



RE-INVEST

1st RENEWABLE ENERGY
GLOBAL INVESTORS MEET & EXPO
15 - 17 FEBRUARY 2015 • NEW DELHI, INDIA

DAILY NEWSLETTER

OFFICIAL CONFERENCE NEWS • DAY 3 • TUESDAY, FEBRUARY 17, 2015



Indian investors urged to look at Green Bonds

With the government's ambitious targets for wind energy, this session was an important one, and no wonder the hall was jampacked. The audience consisted of many project developers who were all ears to what the speakers had to say. In his opening remarks, Mr R N Choubey, Special Secretary to the Ministry of Power, mentioned that many mechanisms to fund green projects were already in place. These included attractive feed-in-tariffs, carbon credits, renewable energy certificate system and accelerated depreciation. He further added that power generation alone is not important, and that developers also needed to look at transmission and distribution as well. Ms Mohua Mukherjee, the World Bank's Senior Energy Specialist, said that investment committees would want to know more about the policy and credit risks of underlying cash flows and how they could get out if they wanted to liquidate. "If they don't get satisfactory answers then we won't be seeing much investments happening. Institutional investors would also want to know that

Indian private smart money is also flowing in the sector, and that they are not belling the cat," averred Ms Mukherjee.

Mr S B Nayar of India Infrastructure Finance Company Ltd said that India needed to develop its bond market and hedging also needs to be made stronger. He added that fixed interest rates also need to be introduced for infrastructure projects. Mr Stephan Yao of United PV said that market structural transformation is necessary for financial innovation. He spoke on why the RE sector was able to grow so much in the US. "We cannot innovate financing but have to use the existing financing structure. What needs to be innovated is the RE space so that it can qualify for the finance available," said Yao. According to him, green bonds could be an excellent tool for the Indian developers to explore ways to finance their projects. Green bonds are issued for financing projects that directly contribute towards climate change mitigation. Mr Colin Dreizin of USAID also stressed on the importance of green bonds, and said the key principles for India should be to attract a new class of investors, pension funds, and

sovereign wealth funds.

Taking a cue from what Mr Choubey had mentioned in his opening remarks, Mr Gaetan Tiberghien from International Financial Corporation said debt financing for the government's RE target would prove to be challenging without a strong domestic bond market. To date RE projects have not been able to tap the bond market because of a low credit risk rating. "There is an urgent need for credit risk enhancement in India," Mr Tiberghien averred. He agreed that green bonds could play a very important role in the Indian market, and there could be three types of models used – bond issuer owned by a RE developer, Infrastructure Debt fund bond, and bonds from a trust. However, these bonds have certain limitations; for instance, the first one is limited to large players and insurance companies are not allowed to invest in private companies in India. For the last one, loans must be first booked by a bank and be held for a minimum amount of time. According to Ms Laura Tlaiye of the World Bank Treasury, the World Bank (IBRD) has issued over USD 7 billion, with around 80 green bond transactions in 18 currencies.

FINANCING MODELS

SPEAKERS:

- Mr R N Choubey, Special Secretary, Ministry of Power, Government of India
- Ms Mohua Mukherjee, Senior Energy Specialist, World Bank
- Mr Colin Dreizin, Director, Clean Energy and Environment Officer, United States Agency for International Development
- Ms Elisa Prieto, Director of Strategy for Abengoa Solar
- Mr Gaetan Tiberghien, Principal Investment Officer, International Financial Corporation
- Ms Laura Tlaiye, Sustainability Advisor-Capital Markets, Department, World Bank Treasury
- Mr S B Nayar, Chairman & Managing Director, India Infrastructure Finance Company Ltd.
- Mr Stephan Yao, Chief Communication Officer, United PV

The session concluded with the participants agreeing to the fact that market structure is being put in place for things to happen. Joint synergy between various ministries involved in the sector will go a long way in creating the right policy environment, which would enable finance to flow into the country. ☺



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Energy Next
Your guide to Renewable Energy



Positive Predictions for Off-shore Wind

Wind energy, primarily onshore wind, has attained maturity and it is a matter of pride for the global wind industry where it has reached today. This view was expressed by Mr Steve Sawyer, Secretary General, Global Wind Energy Council as part of his opening remarks on the third day of the first Renewable Energy Global Investors Meet and Expo (RE-INVEST).

Speaking at the session titled 'Grid Connected Wind Power With Focus on Off-shore', Mr Sawyer said, "We are happy to see where we have come in the on-shore wind energy generation. Currently, the off-shore wind industry is where the on-shore wind industry was, way back in 1997-98. Just as the



on-shore wind industry has matured, I am sure that the off-shore wind industry will also grow in near future."

Ms Varsha Joshi, Joint Secretary, Ministry of New and Renewable Energy, stated that India has a good track record in wind energy generation and that the government has initiated a programme of off-shore wind energy development. "The government has initiated two studies on off-shore wind energy in the country with DFID and EU. Also a joint venture has been formed to set up the country's first off-shore wind farm," she went on say.

The panellists shared their views and experiences with the off-shore wind sector, especially in the European nations, and suggested that India could adopt best practices on the basis of learning so far. Mr Sawyer lauded the Indian government's efforts

in the renewable energy sector and said that it was very exciting time to be in India.

