

Energy Conclave 2010

8th - 15th January 2010

The global energy concerns of depleting fossil fuels and climate change have put forward great challenges for researchers in not only engineering sciences but also in economics and social sciences. There is an urgent need to evaluate the research and development work being done in the area of energy and to set guidelines for the future. The '**Energy Conclave 2010**' provided an excellent platform for people to get to know and interact with each other, to exchange new ideas, discuss new developments and finally to look at the challenges ahead for a sustainable future.

The conclave lasted 8 days, starting 8th January. For each day a specific focus area in a specific energy option was assigned and there were several talks and discussions pertaining to that area. Here are the details of the events held during the conclave.

8th January

The theme for day 1 was '**New Paradigms in Energy Policy and Regulation**'. The growth of the Indian economy in the near future requires substantial growth in energy supply. There is a need to enhance investment, to improve efficiency along the supply chain of energy and to bring in economic efficiency in the sector. Policy and regulatory framework plays a key role in achieving these objectives. The existing and emerging challenges in the Indian energy sector need local solutions with insights from global experience. The regulatory institutions and policy makers have a key role to play in this direction.

With the aim of gaining insight into key issues of policy and regulation across power, coal, oil & gas, renewable energy and climate change, the following topics were covered:

1. A multi-sector Regulator
2. Competition and choice in electricity
3. Towards a Framework for Pricing in the Energy Sector
4. A Market for Energy Efficiency in India
5. Climate and India's Energy Sector
6. Renewable Energy: A New Regulatory Approach

7. New Paradigms for Regulating Power Sector

Also, there were two Roundtables – 1) Multi-Sector Regulator and 2) India and Climate Change.

9th January

The theme of day 2 was '**Civilian Nuclear Energy**'. At the present time Indian civilian nuclear energy planning involves accelerated growth of nuclear power in the next 20 years. This implies the creation of a massive amount of nuclear infrastructure in a very short time. Safety and health aspects are crucial from a social point of view and they formed the focus of this one-day workshop. Nuclear engineering education and training is also a vital component of this exercise and universities play a very important role in this area. A panel discussion on emerging nuclear engineering programs in Indian universities was held in the afternoon session.

10th - 12th January

'**Advances in Combustion and Transportation**' formed the theme of the discussions during the next three days of the conclave. Combustion as a science has developed considerably over the last few decades and has helped in improving the efficiencies of automobile engines, gas turbines, rocket engines and of industrial processes like power generation etc. However, looking at the rapidly increasing energy demand, the limited supply of fossil fuels and the increased concern over global warming due to emissions, a lot more needs to be done to further improve system efficiencies, to identify/invent alternative sources of energy, and to develop reusable and cleaner technologies.

This workshop discussed the emerging new technologies of combustion modeling, diagnostics and control as well as the advances in renewable energy and clean combustion technologies. It brought together the contributions of active researchers from academia, industry and research institutions. The directions of future research were identified and that will greatly help the combustion community.

13th January

The theme for the sixth day was '**Photovoltaic Science and Technology**'. It is well known that photovoltaic or solar cells have the potential of providing clean and green energy. The only impediment in its adoption by the common man is its high price. The

price of the technology can be brought down by new and cheaper materials, processes and better solar cell structures and hence, the need for research and development.

The Institute had also earlier organized a National Conference on the Emerging Trends in the Photovoltaic Energy Generation and Utilization (NCETPEGU) in March 2008. It was inaugurated by Mr. V. Subramanian, then Secretary MNRE. Besides Indian participants, there was large participation of experts in PV from outside India. The indigenous Photovoltaic industries too, had participated enthusiastically and brought their products in an exhibition. A decision had been made to set up a "Solar Energy Research Enclave". The symposium had brought together academicians, scientists and technologists working in universities, research institutes and industries on one platform to share their experiences, knowledge and expertise and move forward in the right direction.

14th January

The next day's theme was '**Hydrogen & Energy Storage**'. The symposium aimed to elucidate the chemical and electrochemical approaches in addressing the energy challenge. The focus was on the fundamental science and engineering issues in generating and processing appropriate fuels (like hydrogen, methanol and solid-state materials for battery applications) and on the electrochemical means of converting the fuels into more usable forms.

15th January

The final day of the conclave was intended to identify specific areas of research which need immediate attention to handle the challenges of **Smart Energy Delivery Systems** (SEDS). The concept needs to be evolved organically from within the country, to be relevant to the prevalent market practices and social realities. In this workshop, eminent speakers were invited to address specific issues on the technological aspects of systems operation, control and intelligent grid concepts, keeping in view that a significant share of distributed generation uses renewable sources. The workshop culminated in a panel discussion to identify the specific areas of research which will help develop the necessary infrastructure, and the technical knowledge base needed for developing a smart delivery mechanism for electrical energy.

The 8-day conclave was a very successful event and saw the participation of more than 150 speakers of international repute and approximately 500 students, professionals and practising engineers, industry people, scientists working in the field of energy, social scientists and economists.

The conclave organizers were successful in making this event a “zero cost event” for the Institute and the Golden Jubilee Committee. Also, this was the first time that the Institute organized such a big event spread over so many days.