Indo-German Energy Forum Support Office

INDO-GERMAN ENERGY FORUM NEWSLETTER

VOLUME 06, ISSUE 02 JULY 2019

Federal Ministry for Economic Affairs and Energy
Federal Ministry for the Environment, Nature Conservation and Nuclear Safety
Federal Ministry for Economic Cooperation and Development
KFW
Government of India Ministry of Power
Government of India Ministry of New and Renewable Energy
Energy is Life BEE Conserve it
giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Contents

1 Introduction

2 Events & Activities

Contents

3 Developments in Indo-German Energy Co-operation

Contents

4 Quote of the month from India and Germany

5 Energy Transition News

Contents

Publications

Upcoming Events

1 Introduction

Shri Rajat Kumar Mishra

Shri Rajat Kumar Mishra
Joint Secretary, Department of Economic Affairs, Ministry of Finance, Govt. of India

Shri Rajat Kumar Mishra, Joint Secretary to Government of India, Department of Economic Affairs, Ministry of Finance and India's Co-Chair of the Subgroup 4 on Green Energy Corridors under the Indo-German Energy Forum (IGEF) is an Indian Administrative Service (IAS) officer of the 1992 batch and belongs to Rajasthan cadre. Shri Mishra has a very distinguished academic background and is a gold medallist in his Master's degree in Geology from the Utkal University Bhubaneshwar.

Before assuming his position in the Ministry of Finance, Government of India in January 2019, Shri Mishra has served as a senior civil servant in Rajasthan as Principal Secretary in Public Health Engineering Department and Labour and Employment besides being posted as Secretary in the Chief Minister's Office. He has also worked as Secretary Finance, Government of Rajasthan as well as the Chairman of the Rajasthan State Electricity Regulatory Commission. Shri Mishra had been personally involved in the history of Renewable Energies in India already way back in 1999, while supporting the installation of the first wind measuring towers in Jaisalmer. In fact, India's first successfully registered renewable energy project under Clean Development Mechanism of the United Nations Framework Convention on Climate Change (UNFCCC) was implemented in the state of Rajasthan with Germany as official partner country.

During the last meeting of the Subgroup "Green Energy Corridors" under the IGEF, held on 14 February 2019 in New Delhi, Joint Secretary Shri Mishra lauded the robust relationship between the two countries.

Events and Activities

2

Berlin Energy Transition Dialogue (BETD2019) with high-level participation from India

8-10 April, Berlin

The 5th Berlin Energy Transition Dialogue (BETD) welcomed 2000+ high-level participants from around 100 countries to discuss ideas and experiences on a successful energy transition. The event took place on 9 and 10 April 2019 at the German Federal Foreign Office in Berlin. Focus of the event sessions was on a low-carbon energy transition in support of the Paris Agreement. The BETD was attended by representatives from politics, industry, academia and civil society, 50 state ministers and state secretaries as well as 120 international speakers. High-level representatives from Government of India participated in the international conference as well as in an intensive fact-finding mission on e-mobility with focus on Europe's public charging infrastructure. The Indian delegation was led by Shri Sanjiv Nandan Sahai, Additional Secretary, Ministry of Power (MoP), Government of India and was composed of further senior representatives from the Ministry of Power and National Thermal Power Corporation Ltd. (NTPC). Speakers at the conference included Francesco La Camera, Director General of the International Renewable Energy Agency (IRENA), Dr Fatih Birol, Executive Director of the International Energy Agency (IEA) and Heiko Maas, Federal Minister for Foreign Affairs as well as Federal Minister Peter Altmaier who had invited the Indian delegates.

BETD speeches and video outtakes can be accessed online at YouTube. The full press release of the conference can be downloaded here. The BETD press factsheet lists key facts about the energy transition in Germany.

German Federal Minister Peter Altmaier and Minister Heiko Maas with high rank officials from India and other countries

Delegates in front of a replica of one of the first common electric battery cars (1896) widely used in Germany

Federal Ministry
for Economic Affairs
and Energy

GOVERNMENT OF INDIA
MINISTRY OF POWER

IGEF Subgroup Meeting on "Flexibilisation of coal fired power plants" to adapt to Renewables

11 April, Berlin

The Subgroup 1 meeting on flexibilisation of coal fired power plants to adapt to Renewables under the Indo-German Energy Forum took place in Berlin on 11 April 2019 and was co-chaired by Ms Archana Agrawal, Joint Secretary, Ministry of Power (MoP), Government of India and Mr Wolfdieter Bõhler, Head of Division, Federal Ministry for Economic Affairs and Energy, Government of Germany. Representatives from NTPC, Embassy of India, Associations and GIZ also attended the meeting. The agenda dealt with the future work of the present Indo-German Task Force Flexibility which was established by the co-chairs of this Subgroup. New activities to be carried out are training measures for power plant operators including simulator trainings and field visits to Indian power plants capable to substantially ramp down to a stable minimum load. The Excellence Enhancement Center (EEC) for the Indian power sector was found to be an important organisation to carry out such measures. The co-chairs from both countries were also briefed about the activities and results regarding power system flexibility which form part of the work of the other 3 Subgroups under the Indo-German Energy Forum. On request of hon'ble Secretary Energy, Government of Germany and hon'ble Secretary Power, Government of India, the main topic discussed in all 4 Subgroups under the Indo-German Energy Forum is the flexibility of the whole electricity system. India and Germany share the strong commitment to increase renewable power generation with increasing requirements for dynamic balancing. Main measures identified and worked on in both countries are RE-Forecasting and Grid Codes on System Operation Level (Subgroup 4) as well as Improved Ancillary Services and Electricity Market Design; Large Scale Industrial and Commercial Demand Response and Efficiency (Subgroup 3), Coal Ramping (Subgroup 1) as well as Hydro Ramping and Pumped Storage (Subgroup 4) but also Transmission Expansion (Subgroup 4). Involuntary load shedding and large scale chemical storage are still perceived as measures with highest costs for balancing, but both Governments are closely observing promising developments especially in the battery sector.