The speakers presented their experiences in the off-shore segment and discussed the major issues, constraints and opportunities that lay ahead. Mr Allan MacAskill talked about the off-shore model in UK and suggested that India needs to assess the challenges carefully to make progress in this sector.

One of the major factors highlighted at this discussion was that of the high cost of off-shore wind installation. "Cost of energy is a major challenge. On-shore wind energy is a mature market now, and it is to be seen how the off-shore market evolves," said Mr Andy Oldroyd, Technical Director & Co-Founder, Oldbaum Services Ltd. He added that there is immense opportunity for the wind industry in India with its extensive supply chain.

The panel appreciated the Indian government's positive intent to develop off-shore wind energy. The experts suggested that the country needed to derive lessons from around the world to take forward its off-shore wind industry. Mr Huub den Rooijen, Head- Offshore Wind, Crown Estate, said that though off-shore wind energy was a complex industry at the moment, however, there was a need to adopt a 'where there is will there is the way' approach for it to succeed.

For the off-shore wind sector in India to take off and prosper, the experts called for the need to understand the cost pressures in the Indian supply chain, increasing efficiency in utility scale roll-out, quick and simple mechanism for granting permission, strengthening of grid infrastructure, setting ambitious & realistic targets and developing an effective financing model. 🌍

GRID CONNECTED WIND POWER WITH FOCUS ON OFFSHORE

CHAIRMAN & MODERATOR:

● **Mr Steve Sawyer**, Secretary General, Global Wind Energy Council

SPEAKERS:

- **Ms Varsha Joshi**, JS, Ministry of New and Renewable Energy
- **Mr Allan MacAskill**, Director, MacAskill & Associates and Director, Pilot Offshore Renewables
- **Mr Andy Oldroyd**, Technical Director & Co-Founder, Oldbaum Services Ltd.
- **Mr Charles Yates**, FRSA-MD, CmY Consultants Ltd.
- **Mr Huub den Rooijen**, Head-Offshore Wind, Crown Estate
- **Dr Mark Leybourne**, Senior engineer, IT Power, UK
- **Mr Norbert Giese**, VP, Agency and Govt Relations, Senvion Wind Energy Solutions

Priority sector lending, currency hedging and tax incentives ways for renewables

With the aim of achieving Prime Minister Narendra Modi's ambitious target of installing 175 GW of renewable energy capacity by 2020, experts laid the financial roadmap needed to address the issues of funding for this sector. Along with the need for an innovative financing model specifically designed for India, experts at RE-INVEST suggested that the government should allow liquidity by designating renewables as a priority sector.

"If the government could just designate renewables for priority sector lending, the much needed liquidity will flow in because the financial credit as of now is exhausted with the conventional power firms," said Mr Sanjay Mandvakar of Yes Bank at a panel discussion on 'Approaches to Tackling High Cost of Capital in Renewable Energy Financing,' chaired by

Dr Henning Wuester from IRENA.

Dr Wuester spelt out the financial challenges for India's ambitions to ride high on renewables by stating that the local debt is quite costly with about 14 per cent interest rate and a lack of appetite among the banks. "There are a few options to bring down the debt cost, which include government subsidy and spreading the foreign currency hedging for a longer tenure, besides structured finance options," added Dr Wuester.

Prof Tom Heller pointed out that India is a particular case where banks dominate the financial institutions unlike Brazil and Chile where there are large lending institutions that have a risk appetite for sectors like renewables and as a result make debt available. "We are going to bring the Global Climate Innovation lab, which currently consists of eight countries, to crowd-source country specific financial models, which can bring down the debt cost by

APPROACHES TO TACKLING HIGH COST OF CAPITAL IN RENEWABLE ENERGY FINANCING

CHAIRMAN & MODERATOR:

● **Dr Henning Wuester**, Director, Knowledge Policy, Finance Centre, IRENA

SPEAKERS:

- **Prof Tom Heller**, Executive Director, Climate Policy Initiative
- **Mr Bhaswar Chatterjee**, Head – Infrastructure & Energy Finance, Americas, Deutsche Bank
- **Mr Brooks Preston**, VP, Investment Funds, Overseas Private Investment Corporation
- **Dr Darko Hajdukovic**, Senior Manager, London Stock Exchange Group
- **Mr Don Purka**, Director, Infrastructure Finance Division 1, Private Sector Operations Department, Asian Development Bank
- **Mr Mayank Choudhary**, Head of Corporate Finance and M&A, Greenko
- **Mr Sanjay Mandvakar**, Senior Group President & Senior MD – Wholesale Banking Government Relationship Management & Food and Agribusiness, Research Management, Yes Bank
- **Shirish Garud**, Assistant Director, TERI

about 4.5 per cent, and technological solution for renewables. Besides this, the government can think of policies surrounding extending loan, subsidy and refinancing to the developers," added Prof Heller.

Mr Brooks Preston of the Overseas Pvt Investment Corporation said that his organisation is committed to bringing \$1 billion a year in India for funding renewables and would help build the local financial capacity in the coming years to support the growth of renewables. "The foreign financial institutions too should get the same terms under which the domestic firms get to lend to the renewable developers. Also, we need to back component manufacturers, which will help boosting the credit worthiness of the developers," said Mr Preston.

