

4th INDO GERMAN ENERGY SYMPOSIUM

SCALING UP RENEWABLE ENERGY AND FACILITATING FINANCE

18 – 19 November 2015, Bombay Exhibition Center, Mumbai

JOINTLY ORGANISED BY:

Ministry of New and Renewable Energy, Government of India
Federal Ministry for Economic Cooperation and Development
Federal Government of Germany

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In cooperation with: connecting solar business | INDIA



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WELCOME TO THE INDO-GERMAN ENERGY SYMPOSIUM

This year, Intersolar India is hosting the 4th Indo-German Energy Symposium, a high level platform for expert's exchange from India and Germany on the most important questions of solar PV market development, large scale grid integration of renewable energies, finance and investment opportunities for renewable energies and energy efficiency in India.

The biennial Symposium takes place on behalf of the Ministry of New and Renewable Energy (MNRE), Government of India and the Federal Ministry of Economic Cooperation and Development (BMZ), Federal Government of Germany.

Looking back on more than a decade of successful energy cooperation, the latest Indo-German energy flag-ship initiatives encompass financial and technical cooperation of more than a billion Euros for the Green Energy Corridor Project and another billion Euros envisaged to strengthen the Indo-German Solar Partnership. This year, on the 5th of October Prime Minister Modi and Chancellor Merkel agreed on this partnership which was officially signed by Shri Piyush Goyal, Minister of State with Independent Charge for Power, Coal and New and Renewable Energy of the Government of India and German Minister for Economic Cooperation and Development, Gerd Müller. The Solar Partnership will focus on cooperation in solar rooftop market development, solar power plants or solar zones and solar off-grid applications.

This Indo-German Energy Symposium brings together representatives from industry, central and local government, financial and research institutions from India and Germany to join the expert discussions over two days in four high level sessions. We are looking forward to have fruitful discussions and insights on further developments in India's solar market.

**INAUGURATION OF INTERSOLAR INDIA AND
4TH INDO-GERMAN ENERGY SYMPOSIUM****18 NOVEMBER, 2015
WEDNESDAY**

- 10:15 Inaugural Ceremony
- 10:30 **Welcome Notes**
- Markus Elsässer, Chief Executive Officer, Solar Promotion International GmbH, Germany
- Susanne Dorasil, Head of Economic Cooperation & Development, German Embassy New Delhi, India
- Claudia Arce, Director South Asia, Afghanistan and Pakistan, KfW Development Bank, Germany
- 10:50 Break
- 11:00 **Welcome and Introduction**
- 11:05 **The Role of Solar Energy in Our Future, Renewables-Based Energy System**
Prof. Dr. Eicke R. Weber, Director, Fraunhofer Institute for Solar Energy Systems ISE, Germany
- 11:25 **India's Emergence as a Dominating Global PV Market**
Pashupathy Shankar Gopalan, President, Asia Pacific, SunEdison, India
- 11:45 **Keynote Address**
Anil Kumar Jain, Adviser Energy, NITI Aayog, India (invited)
- 12:05 **Keynote Address**
Tarun Kapoor, Joint Secretary, Ministry of New & Renewable Energy (MNRE), India

SOLAR PV ROOFTOP - MARKET DEVELOPMENT IN INDIA AND INTERNATIONAL TRENDS

**18 NOVEMBER, 2015
WEDNESDAY**

With 40 GW of solar rooftop installations as part of India's overall solar target of 100 GW by 2022, grid-connected solar rooftop as well as off-grid applications are considered to have an enormous development in the upcoming years. This session focuses on upcoming business models and perspectives for different business opportunities in solar rooftop, possibilities of financing and support schemes as well as international trends in self consumption.

CHAIRPERSON OF SESSION:

Ms. Claudia Arce, Director for South Asia, KfW Development Bank, Germany

- 14:00 **Welcome and Introduction by Chairperson**
- 14:05 **Solar Rooftop Market Development in India - Rooftop Policy and Future Perspectives**
Mr. Tarun Kapoor, Joint Secretary, Ministry of New and Renewable Energy (MNRE), India
- 14:20 **Status Quo and Future Perspectives on Business Opportunities**
Mr. Shubhramshu Patnaik, Senior Director, Deloitte, India
- 14:35 **Financing Solar Rooftop in India**
Mr. K. S. Popli, Chairman and Managing Director, Indian Renewable Energy Development Agency Ltd. (IREDA), India
- 14:50 **International Trends in Self Consumption of PV Electricity**
Prof. Dr. Eicke R. Weber, Director, Fraunhofer Institute for Solar Energy Systems (ISE), Germany
- 15:05 **Open Discussion**
- 15:30 **Tea Break**