(From L to R) Mr Sreekumar N Veetil, Embassy of India; JS Archana Agrawal, Ministry of Power and Co-Chair of Subgroup 1; Mr Tiwari, NTPC and chair of Task Force Flexibility; Mr Anil Kumar, IGEF-SO

T4<2° Transforming Transport for under two Degrees

10 April, Berlin

The workshop focused on the mobility transition as a significant part of the energy transition. Mr Rolando Castro Córdoba, Vice Minister of Energy, Government of Costa Rica and Ms Archana Agrawal, Joint Secretary, Ministry of Power, Government of India presented the current state of the mobility transformations in Costa Rica and India respectively. They shared valuable experience on key factors that contribute to a successful transformation. Participants were especially interested in factors which could also be applied on an international level. Ambitious action in the transport sector is required globally to achieve the emission targets of the Paris Climate Agreement. At the same time, transport demand is expected to rise steadily in view of continuous urbanization and motorization. In a following panel session, participants exchanged national lessons learnt and discussed favourable framework conditions to facilitate a global mobility transformation. Ms Michaela Spaeth, Director Energy & Climate Policies, Federal Foreign Office, Government of Germany and Ms Vera Scholz, Director of Division Climate Change, Environment, Infrastructure, GIZ were leading this discussion. With this event, GIZ, Agora Verkehrswende and the World Economic Forum launched the T4<2° project "Transport for a below two degrees future" on behalf of the Federal Foreign Office. The project aims to provide decision-makers in international politics and administration with recommendations for action to create fruitful framework conditions for a climate-friendly and sustainable transformation of the transport sector.

For more information please visit https://www.t4under2.org/

High level T4<2° workshop with participants from Government of India and Government of Germany

Harvesting the Sun for Power and Food – AgroPV in India

26-27 April, Hyderabad

Mr Sanmati Naik from Frauenhofer Institute India on newest research on AgroPV in India

IGEF contributed to this year's renewable energy expo RenewX 2019 with a conference session on AgroPhotovoltaics (AgroPV). IGEF-Director Tobias Winter highlighted the diverse benefits of sharing the same area for both solar photovoltaic power generation as well as for agricultural yield, using solar panels adjusted in height. Among others, the main advantage of AgroPV is the possibility to considerably increase the solar power capacities in India without sacrificing fertile land. In case the developer is not opting for dry cleaning of solar panels the precious water from cleaning can be easily captured and used for watering the plants at any convenient time. One of the most effective and affordable ways of collecting the water is to install simple rain gutters as already manufactured in India. The effectiveness of such systems has been recently scientifically proven by the Indian Institute CAZRI. Outlining the potential for this still relatively new concept for the Indian market, Mr Winter showed numerous examples of existing large scale AgroPV plants in other countries as well as first MW-size plants constructed on Indian ground by the pioneering company Harsha Abakus. Mr Sanmati Naik from Fraunhofer Institute featured very recent AgroPV research results from India. The research had been conducted by Fraunhofer Institute for Solar Energy Systems in Freiburg, Germany and was focusing especially on suitable Indian crops grown under such AgroPV plants.

RenewX 2019 took place from 26 to 27 April at Hitex Centre in Hyderabad and was hosted by UBM India. The event provided a platform for renewable energy professionals to discuss industry trends, innovations and market insights in the renewable energy sector of South India. Over 100 exhibitors participated to take part in India's growing renewable energy sector, one of the most attractive renewable energy markets in the world. For further information download presentations here

High level delegation from India at Intersolar Europe

15-17 May, Munich

With around 72.000 visitors from more than 160 countries and 1.880+ exhibitors, Intersolar Europe marks the world's leading exhibition for the solar industry, dealing with photovoltaics, solar thermal energy, solar power plants, network infrastructure and solutions for the integration of renewable energies. Key-market players, experts and policy makers gathered from 15 to 17 May in Bavaria's capital Munich, Germany, to discuss latest solar PV and storage developments. India was represented by a high-level delegation organised by the Indo-German Energy Forum (IGEF-SO) and led by the Managing Director of the Solar Energy Corporation of India (SECI), Director (Solar) from the Ministry of New and Renewable Energy (MNRE) as well as chairman of Global Solar Council (GSC) and National Solar Energy Federation of India (NSEFI) among others.

Participants formed part in an exclusive guided tour through the 68,000 sqm large halls to meet exhibitors with special interest in India before discussing the future developments of India's PV market during the "Indo-German Energy Dialogue".

One of the many highlights was the delegation's visit to Germany's pilot agro-photovoltaic system in Heggelbach, a project funded by the German Federal Ministry of Education and Research which is implemented by several research institutions such as the Fraunhofer Institute for Solar Energy Systems ISE and the University of Hohenheim. "The results from 2017 showed a land use efficiency of 160 percent" explained Mr Vorast, Researcher at the Fraunhofer Institute ISE during the visit, "the partial shading underneath the photovoltaic modules improved

This year's Intersolar hosted visitors from 162 countries. Here IGEF at the Pavilion of the German Ministry for Economic Affairs and Energy (BMWi)

Indian delegates at research AgroPV power plant in Heggelbach, Germany discussing with key researchers from Fraunhofer ISE on how to adapt AgroPV to Indian conditions

the agricultural yield, and the sun-rich summer increased the solar electricity production."