Mr Mayank Choudhary of Greenko said that his company made renewables a commercially viable venture by going ahead with an asset-owning mindset along with a diversified portfolio, which included small hydel, solar and wind, and then spreading out in geographically diverse areas. Mr Bhaswar Chatterjee of the Deutsche Bank stressed the need for risk mitigation models along with getting long term insurance funds into the renewables. 🌍



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Karnataka says “We want investments. We will support you”

SHOWCASE OF POLICY INCENTIVES BY STATES

CHAIRMAN & MODERATOR:

● **Dr Pramod Deo**, Former Chairperson, Central Electricity Regulatory Commission

SPEAKERS:

- **Mr D K Shivakumar**, Minister for Energy, Karnataka
- **Mr Rajesh Lakhoni**, Secretary, Energy, Government of Tamil Nadu
- **Mr Bhanu Pratap Singh**, Chief Executive Officer Himurja
- **Mr Sujan Singh Pathania**, Minister of Power, Himachal Pradesh
- **Mr P Ravikumar**, Additional Chief Secretary, Government of Karnataka
- **Mr Sudeep Jain**, IAS, Chairman and CMD, TEDA

The session “Showcase of Policy Incentives by States” moderated by Dr Pramod Deo, Former Chairperson, Central Electricity Regulatory Commission, was attended by several state dignitaries – ministers and secretaries - of Tamil Nadu, Karnataka and Himachal Pradesh. Through detailed presentations, the states appealed to attract investments in the renewable sector.

Dr Deo set up the context of the discussion by highlighting the need for strategic and robust collaboration between the centre and states for effective implementation of policies in place. He highlighted Mr Narendra Modi’s mantra of cooperative federalism and healthy competition between states and set the stage for the wind energy front runner, Tamil Nadu; Solar and biomass energy leader, Karnataka; and progressive hydro energy state, Himachal Pradesh to share their journeys and highlight innovations in their respective models.

While presenting the vision of the revised New Solar Policy that came out in May 2013, Mr D K Shivakumar, Minister for Energy, Karnataka, stated that by 2021, 3 per cent of the total projected consumption of an ambitious 2000 MW of energy in the state has to have a share of solar energy in a phased manner.

The minister expounded on the ‘Surya Raitha Scheme’ which aims to adopt solar rooftop PV systems for residential, commercial and industrial buildings in the state. He said that PV pumpset could be availed by farmers at an attractive



tariff of 7.20 and 9.56 by others. He also quoted attractive packages of low taxes and duties facilitated by the Karnataka government to facilitate investments. He concluded, “We want investments. We will support you.”

Mr Rajesh Lakhoni, Secretary, Energy, Government of Tamil Nadu hailed Tamil Nadu as the indisputable leader in the solar energy sector, highlighting the largest rooftop and solar street light programmes run by the state. He made a strong pitch for active participation in the Global Investors Day on 23rd and 24th of May in Tamil Nadu and implored investors into

making the slogan, “Install solar panels and forget electricity bills,” a reality.

Mr Bhanu Pratap Singh, CEO Himurja outlined the revisions within the Hydro Policy 2006 in Himachal Pradesh and earmarked the efforts taken by the state government to speed track implementation and execution of issues of hydro projects.

The panel was also attended by Mr Sujan Singh Pathania, Minister of Power, Himachal Pradesh; Mr P Ravikumar, Additional chief secretary, Government of Karnataka; and Mr Sudeep Jain, IAS, Chairman and CMD, TEDA.

\$1.8 billion rural market awaits small, medium renewables

With 750 million households in rural India using just about nine per cent power and with 93 per cent of their energy spent on cooking and other appliances; small and medium renewable players have a robust \$1.8 billion annual market to tap. Bangladesh, which took the lead in renewables since 1996, will have all of its households go solar by 2020. This goal appears to be a role model for Indian firms to emulate in successfully rolling out solar power.

“The data points out that the non-power energy requirement of the people in the rural and semi-urban areas is about 93 per cent on which they are already spending \$1.8 billion a year in the form of consumption of kerosene, diesel, wood, etc.,” Mr Upendra Bhatt, MD of cKinetics pointed out. Taking part in a panel discussion on “Financing challenges for small and medium scale renewable Energy projects”, Dr Arunabha Ghosh, CEO of Council of Energy Development, Environment and Water, who chaired the

session, remarked that if the void in the energy access is bridged, over 10 lakh jobs could also be created in the process.

Listing the financial challenges facing the small and medium renewable developers, Dr Henning Wuester of IRENA said, “The requirement of high capital upfront and also at a high cost, besides high transaction cost and ensuring credible revenue stream are the big challenges for small and medium renewable developers.” He added that the off-grid renewable developers can create 4.5 million jobs in India by 2030, besides raising the income level of the people in the rural areas. Additionally, Mr Ardeshir Contractor of Kiran Energy shared the successful business model employed by him in aggregating all projects spread over at various geographies under one financial model. “We began installing roof-top solar panels at corporates, IIT and other places, which were all very small projects. But we got them aggregated under one financial funding model, which has been successful for us,” added Mr Contractor.