PLANNING FOR 175 GW GRID CONNECTED RENEWABLE ENERGY CAPACITY BY 2022: TRANSMISSION INFRASTRUCTURE AND SYSTEM BALANCE

**18 NOVEMBER, 2015
WEDNESDAY**

Integration of renewable energy power plants in the transmission network is a critical prerequisite for a sustainable energy supply in India. Indian government is setting up transmission lines, so called "green energy corridors" (GEC), and Renewable Energy Management Centres (REMC) to transmit clean energy from the country's leading renewable power states to those with high electricity demand. Via "green energy corridors" states as Madhya Pradesh, Rajasthan and Gujarat, will be able to "evacuate" their electricity in excess to states like Delhi and the state of Maharashtra. This session gives an overview on ongoing bilateral cooperation projects, challenges of large scale grid integration of existent and upcoming renewable power plants.

CHAIRPERSON OF SESSION:

**Ms. Susanne Dorasil, Head of Economic Cooperation,
German Embassy in New Delhi, India**

- 16:00 Welcome and Introduction by Chairperson
- 16:05 Overview on Bilateral Technical Cooperation in the Framework of Green Energy Corridors
Mr. Markus Wypior, GIZ, India
- 16:15 Integration of Renewable Energies in the Distribution Grid
Mr. Christoph Blaschke, Advisor, Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB), Germany
- 16:25 Overview on Bilateral Financial Cooperation in the Framework of Green Energy Corridors
Mr. Stefan Hediger, Head of Energy Cell, KfW Development Bank, India
- 16:35 Challenges of Renewable Energy Grid Integration for DISCOMS
Mr. L. Lakshmiopathy, Deputy Director, Power Company of Karnataka Ltd. (PCKL), India
- 16:50 Transmission Plan for Renewables Capacity Addition 2015-2022
Mr. Rajesh Kumar, Chief Manager Smart Grid, Power Grid Corporation of India Ltd. (PGCIL), India
- 17:05 Open Discussion
- 17:30 Networking Reception

**MAKING RE AND EE BUSINESS A WIN-WIN
FOR PRIVATE AND PUBLIC****19 NOVEMBER, 2015
THURSDAY**

During this session business opportunities in renewable energies and energy efficiency in India will be presented. For accelerated investments promotional schemes might be adjusted. The session shall prove that good promotional schemes will lead to significant returns for the private sector as well as for public households. By this session, a constructive discussion on win-win situations is targeted. Representatives from private and public sector are addressed.

CHAIRPERSON OF SESSION:**Dr. Winfried Damm, Director Indo-German Energy Programme, GIZ**

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| 10:00 | Welcome and Introduction by Chairperson |
| 10:05 | Good Subsidies Fill the State Treasury
Ms. Karolin Blattmann, Senior Project Manager, Adelphi, Germany |
| 10:20 | Business Opportunities with Water Pumping
Dr. Amarpal Singh, Chief Executive, Punjab Energy Development Agency (PEDA), India |
| 10:35 | Business Opportunities with Green Buildings
Mr. Homi N. Daruwalla, Executive Vice President (in retirement), Godrej, India |
| 10:50 | Business Opportunities with Efficient Lighting
Mr. S. B. Datta, Principal Consultant – Lighting, Energy Efficiency Services Limited (EESL), India |
| 11:05 | Open Discussion |
| 11:30 | Tea Break |

BANKABLE BUSINESS MODELS TO FINANCE SOLAR PROJECTS IN INDIA

19 NOVEMBER, 2015
THURSDAY

In this session the bankability of solar projects, new financing instruments of commercial banks as well as support schemes of the Government of India, will be presented. Development banks like the German government owned development bank KfW demonstrates possibilities of financing to the Indian government, public enterprises and commercial banks to push solar energy in India. DEG – The German Investment and Development Company, shows examples for minority equity stakes and loans to private companies investing in photovoltaics.

