



## Power for India in the milieu of Climate Change

Coal is still India's mainstay, in spite of coal combustion being a major source of GHG emissions. However, the Government is proactive in its policy stance and hence it is in the process of rapidly diversifying our energy basket. The driving objective behind the eighth edition of the annual Environment and Energy Conclave is to bring to board the latest developments in the country both in the policy realm as well as in the investment and operational areas to realize "clean and smart" power for India.

"Clean India, Green India" is also the theme of the Government of India's Calendar 2015. But while priority in India has been given to development • particularly providing electricity for the millions who live without it • and tackling poverty, the Government is also working feverishly towards a Climate Resilient India, with adequate national safeguards in the



UNFCCC negotiations for a new climate agreement in 2015. The target for solar power capacity has been increased from the current 20,000 megawatts to 100,000 MW in five years!

The Indian power sector, which is critical for the nation's growth and development, is still overwhelmingly dependent on fossil fuels. Apart from increasing generation from renewables, ensuring fuel linkages and new technologies / best practices in coal mining, technological upgrades in power

*All figures are as on 31-03-2015 Source: Ministry of Power, Govt of India*



generation, transmission and distribution, focusing on smart grids and the likes, the need is to ensure collective R&D effort and collaboration in the direction of having a clean energy path. Investments from G20 nations, setting up a global virtual centre for clean energy research and development and focusing on energy conservation across the board are being prioritized. We believe that there is an urgent need to address Clean Power as an integral part of Swachh Bharat Mission for the sake of our future generations. Swachh Bharat Abhiyan is a national level campaign by the Government of India, covering towns in India to clean the streets, roads and infrastructure of the country. Swachh Bharat Abhiyan was announced by the Hon'ble Prime Minister of India on Indian Independence Day & launched on 2nd Oct 2014.

### Where we are

Energy is one of the major drivers of a growing economy like India and is an essential building block of economic development. The Indian power sector is one of the most diversified in the world. India's Total Installed Capacity (as on 31.03.2015) stands at 267 GW with the share of Thermal at 70.6% (Coal being 61.5%, Oil being 0.4% and Gas being 8.6% of the total installed capacity), Hydro at 15.4%, Nuclear at 2.2% and Renewable Energy Sources standing at 11.8%.



But the challenges remain, as there is ever increasing pressure on energy and electricity supply to meet the ever growing demand. 300 million people did not have access to electricity as per the 2011 census!

### What are we faced with

India is a country with over 800 million rural population directly depending on climate sensitive sectors (like agriculture, forests and fisheries) and natural resources (such as water, biodiversity,

mangroves, coastal zones, grasslands) for their livelihoods. The potential impacts of climate change are often diverse and the immediate need to address these adverse impacts is widely recognized. Similarly, different regions have differential vulnerabilities to climate change; therefore different approaches need to be applied that are context and region specific. While traditionally, climate change experts have focused on mitigation measures, adaptation measures have also been acknowledged of late as effective and equitable means to deal with climate change impacts. Most of the mitigation measures are high in terms of technology and capital. Therefore, while developed economies choose to mitigate climate change by making heavy investments, developing economies choose to adapt. It has been increasingly recognized that a joint approach addressing the issues of adaptation and mitigation together is the most appropriate one for countries like India with high dependence on coal and abundance of GHG emissions while per capita emission is still very low.



### What we need to do

India is endowed with vast renewable energy resources including wind, solar, biomass and small hydro. India needs to develop the available renewable energy to meet its growing power needs and ensure energy security. In November 2014, the Indian Government announced it would increase the solar ambition of its National Solar Mission to 100 GW installed capacity by 2022 with investments of \$100 billion, taking its share in the energy mix to 10 per cent. This improves upon the targets embedded in the Twelfth Five-Year Plan published in 2013. The centralized and integrated national economic program aims to reduce emission intensity of GDP in line with a target of 20 per cent to 25 per cent reduction over 2005 levels by 2020 and to add 30,000 MW of renewable energy capacity during 2012-2017. The Ministry of New and

Renewable Energy's target for wind power generation has been pegged at 60,000 MW in the same period. The Union Budget 2015-16 doubled the cess on coal to Rs 200 a tonne in order to fund clean-environment initiatives. At a recent event held in early 2015, it has been announced that 266,000 MW worth of green energy commitments have been received from banks and other private firms.

### Summary of India's Renewable Energy Portfolio :

- 5th Largest Power Generation Portfolio.
- 5th Largest Wind Power Generator & potential to be largest Wind Generator by 2025.
- 243 GW of installed capacity as of March 2014.