Showcasing the success of Bangladesh in

FINANCING CHALLENGES FOR SMALL AND MEDIUM SCALE

CHAIRMAN:

● **Dr Henning Wuester**, Director, Knowledge Policy, Finance Centre, IRENA

MODERATOR:

● **Dr Arunabha Ghosh**, CEO, Council on Energy Environment and Water

SPEAKERS:

- **Mr Ardeshir Contractor**, MD, Kiran Energy
- **Mr Dipal Chandra Barua**, Chairman & CEO, Bright Green Energy Foundation; Co-founder, Grameen Bank & Founding Manager of the Grameen Shakti
- **Mr Probir Ghosh**, CEO, CASE Bharat
- **Mr Shyam Menon**, Investment Director, INFUSE Ventures
- **Mr Upendra Bhatt**, MD, cKinetics

solar power, Mr Dipal Chandra Barua of Grameen Shakti said that his country has employed the “demonstrative effect” of getting a few people to use solar power to eventually encourage their entire village to convert to the renewable energy. “When the World Bank offered to subsidise the solar power, we suggested that it be channelled through the agencies involved and not be given to the consumers. We are on course to become the first solar nation by 2020, while 51 per cent of the population is already using solar energy,” said Mr Barua. He also suggested that the mobile banking model has done well in the success of solar power in rural areas.



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Future of off-shore lies in Gujarat

The session on off-shore wind energy was truly an interesting one as this structured discussion on off-shore wind power development provided an opportunity to members of the proposed joint venture company, comprising public sector enterprises, to learn from the experiences of international experts. It was conducted informally, essentially comprising a round of question and answers. Aspects such as turbine technology, evacuation infrastructure, studies and surveys, cost economics, and power pricing were discussed extensively.

Ms Varsha Joshi, Joint Secretary, Ministry of New and Renewable Energy, posed a crucial question on what India should learn from international experiences, especially as the country is on the verge of embarking on its offshore wind journey. Responding to her, Mr Huub den Rooijen, Head of Offshore Wind, The Crown Estate, said that the project size should be large enough for the

learning curve.

All the international participants agreed to one fact in tandem – it is extremely vital for the ministry to embark upon extensive studies to study the soil conditions and other geological aspects. Environmental and socio-economic impacts must also be studied by the ministry very carefully. Mr V P Sharma of Punj Lloyd Ltd said that ONGC has many unmanned platforms and it wants to use these for generating electricity using wave power. Mr Steve Sawyer of Global Wind Energy Council said that if India develops a strong R&D base as well as an indigenous manufacturing base then cost can also come down for the industry. Mr Charles Yates of CmY Consultants Ltd., also had an important message for the industry players – he stressed time and again on the fact that it is important for developers to start talking to banks at the early stage of project inception. “Senior management of banks need time to think about these ideas,” he said. Mapping analysis is a must. These

projects are no different from any other projects and extensive groundwork will go a long way in ensuring that the project is a success and finance is appropriately used. “Ground studies means that risk is lowered, and if risk is minimized then the cost automatically comes down,” said Mr Rooijen. An example of a project in Irish waters was given, where millions of pounds were spent only to realize after a year that the soil conditions were not at all conducive for the project.

Ms Joshi asked a very pertinent question about which state should be considered for India’s first project – Gujarat or Tamil Nadu. The participants responded unanimously and said Gujarat would be best suited for any pilot project. Ms Joshi stated that the ministry has started working on off-shore wind projects and it would take at least a year before any data could be obtained. Off-shore wind projects are about complex engineering and given an opportunity, Indian companies will jump onto the off-shore bandwagon.

OFFSHORE WIND

SPEAKERS:

- Ms Varsha Joshi, JS, MNRE, Govt of India
- Mr Allan MacAskill, Director, MacAskill & Associates
- Mr Andy Oldroyd, Technical Director & Co-Founder, Oldbaum Services Ltd.
- Mr Andrew Kerfoot, Senior Engineer, Offshore Wind Turbine, Gamesa/Areva Wind JV
- Mr Bimlesh Shah, Head (Offshore), Suzlon Energy Ltd
- Mr Charles Yates, FRSA, MD, CmY Consultants Ltd.
- Mr Chris Garret, Senior Offshore Wind Farm Engineer, Renewable Energy Services, DNV GL
- Mr Huub den Rooijen, Head, Offshore Wind, The Crown Estate
- Mr Mark Leybourne, Senior Engineer, IT Power, UK
- Mr Norbert Giese, VP, Agency and Government Relations, Servion Wind Energy Solutions
- Mr Richard den Hollander, Business Development Director, Seaway Heavy Lifting
- Dr S Gomathinayagam, DG, National Institute of Wind Energy
- Mr Soumyajyoti Basu, Manager, Industrial Cooperation & Development, DCNS Group
- Mr Steve Sawyer, Secretary General, Global Wind Energy Council
- Mr V P Sharma, President & CEO (Offshore Dept.), Punj Lloyd Ltd.