Indo-German Energy Forum (IGEF) organized several technical field visits, including a research and development lab for inorganic battery storage systems as well as numerous public charging infrastructure set-ups for electric passenger vehicles.

The aim of this high-level delegation visit was to further boost the exchange of knowledge on upcoming market segments and to ensure India's strong international representation at this year's Intersolar Europe before Intersolar India in Bangalore will kick off on 27 November 2019.

(From L to R) Mr Anil Kumar, MNRE; Mr Jeevan Kumar Jethani, MNRE; Shri Jatindra Nath Swain, SECI; Smt Simone Peter, German Renewable Energy Federation (BEE); Mr Bernhard Steinruecke, AHK India; Mr Tobias Winter, IGEF

Impressions from Intersolar 2019

Bilateral meeting during BETD2019

9 April, Berlin

Delegates exchanged information on the status of the Energy- and Mobility Transition in India and Germany

High level delegates from the Ministry of Power in India and the Federal Ministry for Economic Affairs and Energy met in the Ministry of Foreign Affairs, Berlin, Germany. The meeting was co-chaired by Ms Ursula Borak, Additional Director General at the Federal Ministry for Economic Affairs and Energy and Mr Sanjiv Nandan Sahai, Additional Secretary, Ministry of Power. The meeting started with a warm welcome by Ms Borak, who took the opportunity to compliment the outstanding work realized under the Indo-German Energy Forum, the first of its kind and most institutionalised bilateral energy partnership for Germany. During the meeting, the Indian delegates shared insights regarding the revised Energy Conservation Building Code. Revised guidelines were launched as part of India's effort to tackle the need for increased energy efficiency with specific needs dictated by the five different climate zones found in India. Officials from Govt. of India also highlighted the great progress made in constructing transmission lines. High-Voltage Direct Current (HVDC) lines and special high voltage "Green Energy Corridor" transmission lines to evacuate RE power contribute to the 22000 km (220 kV and above) of transmission lines built in India in 2018 alone. Furthermore, the German side was informed about the progress made in forecasting Renewables through the so-called Renewable Energy Management Centres, which are supported by GIZ.

Discussing how to build on the successful cooperation under IGEF in future, participants stressed the importance of further cooperation and mutual exchange in the areas of public charging infrastructure for electric vehicles, grid expansion and flexibilisation of the power system. The recent cooperation in this field is being especially appreciated. India is willing to share its valuable insights in dealing with challenges that come with a rising energy demand of an increasing population, while Germany is willing to share its Electric Vehicles (EV) related challenges as well as lessons learnt which come with high shares of fluctuating RE power in the electricity system. In March 2019 more than 50% of Germanys power already came from renewable energy sources; around 42% from Wind and Solar alone.

Indo-German Energy Dialogue on Solar PV Market Development in India

15 May, Munich

A panel discussion on "Solar PV Market Development in India" jointly organized by Indo-German Energy Forum (IGEF-SO), National Solar Energy Federation of India and Bundesverband Solar was held on the 15 May 2019 at Intersolar Europe in Munich, Germany. Representatives from Government and key industry players from Germany and India discussed upcoming business models for solar rooftop, financing possibilities, public support schemes and tenders as well as trends in self consumption, meaning the consumption of self-produced energy rather than energy taken from the grid. Well-known market players shared up to date sector insights directly from the Indian solar market. The event was attended by more than 70 sector specialists and investors.

Consul General, Mr Rajaram, Consulate General of India Munich, welcomed special guests Mr Jatindra Nath Swain, Managing Director, Solar Energy Corporation of India (SECI), Mr Wolfdieter Bõhler, Head of Division International Energy Cooperation, German Federal Ministry of Economic Affairs and Energy (BMWi), Mr Jeevan K. Jethani, Director Solar, Ministry of New and Renewable Energy (MNRE), Mr Pranav Mehta, Chairman, National Solar Energy Federation of India (NSEFI).

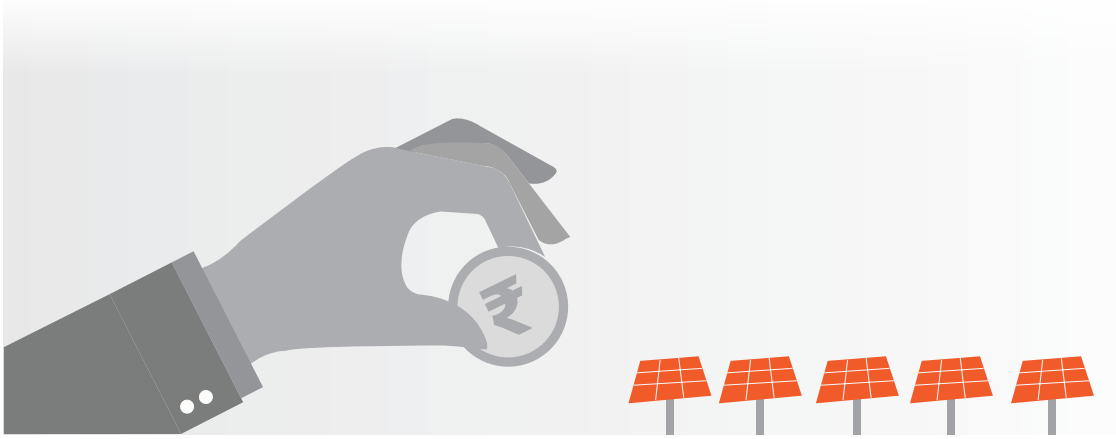
Highlight of the event was the speech by the Managing Director of SECI, Mr Swain, who elaborated on the various successful auctions of solar and wind projects in the country. SECI has successfully tendered more than 12 GW of solar