- 20,000 MW (20 GW) of solar power by 2020 & potential of 100,000 MW (100 GW) by 2025.
- 21,800 MW (21.80 GW) of wind power as on September 2014 & potential of 100,000 MW (100 GW) by 2025.
- The country offers unlimited growth potential for the solar photovoltaic industry.
- Solar power has the potential to meet 7 % of our power

needs by 2022, mitigate 2.6% of carbon emissions, and reduce coal import by 71 million tonnes per annum i.e., worth a valuation of Rs 33.000 crore.

### Conclave Focus

The Conclave discussions will be structured into the Strategic Track for policy advocacy and Executive Track for discussions on technical, implementation and business issues.



## About The Bengal Chamber of Commerce and Industry

The Bengal Chamber of Commerce and Industry, India's oldest institution of its kind, traces its origins to 1833. The Chamber has played a pioneering role as a helmsman, steering the evolution of Commerce and Industry in India. The Chamber reviewed and commented upon some of the most critical legislations in the country. The Bengal Chamber was involved in the conceptualization of the airport in Kolkata and the Howrah Bridge and had lobbied for creation of overland trade

routes with China through Tibet. The Bengal Chamber has helped in the formation of a slew of educational and cultural institutions – Indian Institute of Management Calcutta, Indian Institute of Social Welfare and Business Management (IISWBM), Nazrul Manch and the Academy of Fine Arts apart from bringing to Kolkata the son-et-lumiere at the Victoria Memorial.

Today, the Chamber's range of operations is diverse and evolving over time. The Chamber is deeply involved in areas



like Healthcare, Education, Energy and Environment, Information Technology, Finance and Banking, Corporate Governance, MSME Development, Manufacturing, Infrastructure, Tourism – to name a few and has now assumed a multi-faceted role. Our tie-up with the European Business and Technology Centre (EBTC) on promoting clean technology access deserves special mention. Our linkages with overseas Governments, Businesses and Institutions are growing stronger by the day and we have created very relevant B2B platforms for both inward and

### Environment and Energy Conclave :

The annual Environment and Energy Conclave, an international forum for Climate Change mitigation and business response, is held every August and is the preferred forum for discussing environmental and climate challenges and mitigation actions in sync with our industrial growth aspirations. The Conclave is a melting pot of thoughts, ideas, actions and best practices sharing bringing together corporates with national leaders from the Government, Social Activism, NGOs and Academia. We are also working with overseas partners representing overseas Governments (like the American Consulate General, European Business and Technology Centre, and the British Deputy High Commission) in addressing development of clean technology issues and promoting B2B contacts. Recently, we

outward investments by hosting delegations and taking regular business missions spanning continents. We have over 30 sector/area specific Committees catalyzing business growth, industrial development and socio-economic progress. The Chamber's AGM2013 was graced by Shri Pranab Mukherjee, President of India which was an unprecedented occasion, in the words of the President of India, for Chambers of Commerce in general.

have embarked on a movement at the national level committed to energizing a behavioural response to save energy by launching an e-portal ([www.wattguru.com](http://www.wattguru.com)) dedicated to propagating the virtues and benefits of energy conservation. The Chamber is also engaging with value added services in energy and environment management. The Chamber has joined hands with Jadavpur University (JU), a pride of the State and a renowned centre of learning in the country, together with DFIC Management Consultants (Germany and India) to set up a "Centre for Energy and Climate Excellence (CECE)", the focus of which is to undertake consulting and research-based activities towards meeting the needs of businesses in the realms of energy conservation, energy planning and sustainable management practices.



The photographs, video and presentations of the earlier editions are available in the following link:

<http://bengalchamber.com/environment-and-energy-conclave.html>

<http://bengalchamber.com/energyconclave/year2013/the-bengal-chamber-environment-and-energy-conclaves-snapshot.pdf>

Some of the eminent speakers who have addressed the Environment and Energy Conclave in the previous 7 years

Designations of the speakers are those which they held during the year in which they addressed the Conclave.

Some of the speakers like Dr. Kirit Parikh, a legend in the Indian energy and economic policy spheres, Dr. Ajay Mathur and Shri Partha S Bhattacharyya have addressed the programme more than once.