Business models to provide decentralised energy solutions

DECENTRALISED ENERGY SOLUTIONS

CHAIRMAN:

- Mr Jaco Cilliers, Resident Representative, UNDP/

MODERATOR:

- Mr Rohit Kansal, Divisional Commissioner, Ladakh and Kargil

SPEAKERS:

- Mr Alakesh Chetia, President, Social Innovation, SunEdison Inc.
- Dr A V Mohan Rao, Chairman, Spectrum Renewable Energy Pvt Ltd
- Mr Gagan Pal, Vice President, Tata Power Solar
- Dr Gerhard Stryi-Hipp, Head of Energy Policy, Fraunhofer Institute for Solar Energy
- Dr Ronald W Larson, Aprovecho Centre, USA
- Mr Paul Needham, President & Co-founder, Simpa Networks
- Mr Sameer Maithal, Director, Greentech Knowledge Solutions Pvt Ltd, India
- Mr Anand Kumar, VP-KW & MW Sales, Waree Energies Ltd

The session opened with remarks by Mr Jaco Cilliers, Resident Representative, United Nations Development Programme, India. Mr Cilliers stressed that the social and economic importance of off-grid systems are enormous, and invited presentations from experts on the panel, beginning with Dr Gerhard Stryi-Hipp, Head of Energy Policy, Fraunhofer Institute for Solar Energy. He gave a power point, step by step presentation on his experiences in the Solar Water Heater Market in Europe, expanding on the scope that exists in India, and the possibilities of accelerating the Indian market for the same. Dr Ronald W Larson from the Aprovecho took the podium next, with a presentation on the best practices and business models for marketing biomass cook-stoves, and the scope of the practice for India. His presentation included an in-depth look at char-making stoves (CMSs) which were first thought of to save forests. After Dr Larson’s presentation, Mr Cilliers invited a presentation by Mr Alakesh Chetia, President, Social Innovation, SunEdison Inc. on the market for solar energy solutions for off-grid electricity, scope, experiences and constraints in various countries. Mr Chetia focussed on how 1.3 billion people in the world today lack access to electricity, and then went on to give a presentation on the experiences of their model in countries like Africa, Nepal and finally, India. His

presentation drew out the common issues and observations between experiences in the three countries. For India, he said that customers are price sensitive and similar to the other two countries, “regulatory framework is key”. He added that direct subsidy programme from government has distorted the market in India.

Dr A V Mohan Rao, Chairman, Spectrum Renewable Energy Pvt. Ltd, spoke on the investment opportunities and

potential for bio-CNG in India, stressing on how the focus on solar power can leave out the potential of other energy sources like bio-gas. More presentations on a diverse and encouraging range of solutions, models and experiences came from Mr Gagan Pal, Vice President, Tata Power Solar; Mr Paul Needham, President & Co-founder, Simpa Network; and Mr Sameer Maithal, Director, Greentech Knowledge Solutions.

The session also saw the launch of The Climate Group and Goldman Sachs (India) Securities Pvt Ltd’s Report, “The Business Case for Off-Grid Energy Use in India”, and ended with an involved and active question-answer session between the panellists and the audience.

As the third day of RE-INVEST, 1st Renewable Energy Global Investors Meet and Expo drew to a close, a session on “Decentralised Energy Solutions” brought under one panel ideas and discussions on off-grid energy solutions, investment potential and opportunities, as well as different and innovative business models that could provide solutions to India’s energy problems.



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Smart measures for 'Smart Grid'



There is need to have a different perspective to develop the power sector in a way that is missing so far, and one of the most important component of that is smart grids, stressed Dr PK Mishra, Additional Principal Secretary to Prime Minister, at the 1st Renewable Energy Global Investors Meet & Expo (RE-INVEST) on Tuesday.

Speaking at the session—Smart Grids in India - Roadmap for Rollout—Dr Mishra stated, “The whole concept of the smart grid has a lot of relevance for the power sector, especially with increasing focus on

renewable energy generation.”

Prof Rahul Tongia, Fellow, Brookings India and Technical Advisor- India Smart Grid Task Force set the tone for the session by highlighting the grid integration issues of renewable energy and the problems that may arise with government’s scaled up RE targets. He said, “Smart grids and renewables cannot be looked at in isolation, and we have to look at the most feasible ways to get maximum benefit.”

The session discussed the role of smart grids in modern power generation and distribution system and its relevance in

the context of integrating renewable power to the grid. Mr Devendra Chaudhary, Additional Secretary, Ministry of Power, Government of India, was of the opinion that the smart grid concept was very important in managing the renewable energy that is coming to the grid. He added that due to variations in energy generation, there are a lot of issues with power producers as well as the power distributors, and those issues could be tackled in a smarter manner through smart grids.

Mr BN Sharma, Joint Secretary, Ministry of Power, Government of India informed the audience about the government’s initiative in promoting smart grids in the country. He said that 14 pilot programmes and smart grids have been going on in the country and results are expected in the near future. He added that the government is planning to come out with a National Smart Grid Mission with an aim to give a decisive push to the concept.

Reiterating the increasing role of smart energy management, Dr Reji Pillai, President, India Smart Grid Forum, said that electricity grid is on the threshold of a paradigm shift. He stated that evolving grid is going to be revolutionary and India is at the forefront of this revolution.