Mr Wolfdieter Bõhler, Head of Division, Federal Ministry for Economic Affairs and Energy and Mr Jatindra Nath Swain, Managing Director, Solar Energy Corporation of India (right)

projects during the financial year of 2018-19; underlining India's intentions to not only fulfil but to exceed India's energy targets, aiming for 500 GW of installed renewable capacity by 2030, of which 320 GW shall be solar energy capacities. India is very confident to remain one of the leading countries for renewable energy deployment in the future. Director MNRE Mr Jethani spoke of recently launched schemes such as KUSUM which aims to support farmers through providing them with Solar PV that can be used for agricultural means. To create more ownership for solar PV, it was found that India requires to extend its solar manufacturing centres with having the whole supply chain, from polysilicon to modules within the country.

Further topics were presented by several participants including promoting schemes for Solar PV Power Plants and PV Rooftop in India, O&M best practices as well as information about the status, drivers and challenges of the Indian PV sector. Especially Mr Vinay Rustagi, Managing Director from Bridge to India gave detailed insights into the current PV market development of India. His presentation can be downloaded here.

(From L to R) Mr Sugandh Rajaram, Consul General of India in Munich; Mr Anil Kumar Bellary, IGEF; Mr Vinay Rustagi, Bridge to India



GOVERNMENT OF INDIA
MINISTRY OF NEW AND RENEWABLE ENERGY

Federal Ministry for Economic Affairs and Energy

IGEF Subgroup meeting on "Renewable Energies"

15 May, Munich

The official Renewable Energies Subgroup Meeting (SG2) under the Indo-German Energy Forum was held on the 15 May 2019 in Munich, Germany. The meeting was co-chaired by Mr Wolfdieter Bõhler, Head of Division, German Federal Ministry of Economics and Energy (BMWi) and Mr Jatindra Nath Swain, MD, Solar Energy Corporation of India (SECI), Ministry of New and Renewable Energy (MNRE), Government of India. The meeting was attended by participants comprising different stakeholders like Central Government Ministries (MNRE, BMWi, BMU and BMZ) and Associations representing key industry players from Germany and India (IGCC/AHK/NSEFI/BSW).

Mr Jatindra Nath Swain outlined his appreciation for the long cooperation between India and Germany in the field of energy. He emphasized that India's renewable energy capacity targets of 175 GW by 2022 will ensure greater energy security while contributing substantially to achieve India's climate goals. India has recently achived to install 78 GW of renewable energy capacity doubling its existing capacity in 4 years only. Transparent bidding and facilitation for procurement of solar and wind power through tariff based competitive bidding process have led to significant reduction in cost of solar, as reported. Furthermore, the MNRE had introduced Renewable Purchase Obligation (RPO), a provision aimed to encourage even coal based thermal power generators like NTPC to diversify in a renewable energy portfolio.

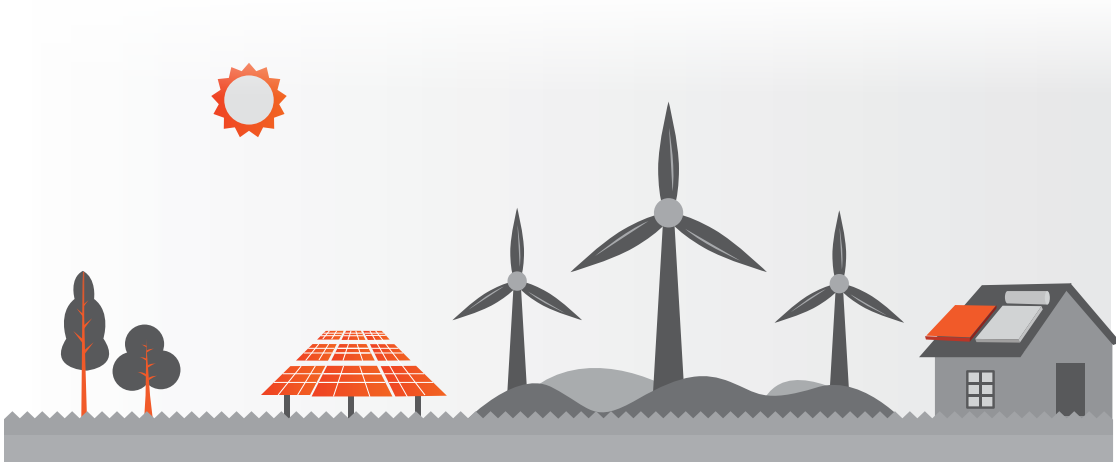
Mr Wolfdieter Bõhler in his welcome remarks shared electricity sector developments including the challenges in Germany's electricity grid expansion for RE evacuation. Germany has achieved more than 40% annual electricity share from mainly wind and solar. Transporting the electricity from renewable energy sources across

IGEF Subgroup meeting on Renewable Energies between Government of India and Government of Germany

the country remains a challenge. It was also highlighted that the Government of Germany has received the recommendations of a high-level committee on phasing out coal, the "Coal Commission" Report, including a time table to achieve the phase out of coal by 2038 latest (see more in articles below).

