Though each institution has a different role and approach, they all are working for a common cause of energy conservation. "Industrial Chronicle" presents a report on each institution's energy efficiency promoting efforts. – Editor

Bureau of Energy Efficiency (BEE)

After the notification of Energy Conservation Act in the Gazette of India in October 2001, the Ministry of Power, Govt. of India, established the Bureau of Energy Efficiency (BEE) in March 2002 with the mandate to implement the EC Act properly throughout the country. BEE's mission is to institutionalize energy efficiency services, enable delivery mechanisms in the country and provide leadership to the key players involved in the energy conservation movement. Its primary goal is to reduce the energy intensity in the economy. BEE is the first energy efficiency promoting organization, which has been given wide legal powers to enforce the energy conservation related provisions of the Act and also to take punitive actions against the defaulters. Penalty for each offence under the Act would be in monetary terms and the same is fixed at Rs. 10,000 for each offence and Rs. 1000 for each day for continued non-compliance. However, during the initial phase of 5 years being promotional and creating infrastructure for implementation of the Act., no penalties would be effective during this phase.

To begin with, BEE came out with an action plan covering 10 thrust areas in August 2002, and since then it has been vigorously working to implement them fully. Initially, it opted for voluntary approach like IIPCC for promoting energy efficiency in industries. Meanwhile, it has also initiated steps for capacity building for energy auditors and energy managers through certification, energy auditing agencies by giving them accreditation, adoption of uniform codes for performing energy audits, development of energy conservation building codes, formulation of standards and labelling for equipments motivating industrial units through a competition for national awards etc. It has also set an example by initiating implementation grade energy audits in government buildings, starting with Rashtrapati Bhavan.

Petroleum Conservation Research Assn. (PCRA)

Responding to the oil crisis of early seventies, the government had created Petroleum Conservation Research Association (PCRA) in 1978 to identify potential and to promote measures for accelerating conservation of petroleum products in various sectors of economy. PCRA's objectives comprise formulation of strategies and promotion of measures to accelerate conservation of petroleum products leading to environment protection, energy security and sustainable development. It also supports and facilitates efforts for substitution of petroleum products with alternate and renewable fuels.

Currently under the Ministry of Petroleum & Gas, PCRA is one of the key organizations working towards energy conservation with a special focus on energy efficiency in industrial units. It sponsors R&D activities for the development of fuel-efficient equipment/devices and organizes multi-media campaigns for creating mass awareness for the conservation of petroleum products. It has also been promoting energy audits and presenting awards to State road transport corporations, industrial units, energy auditors and ESCOs in recognition of their energy saving achievements. It also organises a training programme on "Energy Management and Conservation Strategies" in association with Administrative Staff College of India (ASCI) at Hyderabad.

PCRA's achievements in saving of petroleum products

Year	Savings quantity '000 tonnes	Savings value Rs. crores
1985-86	80	32
1986-87	167	69
1987-88	251	102
1988-89	329	131
1989-90	424	165
1990-91	470	198
1991-92	592	261
1992-93	693	332
1993-94	838	417
1994-95	968	491
1995-96	1102	570
1996-97	1236	675
1997-98	1497	863
1998-99	1768	1049
1999-00	2133	1425
2000-01	2436	1782
2001-02	2702	2066

Indian Renewable Energy Development Agency (IREDA)

Indian Renewable Energy Development Agency (IREDA) is a profit making public sector financing company under the administrative control of Ministry of Non-Conventional Energy Sources (MNES).

IREDA was promoted by the government in 1987, mainly for promotion of renewable energy sources like wind, hydro, solar, biomass, waste to energy etc. Later it diversified into energy efficiency and conservation. Today IREDA extends financial assistance for

renewable energy, energy efficiency and conservation projects with the motto: "**energy for ever**". IREDA's financial assistance is available to industries for their energy saving projects upto 70 % to 75% of the total project cost at a concessional rate of interest on a long term basis. Till March 2003, IREDA approved an aggregate 1711 projects with financial commitment of about Rs. 6675 crores and disbursed Rs. 3640 crores. The projects financed by it created 2472 MW power generation capacity