The panellists discussed the need for strengthening and managing the grid infrastructure in India so that the increased output of renewable power could be integrated efficiently. Mr Francesco Marini,

SMART GRIDS IN INDIA- ROADMAP FOR ROLLOUT

CHAIRMAN:
● **Dr PK Mishra**, Additional Principal Secretary to Prime minister

CO-CHAIR:
● **Mr Devendra Chaudhary**, Additional Secretary, Ministry of Power, Government of India

MODERATOR:
● **Prof Rahul Tongia**, Fellow-Brookings India and Technical Advisor- India Smart Grid Task Force

SPEAKERS:
● **Mr BN Sharma**, Joint Secretary, Ministry of Power, Government of India
● **Mr Francesco Marini**, Head-Asia and Oceania, Enel Group
● **Mr Mackay Miller**, Technology Innovation Analyst, National Renewable Energy Laboratory
● **Prof Rajit Gadh**, Director, UCLA Smart Grid Research Centre
● **Dr Reji Pillai**, President, India Smart Grid Forum
● **Mr Siraj Bhattacharya**, Head-Marketing, Sterlite Technologies Ltd.
● **Mr IS Jha**, Director (Project), PGCIL

Head-Asia and Oceania, Enel Group showcased the success stories in Italy. He said, “The increased share of renewables warrant smart management. We need to apply smart technologies for the purpose integration of power to the grid and its efficient distribution.”

The experts were unanimous with regard to the need for stability of the grid. It was stressed that the stability of the grid has to be mandatorily driven by smart measures. “Stability can come only through smartness!”

Iceland to India: "If we can do it, so can you"

The importance of the session on ‘New and Emerging Technologies’ could be gauged from the fact that Minister of State (I/C) for Power, Coal and New and Renewable Energy, Mr Piyush Goyal made an unexpected visit to the small but packed room where the session was taking place. The session discussed some of the global advents in new and emerging technologies in renewable energy. The session opened with a presentation from Mr Bas Melssen from Novozymes. He said that cellulosic ethanol presents an emerging opportunity in India. Our technology is in the deployment stage worldwide. The commercialization of 2G ethanol began in Italy in October 2013, and since then it has witnessed a phenomenal growth. 2014 has proved to be a breakthrough year for the technology with six commercial plants starting operations, and another 20-25 are awaiting approval. There is a direct correlation between government actions in biofuel policies and their advancement and

use. According to him, India should also encourage the use of 2G ethanol as it has abundant biomass, blending targets and huge oil imports.

Dr Carsten Corino of SunOyster Systems Gmbh made a presentation about a new solar technology called SunOyster, which combines the best of the three technologies existing worldwide to tap solar energy – Concentrated solar, Concentrated photovoltaic and photovoltaics. “SunOyster is a combination of the best features of all these three technologies,” said Corino. He said that he wanted to introduce the technology in India and was looking for a partner to set up a manufacturing base in the country. Mr Benedikt Hoskuldsson of the Ministry for Foreign Affairs, Iceland, said that geothermal energy should also be considered by India. It is the most important form of energy in Iceland, with 27 per cent of the country’s electricity being produced from it. “If we can do it, so can you,” said Mr Hoskuldsson. The implementation of geothermal requires

dedicated institutions, supportive policies and access to risk mitigation.

Following this declaration, two interesting presentations were made about heat pumps. Mr Roshan Revenkar of International Ground Source Heat Pump Association said that heat pumps were a cost-effective and eco-friendly way of heating and cooling homes and commercial spaces. They use the temperatures of ambient air and (under ground for cooling and heating (without using electricity). The US is the biggest market for their product, accounting for 29 per cent of their market. This has been possible as US federal laws give 30 per cent tax credit for residential use of heat pumps and 10 per cent for commercial use. “We are willing to set up a manufacturing base in India, provided there is a market. China had set up a pilot project and now they have 200 manufacturers of the product,” said Mr Revenkar. Mr Reto Thoenen of Swiss Agency for Development and Cooperation said that different stakeholders must come together to make the heat pumps a success. Dr

FINANCING CHALLENGES FOR SMALL AND MEDIUM SCALE

CHAIRMAN:
● **Dr Anil K Dhussa**, Adviser, MNRE, Govt of India

MODERATOR:
● **Dr P Dhamija**, Director, MNRE, Govt of India

SPEAKERS:
● **Mr Bas Melssen**, Head of Biomass Conversion for Asia Pacific, Novozymes
● **Mr Benedikt Hoskuldsson**, Director-Natural Resources, Environmental and Energy Affairs, Ministry for Foreign Affairs, Iceland
● **Dr Carsten Corino**, Founder, SunOyster Systems Gmbh
● **Dr Kunal Upadhyay**, Chief Executive, Infuse Ventures, CIIE, IIMA
● **Mr Reto Thoenen**, Senior Energy Expert-Global Programme Climate Change, Swiss Agency for Development and Cooperation
● **Mr Roshan Revankar**, Manager, International Ground Source Heat Pump Association

Kunal Upadhyay of Infuse Ventures talked about an unique initiative of the Ministry of New and Renewable Energy and other organizations like CII, BP, ICICI bank, Bank of India and SIDBI. The initiative is the creation of an institute which gives support to small entrepreneurs for setting up start-ups in renewable energy. These start-ups have done phenomenal work in the sector. The ministry is keen that more and more people take advantage of this initiative so that the sector can grow at a fast pace.



Onshore wind investment: The way forward

The session on “Onshore Wind” was chaired and moderated by Mr V Subramanian, Former Secretary, Ministry of New and Renewable Energy and Chief Executive Officer & Chairman, Indian Wind Energy Association.

Earmarking issues on the manufacturing front, Mr Rakesh Bakshi, Managing Director, RRB Energy Limited said, “Manufacturing is not a problem; connecting us to the grid network and paying us on time to be able to redeploy is. The governments will have to get its act together to address the biggest challenges of integration and PPA.”