Ongoing and completed activities under priority issue Solar and Wind Energy implemented or initiated by IGEF were presented. Highly appreciated input was given by Mr J K Jethani, Director MNRE. Mr Daniel Etschman from German Development Bank KfW and Mr Jorg Gabler, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) as well as Ms. Elena Ammel, Physikalisch-Technische Bundesanstalt (PTB) gave an overview on ongoing cooperation under the Indo-German Solar Partnership. Topics for further cooperation identified included AgroPV, storage, upcoming solar niche markets like SelfPV, O&M of solar, Wind Repowering amongst others.

Recent energy sector developments in India and Germany were among the points discussed during the meeting



3

Developments in Indo-German Energy Cooperation

From roof to plug: How households can generate their own electricity

26-27 April, Hyderabad

Jorg Gabler, principal advisor to the Indo-German Solar Partnership implemented by GIZ, presented the 3rd generation innovative PV Port & Store during a panel session at the RenewX 2019. The session focused on innovations in grid integration for solar rooftops in India and was chaired by Shri Ajay Mishra, IAS, Spl. Chief Secretary, Govt of Telangana. The presented PV Port & Store technique allows a direct transfer of solar energy from rooftops to households. Given that most of India's electricity comes from state-owned companies, a decentralized approach to power supply is still new to the country. However, first projects in Delhi and Bhopal demonstrated how such applications contribute to meeting electricity demand and even lead to higher grid stabilization.

The application allows to directly connect the rooftop solar panels to the power points, thereby enables a direct flow of energy produced at the solar panel to the grid. Energy is stored in specialized batteries to allow a stable power supply also when demand is high. Through its innovative technique, the project tackles two important aspects of solar energy in India. First, the country aims to generate 100 GW of electricity from solar energy by 2022, with half of this capacity coming from panels installed on rooftops. Second, households using air conditioning significantly add to India's energy consumption. Innovations, such as PV Port & Store, that allow households to generate their own electricity, can form another step towards a higher energy efficiency in India.

The presentation was followed by an interactive panel discussion with representatives of State Nodal Agency, Industry and officials from the State and Central governments and being covered by most of the national and local dailies. Finally, the PV Port & Store was launched by the Ministry of New and Renewable Energy.

PV Port being inaugurated at RenewX 2019 by Shri Ajay Mishra, IAS, Spl. Chief Secretary, Govt of Telangana (middle), Mr Pranav R Mehta, Chairman of the National Solar Energy Federation of India (right) and Mr Jorg Gabler, GIZ India

Skills in Energy

1-9 June, Leipzig, Erfurt and Berlin

Indo-German Energy Programme together with Indo-German Chamber of Commerce, conducted a study tour on "Skills in Energy" to understand the skilled workforce development in the sector in Germany. Meetings, discussions and interactions were held in Berlin, Leipzig and Erfurt from 1 to 9 June 2019. The study tour has helped to gain knowledge, to initiate the exchange between stakeholders active in the skill development and to pave the way for further activities under the Rooftop Photovoltaic programme implemented by GIZ.

The project will implement measures to improve the employability of skilled workers, especially in the field of photovoltaics. Therefore, the practical applicability of knowledge and skills imparted will be assessed and improved with selected Government Polytechnics / Institutes of Technology. To maintain and promote staff health and efficiency, upskilling training of selected employees on quality assurance and workplace safety will be conducted. To meet the needs for skilled staff in the field of electric vehicles and charging infrastructure, a modular training concept will be developed. To encourage the integration of sustainable concepts in the established commercial and industrial sector, training concepts integrating corporate efficient energy management staff will be implemented.

Among the Indian participants were the Skill Council for Green Jobs, Gujarat Energy Research and Management Institute, Maharashtra Rural State Livelihood Mission and Energy Efficiency Services Limited. The programme included visits to trade and industry associations in Berlin and Erfurt, a large company in-house training department and a private training centre for initial Vocational Education and Training (VET) as well as a training centre for upskilling. The visits were followed by engaged discussion about the applicability of the Dual VET system in India and challenges in the skilled work force development.

Delegates visiting a company in-house training center in Berlin, Germany

KFW

Financing the energy transition – the role of banks for greener electricity

26-27 April, Hyderabad

Banks have showed interest in looking deeper into the second use market for large scale PV installations. Uday Kiran, Director, Infrastructure, Government & Healthcare, KPMG moderated a session at the RenewX giving a financial sector's view on energy transition with increasing capital flows. The participants shared their thoughts on how the financial sector can adjust to accelerate the development of renewable energies, especially given the changing dynamic in this field. Declining tariffs, rising RE penetration and evolution of storage technologies significantly shaped the renewable energy sector in the past years. Creating the right incentives for investment in new technologies like energy storage or hybrid projects, developing the right financing and risk mitigation instruments to encourage new investments or regulations and policies aiming at development of structured financial de-risking instrument are among the adjustments the financial sector needs to make to enable the growth of renewable energies. The session was attended by senior officials from financial institutions, private equity players and independent power producers. Thorben Glaser, Project Manager at KfW Development Bank, highlighted the importance of quality to ensure sustainable returns over the lifecycle of solar PV installations. While low initial costs may seem attractive at first, higher returns resulting from better quality during the subsequent years easily outweigh the slightly higher costs. The best way to ensure quality is to conduct component testing in a certified lab on a representative sample of the modules, he added.