Presently, IREDA is running a regular media campaign for creating awareness among the industrial units about the benefits of energy efficiency and its financial assistance for the same. Its ad states: "*Energy efficiency helps in plugging revenue leakage.....*"

National Productivity Council (NPC)

Founded in 1958 by the Government of India, the National Productivity Council (NPC) is a national level autonomous, tri-partite, non-profit organization with equal representation from the government, employers and workers' organizations, apart from technical and professional institutions. Besides its headquarters at New Delhi, NPC operates through 12 offices in India with 250 full-time highly qualified and experienced specialists representing various disciplines. Its services include consultancy, training and research in the area of productivity and energy.

NPC has been active in the area of energy conservation and management for over three decades and has undertaken numerous studies at macro, sectoral and unit levels through its team of committed professionals. It promotes rational use of energy through: optimization of methods improvement, energy efficiency, technology up-gradation and application of alternative energy sources.

NPC has a training wing known as Dr. Ambedkar Institute of Productivity (AIP) at Chennai, which conducts a two years full time PG programmes in energy management, environment management, industrial engineering etc. Two years ago, Bureau of Energy Efficiency (BEE) had entrusted it with the responsibility of conducting national level certification examinations for energy auditors and energy managers. NPC has already successfully conducted two exams so far, the first in the year of 2004 and the second in 2005.

National Council for Cement & Building Materials (NCB)

Established in 1962, the National Council for Cement & Building Materials (NCB) is the largest industrial support organisation of its kind in India. NCB's main laboratories are located at Ballabgarh, about 35Km south of New Delhi and its units at Hyderabad, Ahmedabad and Bhubaneswar. It has a strong team of over 300 highly qualified and experienced engineers, scientist and other professionals.

NCB has been actively engaged in carrying out energy audit studies, monitoring of energy performance of cement plants, R&D on energy conservation and rational utilization of energy, heat and gas balance studies, identification of leakages in kiln-preheater and other gas/air circuits, identification of potentials for energy saving, on-site

study of process parameters, target-setting and monitoring, waste heat recovery for cogeneration of power, creating awareness and motivation through National Awards for Energy Efficiency in Indian Cement Industry, manpower training in energy management and auditing, bringing out publications/newsletter related to energy conservation aspects. During the past two decades, it has carried out about 145 energy audit studies in cement plants. Jointly with the Bureau of Industrial Costs and Prices (BICP), NCB had conducted an energy use survey of Indian industry in 1983-84 and again ten years later. NCB pioneered the concept of recognizing the units saving energy much before any other institution had thought of it. It had instituted National Awards for Energy Efficiency in Indian cement industry as far back as 1986-87.

The Energy Research Institute (TERI)

The Energy Research Institute (TERI), formerly known as Tata Energy Research Institute, was established in 1974. In the initial period, TERI's focus was mainly on documentation, information dissemination and research activities in the fields of energy, environment, and sustainable development were initiated towards the end of 1982.

TERI has been actively working in close association with the Indian industry for developing solutions for the challenges posed by the growing demand for energy. It has conducted energy audits in more than 200 industrial organizations'.

With a staff strength of over 600, today TERI is providing environment-friendly solutions to rural energy problems, helping shape the development of the Indian oil and gas sector, tackling global climate change issues across many continents, enhancing forest conservation efforts among local communities, advancing solutions to growing urban transport and air pollution problems, and promoting energy efficiency in the Indian industry. It conducts various training programmes and also publishes books. In the year 2000, it published an exhaustive "Handbook on energy Audit and Management" This book enables users to understand the operation of various equipments and systems, and to identify opportunities for energy saving in industrial units. All the major energy consuming equipments have been covered in the book.

Confederation of Indian Industry (CII)

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the growth of industry in India, partnering industry and government alike through advisory and consultative processes. Founded over 110 years ago, it is India's premier business association with a direct membership of over 5300 companies from the private as well as public sectors. It accords energy sector A⁺ priority area. To provide focus and direction to energy related issues, its energy division undertakes activities in power, hydrocarbons, coal, renewables and energy efficiency.