Agreeing with Mr Bakshi, Mr Madhusudan Khemka, President of the Indian Wind Turbine Manufacturers Association added, “If restricted by available bandwidth of money in injecting

technological upgradation, we will tire out. To have qualitative growth, the focus should be on capital investment.”

Commenting on the aspects of policy, Mr Jorn Hammer, Country Head, Vestas, said, “Manufacturing wind energy creates job in rural areas. This is an overlooked fact considering that the focus has more or less always been on solar. Manufacturing needs a pull and to that I would say that get a stable policy in India and we will tap in to help solve the problem of wind integration.”

Mr U B Reddy, Managing Director, Enerfra Projects (India) Limited, added, “Every officer interprets the policy differently. So, a detailing of guidelines and clarity needs to be sought.”

Mr Chintan Shah, President of Suzlon Energy, said, “We need to look at wind-solar hybrid so as to reduce and optimize resources.” He urged the

government to send a strong message to bankers to help finance products and manufacturers.

Mr Mahesh Makhija, Director, Business Development, China Light Power (CLP) Group, furthered, “Standardization of procedures has to be done at every step. Some sort of plan must be in place to secure the vulnerable local communities and sort out the government-community conflict in order to reduce operational hassles.”

Mr Sumant Sinha, President of the Indian Wind Energy Association, added, “Lot of reiterations in policy lead to faulty monetization. So consistency in policy making and with change in government(s), policies should not wane. Also grid and inter-state transmission issues need to be solved. Much stronger backing from local administration and consistency and robustness at ground level execution and operations are needed to streamline numbers into action.”

ONSHORE WIND

CHAIR & MODERATOR:

- Mr V Subramanian, Former Secretary, MNRE, Govt of India and CEO & Chairman, IWEA

SPEAKERS:

- Mr Steve Sawyer, Secretary General, Global Wind Energy Council
- Ms Varsha Joshi, JS, MNRE, Govt of India
- Mr Jami Hussain, Chief Mentor & Co-founder, Wind Force Management Services Pvt. Ltd.
- Mr S K Negi, MD, Gujarat Energy Transmission Corporation Ltd.
- Mr Sushanta Chatterjee, Joint Chief (Regulatory Affairs), Central Electricity Regulatory Commission
- Mr V K Agrawal, CEO, Power System Operation Corporation (POSOCO)
- Mr Chintan Shah, President, Suzlon Energy
- Mr Jorn Hammer, Country Head, Vestas
- Mr Madhusudan Khemka, President, Indian Wind Turbine Manufacturers Association
- Mr Rakesh Bakshi, MD, RRB Energy Ltd.
- Mr Mahesh Makhija, Director - Business Development, China Light Power (CLP) Group
- Mr Sumant Sinha, President, IWEA
- Mr U B Reddy, MD, Enerfra Projects (India) Pvt. Ltd.
- Mr K S Popli, Chairman & MD, Indian Renewable Energy Development Agency
- Mr Rajat Misra, VP, SBI Capital Markets Ltd.
- Mr Y K Sehgal, ED, Power Grid Corporation of India Ltd.

Enthusiasm and optimism at RE-INVEST



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Energy Next
Your guide to Renewable Energy



RE-INVEST ends on a successful note



The final session of RE-INVEST was indicative of the scale of support and enthusiasm the three day-long conference had garnered. Packed to capacity, the Valedictory Session began on a positive and encouraging note, with a video message from Mr Al Gore, Former Vice President of United States of America. Expressing regret at being unable to attend the conference, Mr. Gore said that RE-INVEST comes at a critical time for both India as well as the world as a whole. “We do have to change, and people know that.” Mr Al Gore added that Prime Minister Modi has made Renewable Energy a priority and the world has taken note. “Renewable Energy is the key to a sustainable and prosperous future for our planet.” The world, he said, might very well point to the conference as a turning point for India.

The man of the hour, of course, was Mr Piyush Goyal, Minister of State (I/C) for Power, Coal and New and Renewable Energy. Taking to the podium to make his opening remarks, Mr Goyal expressed happiness at the full

house for the session, calling it a “reflection of the importance given to RE.” He went on to add that it won’t be wrong to call “RE now an inclusive agenda of India’s energy policy...A part of mainstream plan of India’s energy future.” Addressing the audience, he said, “I hope that you will take the message of RE to every person in India”

Mr Goyal also congratulated the delegates from both India and abroad, as well as the exhibitors who had taken time to be part of the conference. On a more action oriented note, Mr Goyal said that plans were in place to follow up after the conference. “There will be monthly working sessions to review progress and a 6 monthly review at my level to see that policies are being implemented.” The goal, he said, is to make India the RE capital of the world.

Following the remarks from Mr Goyal, representatives from the companies and banks who had made Green Energy Commitments of over 1000 megawatts were called on stage and facilitated by the delegates on the dais, including the chair for the session, Mr. Arun Jaitley, Union Minister of Finance.

Following the felicitation, Mr Prakash Javadekar MOS(IC) Environment, Forests and Climate Change, took the podium, and elaborated on the huge success of the conference. Referring to the upscaled target of RE in the country, he said, “Your commitment to the cause shows that we will be able to achieve the target before 2020.” Speaking as the environment minister, Mr. Javadekar said, underlining the need for rapid clearances, “You work on green energy projects, and I will give you green channels.” He also added that wildlife clearances were more difficult, and certain had genuine concerns, but he would ensure predictability of policy and standard guidelines which would make the process smoother.