(From L to R) Mr Manash Mitra, Tata Cleantech Capital Limited; Ms Farzana Rahman, IDCOL Bangladesh; Uday Kiran, KPMG; Mr Thorben Glaser , KfW; Mr Srey Bairiganjan, World Bank

Thorben Glaser from KfW (right) on the importance of investing in quality for a sustainable energy transition

Steinbeis

Skills on Wheels: Rural youth getting trained to install solar panels

26-27 April, Telengana

Steinbeis Academy for Advanced Technology Training and Entrepreneurship and Telangana Academy for Skill and Knowledge (TASK), Government of Telangana with support from IGEF presented a mobile solar van laboratory as part of the programme "Skills on Wheels" during the RenewX 2019. Aiming to empower rural youth, the mobile laboratory provides a learning space and a solar training programme for youth in rural areas of Telangana, otherwise cut off from the infrastructure provided by usual training institutes. Skills on Wheels is equipped with four 250 Watt solar panels and a thousand volt-amp (1Kva) grid tie inverter, 1500 volt-amp (1.5Kva) off-grid solar hybrid inverter and 2 x 150 ampere hour (12V-150Ah) back up solar batteries. Materials such as a drill machine, spanners, digital meters and screw-drivers enable an extensive practical lab training in the van. Connecting boxes for inverters, meters for output ratings, two foldable tables for lab experiments, the two inverters and a facility for tools can be also found in the mobile laboratory. The basic concept and design was conceptualized by Steinbeis Germany and the engineering works were done in Hyderabad, India. "Skills on Wheels" is also used for Training of future Electronics Technicians including mobile assembly technicians and fibre-optic technicians.

For more information:
http://www.steinbeisindia.com/skills-on-wheels/

This mobile solar training laboratory presented at RenewX 2019, provides a learning space for youth in remote areas

Knowledge exchange between Nigeria and India: Peer Learning and Capacity Building on Energy Efficiency

9 April, New-Delhi

Nigerian representatives from public and private sector embarked on a study tour to India for fostering exchange of knowledge and experience with the GIZ India Indo-German Energy Programme (IGEN) between 31 March and 9 April 2019.

The visit comprised workshops on implementing and financing mechanisms for energy efficiency measures in buildings and industries. Field trips to energy efficient buildings and industries gave participants a chance to witness existing outcomes of projects on energy efficiency and standards. The diverse group of participants were representatives of the Ministry of Power, Works and Housing, Ministry of Industry, Trade and Investment, Ministry of Finance, Standards Organisation of Nigeria, Nigerian Investment Promotion Commission, Nigeria Customs Service, Development Bank of Nigeria, as well as building and manufacturing sector professionals.

Dr. Winfried Damm, Head of IGEN said, GIZ India is extremely delighted to collaborate with GIZ Nigeria for this ideas and knowledge tour. Study tours like these offer excellent insights in energy efficiency in India. The curriculum of this study tour has been designed very meticulously which not only included visits to energy efficient sites, but also expert talks, information on Indian policies on energy conservation and other achievements." As a next step, Nigerian participants are sharing their experiences within their institutions with the aim to design approaches based on the Indian insights.

For more information kindly get in touch with Ene Macharm, Nigerian Energy Support Programme (NESP), ene.macharm(at)giz.de or Nitin Jain Indo-German Energy Programme (IGEN) nitin.jain(at)giz.de

Delegation from Nigera in India fostering knowledge and experience exchange on energy efficiency with experts from GIZ India

Credits: GIZ India

PV Port & Store exhibited at seminar organised by the Institution of Engineers (India) at Hyderabad

20 May, Hyderabad

Mr Drimson Fernandes from the IGEN-Solar team of GIZ (right) explaining the PV Port & Store system to Ms Amala Akkineni, Chairperson, Blue Cross Society of Hyderabad in the presence of Mr Srinivasa Chary, Chairman, Energy Conservation Mission of the Institution of Engineers, Telangana State Centre (left)

The PV Port & Store concept developed by the GIZ Solar Programme was exhibited at a seminar and exhibition organised as part of the Energy Conservation Mission of the Institution of Engineers (India), Telangana State Centre. The seminar titled "Cool, Green & Power Roofs" was held on 20 May 2019 and was aimed at discussing various concepts and methods for cooling roofs and to discover simpler and cost effective methods of installing rooftop solar plants.

The event was attended by Mr Arvind Kumar, Principal Secretary, Municipal Administration and Urban Development, who spoke about the importance of conserving energy by implementing technologies that promote cool roofing. Ms T.K. Sreedevi, Director of Municipal Administration, highlighted the various options to increase the green cover in urban areas. Ms Amala Akkineni, chairperson of the Blue Cross Society of Hyderabad, spoke about the benefits of rooftop solar power and raised the issue of shortage of trained repair technicians in the rooftop solar sector.

The GIZ held a presentation on the PV port & store system, underlining the importance and role of portable rooftop PV systems in meeting the energy demand. This was followed by a discussion about solar rooftop power. Developed under the Indo-German Technical co-operation on rooftop solar photovoltaic, the PV Port & Store system is a standardized plug-n-play portable PV system with storage. The system is designed to address several challenges facing residential consumers and distribution utilities by meeting electricity demand using solar energy. The system is designed for self-consumption with no export to the grid and is connected to a socked in a household all while being quick and easy to install.

For more details on PV Port & Store, kindly visit www.home-pv.com or contact Mr. Joerg Gaebler at joerg.gaebler(at)giz.de

Solar Rooftop Demand Aggregation Project launched in Surat

21 May, Gujarat

GIZ is implementing the technical cooperation project "Indo-German Solar Partnership" in cooperation with the Ministry of New and Renewable Energy (MNRE). The project's objective is to accelerate PV rooftop systems in selected Indian states. MNRE has allocated 4 states namely Gujarat, Himachal Pradesh, Uttarakhand & Jammu & Kashmir along with 2 Union territories i.e. Dadra & Nagar Haveli and Daman & Diu to GIZ for providing technical assistance and for supporting activities related to rooftop solar promotion. GIZ has contracted TERI and US-based CADMUS Group for executing the project.