- **Dr. R K Pachauri**, Chairman, IPCC and Director General, TERI (Video Address);
- **Shri Shyam Saran**, Special Envoy of the PM on Climate Change;
- **Dr. Kirit Parikh**, Member, Planning Commission;
- **Shri Anil Razdan**, IAS, Secretary to the Government of India, Ministry of Power;
- **Smt. Medha Patkar**, National Convener, National Alliance of People's Movements
- **Dr. Sunita Narain**, Director General, Centre for Science and Environment (CSE); Director, Society for Environmental Communications; & Publisher, Down To Earth;
- **Dr. Suresh Kumar Rohilla**, Programme Director - Water Management, Centre for Science and Environment
- **Dr. Arup Roy Choudhury**, Chairman & Managing Director, NTPC Limited
- **Dr. Ajay Mathur**, Director General, Bureau of Energy Efficiency;
- **Shri Sanjay Seth**, Energy Economist, Bureau of Energy Efficiency;
- **Mr. Saurabh Kumar**, Managing Director, Energy Efficiency Services Limited
- **Dr. Bikash Sinha**, Homi Bhabha Professor, DAE, Former Director, Saha Institute of Nuclear Physics and Variable Energy Cyclotron Centre, Department of Atomic Energy, Government of India;
- **Shri Manish Gupta**, Hon'ble Minister-in-Charge, Power & Non-Conventional Energy Sources, Government of West Bengal;
- **Dr. Prodipto Ghosh**, Distinguished Fellow, Earth Science and Climate Change Division & Director, The Energy and Resources Institute (TERI)
- **Mr. Richard Rekhy**, CEO, KPMG India
- **Prof. B K Dutta**, Chairman, West Bengal Pollution Control Board;
- **Mr. Pavan Sukhdev**, Founder-Director of Corporation 2020; Founder-CEO, GIST Advisory; Visiting Fellow, Yale University; and Former Special Advisor and Head of UNEP's Green Economy Initiative;
- **Ambassador C Dasgupta**, Distinguished Fellow, TERI;
- **Mr. A Krishnakumar**, Vice Chairman and Managing Director, Philips India Limited; Managing Director, Coal India Limited
- **Mr. Lalit Puri**, Business Head – Professional Lighting Solutions, Philips India Limited;
- **H.E. Peter Varghese**, High Commissioner of Australia in India;
- **Shri S Narsing Rao**, IAS, Chairman-cum-Managing Director, Coal India Limited;
- **Shri Partha S Bhattacharyya**, Chairman, Coal India Limited;
- **Shri A K Debnath**, Chairman-cum-Managing Director, Central Mine Planning & Design Institute Limited (CMPDI);
- **Shri M K De**, IAS, Principal Secretary, Dept. of Power and Non-Conventional Energy Sources, Government of West Bengal;
- **Shri Sunil Mitra**, Former Revenue and Finance Secretary, Government of India and Former Power Secretary, Government of West Bengal;
- **Mr. M S Unnikrishnan**, Managing Director, Thermax Limited;
- **Dr. R R Sonde**, Chief Technology Officer and Executive Vice President, Research, Innovation & Technology, Thermax Limited;
- **Mr. Sumit Mazumder**, Vice Chairman and Managing Director, TIL Limited;

- **Mr. Shishir Joshipura**, Managing Director & Country Manager, SKF India Limited;
- **Mr. Sandipan Chakravorty**, Managing Director, Tata Steel Processing and Distribution Limited;
- **Mr. Sanjib Bezbaroa**, Vice President - Corporate EHS, ITC Limited;
- **Mr. Amitabha Mukhopadhyay**, President & CFO, Tata AutoComp Systems;
- **Mr. Nazeeb Arif**, Vice President – Corporate Communications, ITC Limited
- **Ms. Malini Thadani**, Head, Group Communications, Public Policy and Corporate Sustainability, HSBC India;
- **Shri S P Gon Chaudhuri**, Ashden Award Winner and Special Advisor, Renewable Energy, Govt. of West Bengal;
- **Mr. Poul V Jensen**, Director, European Business and Technology Centre;
- **Mr. Phil Marker**, Counselor and Head, Energy, Climate and Growth Unit, British High Commission, New Delhi;
- **Ms. Nicola Watkinson**, Senior Trade & Investment Commissioner, South Asia, Australian Trade Commission;
- **Mr. Scott Fursedonn-Wood**, British Deputy High Commissioner in Eastern India
- **Mr. Sanjay Wadvani**, OBE, Deputy High Commissioner of the UK in the Eastern Region, and many others;
- **Mr. Rana Som**, Former Chairman and Managing Director, NMDC Limited
- **Shri Narayan Swaroop Nigam**, IAS, Chairman and Managing Director, West Bengal State Electricity Distribution Company Limited;
- **Mr. Siddharth Mehta**, Chief Executive Officer, India Power Corporation Limited;
- **Dr. A. Anurag Danda**, Head - Climate Adaptation & Sundarbans Landscape, WWF-India;
- **Mr. Subir Gupta**, CEO, ERM India Private Limited