The assurances were heartening for both investors and stakeholders in RE. The audience received Mr Javadekar’s speech with enthusiastic applause, following which, Mr Arvind Panagariya, Vice Chairman, National Institution for Transforming India NITI Aayog came to the podium, beginning with a light hearted comment on his lack of expertise in the field. He added, on a more serious note, “We are being led from the front in this field by the Prime Minister and Mr Goyal.” He added that India has potential for both solar and wind energy.

Mr Suresh Prabhu, Minister of Railways, followed Mr Panagariya, and spoke both dynamically and encouragingly of India’s position today. “This is a conference which intended to deliver something, and each one of you in the audience is a missionary for the cause of Energy Swaraj in India.” He said that the objective for India should be to become self reliant and not rely on imports. “This conference comes in the background of falling oil prices. People say that this won’t be good for RE. I said that this conference is not good news for those who produce oil.” He called RE-INVEST a game changer for RE in the world. He also reiterated the need for RE to not depend on subsidies, stressing on the importance of marrying market and state, and making RE market oriented. “It is a challenge right now, and it needs help, but we should also sign a letter to say that in 3 years, we won’t need to take subsidies from the government.”

Last, but not the least, Mr Arun Jaitley, Minister of Finance, took the podium, remarking lightly that he thought it a great disadvantage to speak last at the conference. “A lot of what you have to say has already been said several times over.” He also joked that persuaded by Mr Goyal to speak at the conference, he was breaking the golden rule that the Finance Minister doesn’t speak in the

run up to the budget. “I must mention that there is a huge change of mood and attitude in India, and this is reflected in the large scale of enthusiasm in this conference.” The Indian situation with regard to energy, he said, is very challenging, but off late we have seen very encouraging results. The roadmap towards cheaper electricity to citizens should not depend on government subsidies, which means taxing some people more to make things free for other people. “That’s not a sustainable model.” Ending on a positive note, Mr Jaitley called the conference a take off point for India. “Once we are able to succeed in this area, there will be consequences on the economy... filling power supply gaps, job generations, entrepreneurial opportunities... and yet we will not be hurting the environment.”

The valedictory session ended with a vote of thanks delivered by Mr Upendra Tripathy, Secretary, Ministry of New & Renewable Energy. He expressed gratitude to the panellists, guests, delegates and organisers of the renewable energy festival.

VALEDICTORY SESSION

- Mr Piyush Goyal, Minister of State (I/C) for Power, Coal and New and Renewable Energy, Govt of India
- Mr Dipak Dasgupta, Board Member, Green Climate Fund
- Mr Prakash Javadekar, Minister of Environment and Forest
- Mr Arvind Panagariya, Vice Chairman, National Institution for Transforming India (NITI) Aayog, Government of India
- Mr Suresh Prabhu, Minister of Railways, Government of India
- Mr Arun Jaitley, Union Minister of Finance, Government of India
- Mr Upendra Tripathy, Secretary, MNRE, Government of India

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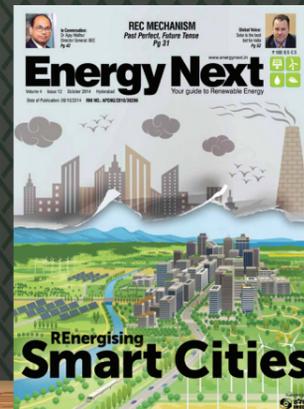
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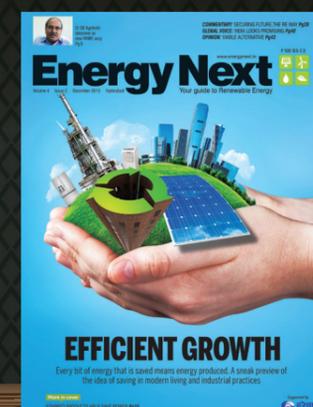
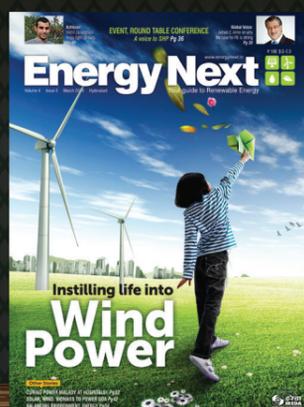
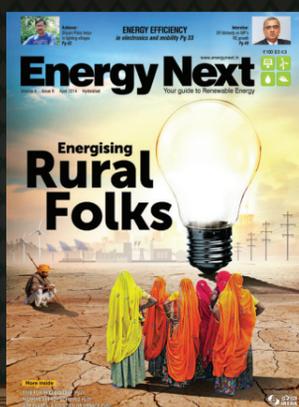
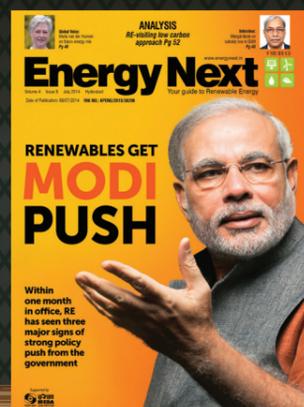
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