CHAIRPERSON OF SESSION:

Ms. Susanne Dorasil, Head of Economic Cooperation and Development,
German Embassy in New Delhi

- 12:00 Welcome and Introduction by Chairperson
- 12:05 **Bankability of Solar Projects - A Developer's Perspective**
Mr. Vineet Mittal, Vice Chairman, Welspun Energy, India
- 12:15 **Better Risk Coverage by New Financing Instruments of Commercial Banks**
Mr. Pawan Kumar Agrawal, President Corporate Finance, YES Bank, India
- 12:25 **Bridging the Financial Gap - The Role of Developments Banks**
Mr. Stefan Hediger, Head of Energy Cell, KfW Development Bank, India
- 12:35 **Finance Schemes by IREDA for Solar Projects**
Mr. Abhilakh Singh, General Manager Solar, IREDA, India
- 12:45 **Financing Solar Power Plants in India**
Mr. Eric Kaleja, Vice President Energy Africa and Asia, DEG – The German Investment and Development Company, Germany
Mr. Kunal Makkar, Country Director India, DEG – The German Investment and Development Company, India
- 12:55 Open Discussion
- 13:30 Lunch and End of Symposium



ABHILAKH SINGH

Mr. Abhilakh Singh is a Graduate in Electrical Engineering, MS in Consultancy Management and Member of Institution of Engineers and Fellow Member of IETE. He has experience in Renewable Energy specifically in wind & solar projects financing for last 21 years. Currently he is General Manager and heading Solar & IT Divisions of IREDA. His additional responsibilities are Management Representative for ISO 9001. Prior to joining IREDA, he was working with STQC, Department of Electronics & Information Technology, Govt. of India heading Environment Engineering Division.



CLAUDIA ARCE

Ms. Claudia Arce is heading the South Asia, Afghanistan and Pakistan department in KfW Development Bank as the responsible director for this region. In 1993 she joined KfW Group and has held various positions within the institutions since then. Claudia Arce was appointed First Vice President for North Africa and Middle East within the KfW Development Bank in 2004. In this position Ms. Arce was focussing on development work with special regard to renewable energies/energy efficiency, water resources and microfinance. In 2011 Ms. Arce was seconded to the United Nations Framework Convention for the Climate Change to assist the secretariat in the design of the Green Climate Fund.

**CHRISTOPH BLASCHKE**

Christoph Blaschke is serving as an advisor for energy system decarbonisation strategies in international climate policy in the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety. Mr Blaschke has been working for Berlin Energy Agency (BEA) in the International Know-how Transfer department before he joined GIZ in 2015. He holds a master in Engineering and Business Administration with a specialization in energy and resource management from Technical University Berlin and the Alliance of Management Schools in European Capitals. He worked 3 years for PricewaterhouseCoopers in Düsseldorf for the business division Corporate Finance, Energy Industry – Fundamental Planning Energy Supply.

**DR. AMARPAL SINGH**

Dr. Amarpal Singh is holding the position of Chief Executive at PEDA. He deals pre-dominantly with renewable energies such as solar, biomass, hydro and waste as well as with the topic energy efficiency. Under his leadership the State has seen a quantum jump in Solar Energy from 9 MW to 218 MW in just 2 years, which is going to touch 500MW by March 2016 with an investment of more than Rs.4000 Crore. He played a pivotal role in formulating Punjab's Rooftop net-metering Policy and implementation of the New & Renewable Energy Policy.



ERIC KALEJA

Eric Kaleja, holds a position of Vice President Energy Africa / Asia at DEG– German Investment and Development Bank. He is responsible for originating and structuring long-term funding solutions for energy-related projects through debt and mezzanine in East Africa and South Asia. Previously, Eric headed DEG's Regional Office in Nairobi, where he successfully built up a portfolio of more than USD 350 million in over 35 companies. He has in depth-experience in long-term financing in emerging markets having worked on deal flow generation, negotiation and structuring of investments, portfolio management and macro-economic and industry-specific analysis. He holds a master degree in economics and business administration from the University of Witten/Herdecke, Germany.



KULJIT SINGH POPLI

Kuljit Singh Popli is Chairman and Managing Director of the Indian Renewable Energy Development Agency. He is an Electrical Engineer from Birla Institute of Technology, Ranchi. He also holds a Post Graduate Diploma in Project Management and a Degree in Law. He has more than 30 years' experience in the power sector. As Technical Director, he is responsible for project appraisal, financing, policy formulation, planning and monitoring of renewable energy and energy efficiency, and conservation projects.

**KAROLIN BLATTMANN**

Karolin Blattmann is a senior project manager at Adelphi a public policy consultancy on climate, environment and development. She manages international and national projects within the areas of energy efficiency and renewable energy. These include energy financing, policy, market instruments and technology assessment as well as private sector support. As a senior project manager she has led projects in Northern Africa and South Asia focussing on renewable energy market assessments, technical assistance for credit lines as well as the development of programme set-ups for energy efficiency financing. She holds a Master's degree in business and engineering, with a major in mechanical engineering, energy technologies and energy economics.