In the year 1989, CII formed an Energy Management Cell with the objective of promoting energy efficiency in Indian industry. The Cell is located at Chennai and it has

recently extended offering services from Chandigarh and Ahmedabad. A 15 member technical team is involved in carrying out various activities to catalyse and facilitate energy efficiency in all industrial sectors. The services include detailed energy audit, in-house and centre-wise intensive training programmes on energy conservation, organizing encon mission - visit to select energy efficient units, organizes technical seminar, workshops, summits and exhibitions on energy conservation and management.

CII's Energy Management Cell has already conducted nearly 450 detailed energy audits in units representing various industrial sectors. The audited units have reported a recurring annual savings of over Rs. 110 crores. PCRA has repeatedly honoured this Cell with its "Best Energy Auditor Award".

This Cell has also prepared unique energy efficiency manuals/publications, such as variable speed drives for energy efficiency, energy efficiency in pumping systems, reference manual on encon at design stage, and case study booklets on encon in cement, paper, sugar, textile, fertilizer (urea), glass and ceramic industries.

CH-Sohrabji Godrej Green Business Centre at Hyderabad is its latest addition. It was formally launched in March 2000 during the visit of the then US President Mr Bill Clinton to India. It is a joint initiative of the Govt. of Andhra Pradesh, the house of Godtej and CII, with the technical support from USAID. It is a unique centre of excellence for energy, environment and climate change activities in India.

Federation of Indian Chambers of Commerce and Industry (FICCI)

Set up in 1927, on the advice of Mahatma Gandhi, the Federation of Indian Chambers of Commerce and Industry (FICCI) is the rallying point for free enterprises in India. It has empowered Indian businesses in the changing times to shore up their competitiveness and enhance their global reach. With a nationwide membership of over 1500 corporates and over 500 chambers of commerce and business associations, FICCI espouses the shared vision of Indian businesses and speaks directly and indirectly for over 2,50,000 business units.

FICCI is committed to accelerate the process of development movement of energy efficiency/conservation. The enactment of the Energy Conservation Act, 2001 has radically changed its approach towards energy conservation efforts. It promotes energy efficiency activities by conducting energy audits, energy conservation seminars, training programmes and workshops.

It has qualified experts for energy audits and experienced panel of faculties for training. FICCI is also an accredited energy auditor of Petroleum Conservation Research Association (PCRA).

Leading State Level Organizations Promoting Energy Efficiency

Maharashtra Energy Development Agency (MEDA)

Among the State level organizations promoting energy conservation in the country, the Maharashtra Energy Development Agency (MEDA) stands No.1. Its major energy efficiency programmes include: save energy, energy conservation awards, conference on energy efficiency, and intensive training to participants appearing for BEE examination. MEDA has facilitated energy audits in 379 industrial units, which have saved energy worth Rs. 27.61 crores. It also maintains a list of empanelled energy auditors and ESCOs. Under EC Act, MEDA has been designated as nodal agency in Maharashtra.

Energy Management Centre (EMC), Kerala

Established at Thimvananthapuram (Trivandrum) in February 1996, Energy Management Centre (EMC) is an autonomous organisation under the Department of Power, Govt. of Kerala. EMC promotes energy conservation in all sectors of the economy through scientific and technological research, education and training as well as professional consultancy and advice.

Madhya Pradesh Urja Vikas Nigam (MPUVN)

Madhya Pradesh Urja Vikas Nigam Ltd. is a notified 'designated agency' in Madhya Pradesh. MPUVN has completed over 450 energy audits in industrial, domestic, agricultural and commercial building sectors, savings energy worth Rs.35 crores per year. It has initiated capacity building programmes, persuaded the State government to make energy audit compulsory and set a target to save energy up to 30%.

Energy Conservation Mission (ECM)

The Institution of Engineers (India) having recognized the need for enhancing awareness in energy conservation measures in various sectors, authorized AP State Centre to constitute "Energy Conservation Mission" (ECM). The main objective of ECM is to create public awareness through dissemination of information on energy conservation. Founded under the chairmanship of Capt.J.Rama Rao, IN (Retd), the ECM was formally launched on December 16, 2003 with a slogan:

"Save Today, Survive Tomorrow"