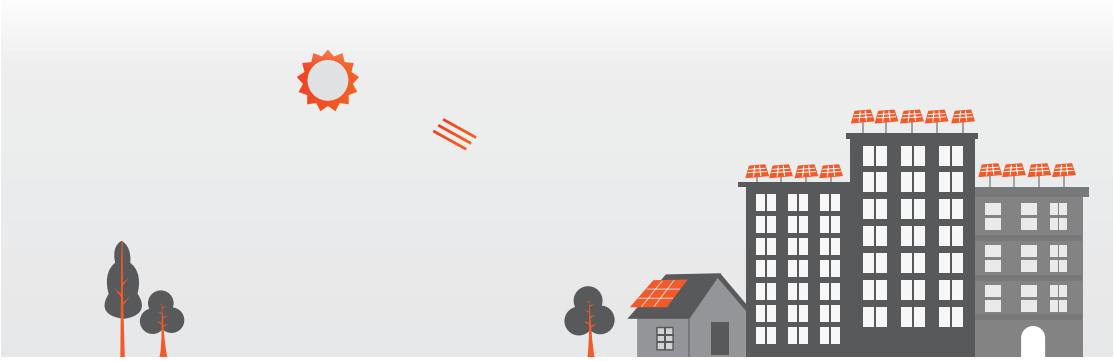
In this context, TERI and CADMUS group launched the Indian Solar Market Aggregation for Rooftop (I-SMART) program on 21 May 2019 in Surat, Gujarat. I-SMART will be implemented in all 4 states and 2 UT's. The objective of the programme is to double the installed capacity and number of projects in selected states. The target of the programme is to aggregate demand of 1,000 megawatts (MW) of rooftop solar capacity.

I-SMART will be implemented in Surat with the support of Surat Municipal Corporation (SMC).

SMC's efforts have led to the installation of more than 35 MW rooftop solar systems among the domestic consumer in the city. Surat is already ahead in implementation of solar system as compared to other cities of India. The city has installed solar panels having potential of almost 40 MW in 6000 households. Under I-SMART programme activities will target new consumers among both domestic & residential sectors.

The I-SMART team strives for a removal of barriers barriers for the growth of the solar market, and to increase the pace as well as ease of solar adoption among residential, government and commercial & industrial (C&I) sectors. A single window clearance portal will help interested consumers understand the relevant information before submitting an online request for installation of solar rooftop. This platform would help connect solar developers and consumers, ease up the process of installation and raise awareness through targeted outreach among the public.

For more information & queries, please contact Abhinav Jain at abhinav.jain(at)giz.de



Photovoltaic Thermal (PVT) inaugurated at Snehalaya, Ahmednagar

German International Development Cooperation (GIZ) has implemented an innovative Photovoltaic Thermal (PVT) technology with a system capacity to generate 10kW electrical and 21kW thermal equivalent output at Snehalaya residential building, Ahmednagar. Snehalaya is an NGO providing education programmes for children of sex workers and palliative care for people affected by AIDS. The PVT system provides dual energy-yield combining electrical and thermal.

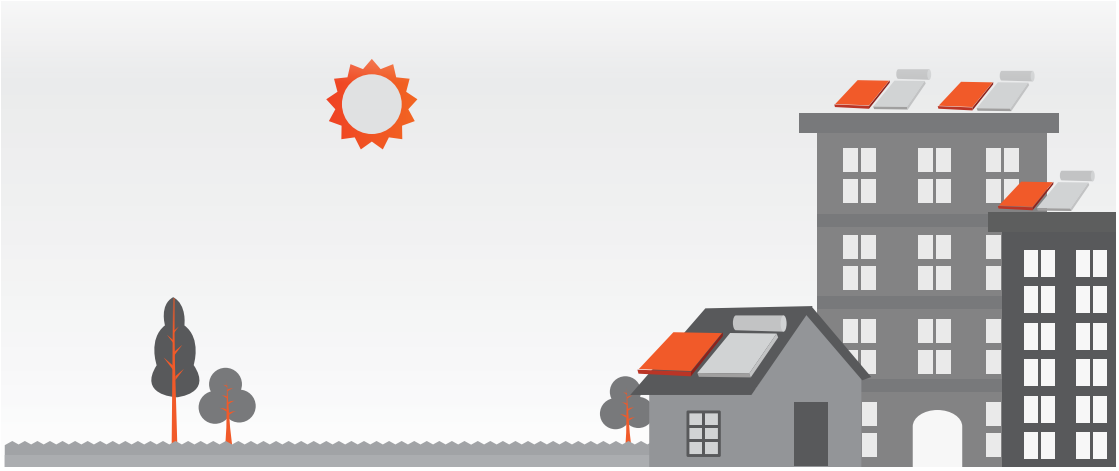
A PVT panel is a hybrid of the "standard" photovoltaic (PV) module which includes a "polymer absorber" in a single panel producing both power and heat. This configuration lowers the temperature of PV cells thus increasing the electrical efficiency by around 10-12 per cent. While the waste heat is captured and transferred to a fluid (hot water) at estimated 30-40 per cent efficiency providing output water temperature of 50-80°C. This results in much higher yields from the same area of a standard PV module. The module technology is a promising option for applications with limited rooftop space and a demand for both hot water and electricity.

The system is commissioned based on cost-sharing. The GIZ has provided the PVT modules along with all monitoring systems imported from Germany. The procurement of balance of system, installation and maintenance is carried out by Snehalaya with the help of Pune based solar PV & thermal expert M/s Akson's Solar Pvt Ltd. The system is grid-connected and the consumption of entire generated electricity is being consumed at the building. Further, the generated hot water is supplied at the bathroom and kitchen for bathing and cooking.