**KUNAL MAKKAR**

Kunal Makkar is the Country Director of DEG – German Investment and Development Bank in India and has been working with DEG for the past 9 years. At DEG, he's been responsible for deal originations, structuring and portfolio management and has been involved with successful completion of transactions amounting of over USD 325 million across sectors viz. manufacturing, infrastructure, financial services and food and agri-business. Prior to joining DEG, Kunal Makkar worked with ING Vysya Bank (now Kotak Mahindra) in the Corporate Banking division specializing in wholesale banking. He holds an MMS (Finance) degree from University of Mumbai and a Bachelor's degree in Commerce (Honours) from University of Delhi.



MARKUS WYPIOR

Mr. Markus Wypior holds a degree as an economist from the University of Bonn, Germany. Mr. Wypior joined GIZ in 2003 as a regional manager in the Asia-Pacific department responsible for energy and environment projects. From 2005 - 2010 he was seconded to India for the implementation of the National CFC Consumption Phase-out Plan and the National CTC Phase-out Plan under the Montreal Protocol on Substances that deplete the Ozone Layer. At present he is the Deputy Director of the Indo-German Energy Programme (IGEN) and heads the IGEN Green Energy Corridor Project on large scale grid integration of renewable energy.



H.N. DARUWALLA

Mr. H.N. Daruwalla served G & B for 45 years and retired as Executive VP Godrej Electricals and Electronics. For the first 30 years of service he headed the Utility Department of G & B, looking after the electrical, electronics and energy conservation departments. Mr. H.N. Daruwalla joined Godrej & Boyce (G & B) in 1970, after passing out from Walchand College of Engineering, Sangli, in the discipline of electrical and electronics. Presently he is driving CSR Greener India within organization, targeting reductions of the specific use of energy, water and waste as well as an improved environment management and an extended use of renewable energies.



PROFESSOR DR. EICKE R. WEBER

Professor Eicke R. Weber is Director of the Fraunhofer Institute for Solar Energy Systems ISE and Professor of Physics and Applied Sciences at the Albert-Ludwig University of Freiburg, Germany. Fraunhofer ISE is one of the world's leading research institutes in the field of renewable energy and energy efficiency. Prof. Weber studied Physics at the University of Cologne, Germany, where he made his doctorate in 1976. In 1990 he was professor at the Tohoku University in Sendai, Japan, and in 2000 at the Kyoto University in Kyoto, Japan. In 1994 he received an Alexander von Humboldt Senior Scientist Award. In 2006 he received the Award of Merit from former German President Horst Köhler.



RAJESH KUMAR

Mr. Rajesh Kumar is currently working as Chief Manager, Smart Grid at Power Grid Corporation of India Ltd. He has around two decades of work experience in the field power system. He is member of various national and international professional bodies such as IEEE, CIGRE and IET. He has the firsthand experience of working at Northern Regional Load Dispatch Center (NRLDC) dealing with system operation, network visualization and dispatcher training simulator etc. Mr. Rajesh has done his graduation in Electrical Engineering from NIT, Rourkela and Masters in Energy and Environment Management from I.I.T., Delhi.



SHUBHRANSHU PATNAIK

Mr. Shubhranshu Patnaik is a Senior Director and the leader of the Power & Utilities service line in Deloitte Consulting in India. He has about 20 years of consulting experience in the power sector and has wide experience in sector restructuring, capacity building and performance improvement. Shubhranshu has led assignments advising the Central Government in India on several contemporary initiatives in the power & clean energy sector including advise to MOP on the ongoing Power for All initiative, framing guidelines and standard bidding documents for tariff-based competitive bidding for generation & independent power transmission, advice to MNRE on the commercial framework for implementing Phase 1 of the National Solar Mission.



S. B. DATTA

S. B. Datta has over 3 decades experience in Sales, Marketing, Product Management and Corporate Communications mostly in the field of lighting with Global players. Currently at Energy Efficiency Services Ltd. (EESL) he is responsible for implementation of LED based street lights & DELP for consumers for supply of LED bulbs, all across India. In 2008 Mr. Datta designed a Solar based CFL lantern which was launched by the past PM of India, Dr Manmohan Singh as part of the Lighting A Billion Lives (LABL) campaign by TERI & Clinton Foundation. He also designed a major part of the lighting of Terminal 3 International airport, New Delhi recently ranked amongst the top in the world.

**TARUN KAPOOR**

Shri Tarun Kapoor is an IAS officer (Himachal Pradesh Cadre, 1987 Batch) and is currently the Joint Secretary (Solar) at Ministry of New and Renewable Energy. At MNRE, Shri Kapoor leads the implementation of National Solar Mission and several other key initiatives. Presently posted in the Ministry dealing with renewable energy, which is responsible for policy and programmes for promotion of Solar, Wind, Small Hydro, Geothermal, Biomass etc. in the country. This is a separate Ministry in Government of India headed by a Cabinet Rank Minister. He holds a degree in Bachelor of Engineering in Mechanical and has also done his MBA.

**STEFAN HEDIGER**

Stefan Hediger joined the KfW Office Delhi as Head of the Energy Cell in August 2015. Prior to that he was responsible for KfW programs concerning the promotion of investments in Energy Efficiency and Renewable Energy over financial intermediaries in Southeast Europe. He started his carrier by working for Credit Suisse in the Corporate Banking Division. He holds a Master Degree in Economics from the University of Basel and another Master in International Cooperation from ETH Zürich.



SUSANNE DORASIL

Susanne Dorasil is Head of Economic Cooperation and Development Division at the Embassy of the Federal Republic of Germany in New Delhi. Until recently, Susanne Dorasil served as German co-facilitator of the G20 development pillar on Private Investment and Job Creation and as German co-chair of the sub-group on SME Finance of the G20 Global Partnership for Financial Inclusion. She was also a member of the Social Impact Investment Task Force established under the UK G8 Presidency. She studied law at the Free University of Berlin and holds a Master of Laws degree from King's College London. She passed her bar examination in Berlin.



VINEET MITTAL

Mr. Vineet Mittal is the MD of Welspun Energy and a serial entrepreneur, He is known for his visionary leadership and execution abilities. His strengths lie in envisioning and implementing large-sized complex projects and building up global organizations. Vineet is the Co-Chair of ASSOCHAM Renewable Energy committee, Chairman of ASSOCHAM Solar Task Force, member of Solar Energy Advisory Council - MNRE (Ministry of New & Renewable Energy) and Founder President of Solar Power Developers Association (SPDA). He is also on the Board of National Institute of Solar Energy (NISE). He holds a Bachelor of Technology from NIT, Master of Sciences from McGill University, Canada and is an alumnus of Harvard University.



WINFRIED DAMM

Dr. Winfried Damm, is a MBA graduate from Michigan State University (USA) and holds Ph.D. from FU Berlin. He worked for two years as a consultant, four years for a member of national parliament in the energy sector and joined the municipal utility (Stadtwerke) of Leipzig in 1992. There he headed sales, marketing, strategy, controlling, M&A, international department and was responsible for external relations. He had been involved in many national legislative outcomes starting with the first feed-in-law for renewables up to the current capacity market discussions. Dr. Damm started working with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in December 2014 and joined the GIZ India office in January 2015 as Director of the Indo-German Energy Programme.



PAWAN AGRAWAL

Pawan Agrawal is President, Corporate Finance at YES Bank with over 15 years of experience wherein he is leading Infrastructure Finance practise for the Bank with special focus on renewable energy. Prior to YES BANK, he has worked with CRISIL, IOCL and E&Y. He is a regular speaker in various knowledge forums organized by Infraline Energy, CII, MNRE, TERI, ASSOCHAM, UBM, PHD Chambers, First View, etc. and also in various events organized by leading educational institutions including FMS, IIT-Delhi, SRCC, IMI, LBS, Jaipuria Institute of Management, etc. Pawan is also a rank holder CA, CMA, MBA from FMS and has also cleared CFA, USA examination.



L. LAKSHMIPATHY

Mr. L. Lakshmipathy is Deputy Director (Projects) in the Power Company of Karnataka Ltd. (PCKL). He also has served as nodal officer with responsibility for the implementation of on- grid solar rooftop photovoltaic programmes in BESCO. He was deputed to Korea for a training programme on distribution automation and to Germany for a study tour on the implementation of solar rooftop photovoltaic programs. Mr. Lakshmipathy graduated from PES College of Engineering, Mandya, University of Mysore. In 1980 he joined Karnataka Electricity Board and served for over 35 years as an engineer in various fields like O & M, office in GESCOM, CESCO, BESCO, technical audits and quality control in KPTCL.



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