It is envisaged to reduce the PVT module cost by domestic manufacturing of the PVT panel thereby contributing to "Make in India" – a flagship initiative of the Government of India (GoI).

For more information and queries on this please contact: Sudhanshu Mishra

sudhanshu.mishra(at)giz.de



PV PORT & store

PV Port App Development

30 May, Delhi

GIZ Solar programme organized a workshop to brainstorm on PV Port App development for monitoring and usage of PV Port. The workshop witnessed participation from various stakeholders which included Delhi DisCom BSES, consultancy organizations such as The Energy and Resources Institute (TERI), Idam Infrastructure Advisory Private Limited, Aha Solar to name a few. Dr. Christoph Mueller (Simply Solar, Germany) and Mr. Lasse Licht (Victron Energy, Netherlands) gave their valuable inputs to make a standardized data sharing platform for PV Port which can be replicated across the country. The discussions ranged from IT infrastructure requirements to connect the PV Ports with the central server as well data sharing between PV Port owners, DisComs and other stakeholders for smooth functioning.

Usability for the end consumer as well real support for grid balancing were two main requirements discussed.

PV Port & Store is a standardized, plug-n-play, portable, collapsible and easy to install 2 kWp RTPV system along with 4.8 kWh of useful electrical storage mainly designed for residential sector. The PV Port would match the energy requirements of a household with monthly energy consumption close to 300 units. The storage is accommodated in the system to reduce the peak load on Distribution Company during peak time of the day. More information is available on the site www.home-pv.com.

For more information contact: Joerg Gaebler joerg.gaebler(at)giz.de

Participants deliberating at PV Port App Development Workshop

4 Quote of the month from India and Germany

Quote of the month from India

"India is implementing one of the largest Renewable Energy expansion programmes, Energy Efficiency programmes and moving towards the achievement of our target to fulfil our commitments made in Paris Agreement on Climate Change."

Hon'ble Minister R.K. Singh at G20 Ministerial Meeting on Energy Transitions and Global Environment for Sustainable Growth in Japan

Source: PIB Dehli

Quote of the month from Germany

"I therefore propose that we have a discussion in the climate cabinet about how we could reach the goal of being CO2 neutral by 2050 and the discussion should not be about whether we can reach that goal but about how we will reach it (...)"

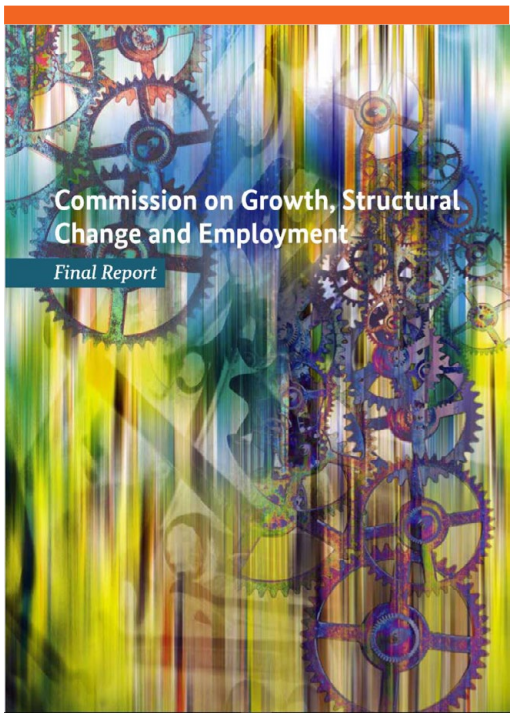
Dr Angela Merkel, Chancellor of Germany at the tenth Petersberg Climate Dialogue

Source: Reuters

5

Energy Transition News

Germany to phase out coal until 2038



The report of the coal commission is also accessible in English

Germany, which plays a key role for the European electricity market, has decided to phase out coal. What does this mean for its electricity supply? How can affordability and security be ensured? That's something Germany's neighbours would like to know. "Today, a very important political signal has been sent", Federal Minister for Economic Affairs and Energy Peter Altmaier said at the meeting of the electricity neighbours in April. "Germany is phasing out coal, but we are not doing this unilaterally, we are closely coordinating with our neighbours. And we are in good company: nine out of our eleven electricity neighbours also want to phase out of coal-fired power or have done so already. That makes it all the more important to discuss in detail the consequences of these efforts so as to ensure that our electricity supply continues to be affordable and secure."

Germany's phase out of coal-fired power and the phase-out-plans that have been announced by other EU Member States mean that two-thirds of all coal-fired power plants will soon leave the market. Minister Altmaier underlined the role played by synergies in the European Single Market. The more interconnected our markets become and the larger the interconnected regions, the more powerful the synergies will be, said Minister Altmaier. So exchanging electricity between neighbours, including at times when electricity is scarce, is a good example for neighbours helping each other out. A group of 'electricity neighbours' was set up to give neighbouring countries the opportunity to engage in high-level regular dialogue. The group includes all of Germany's neighbours plus Norway and Sweden, which are connected to Germany via undersea cables. The European Commission also attends the meetings on a regular basis.

The official report published by the Federal Ministry for Economic Affairs and Energy (BMWi) with recommendations on how to exit coal in Germany can be found here:

https://www.bmwi.de/Redaktion/EN/Publikationen/commission-on-growth-structural-change-and-employment.pdf

Source: BMWi

Offshore Wind Energy in India

Credits: Siemens

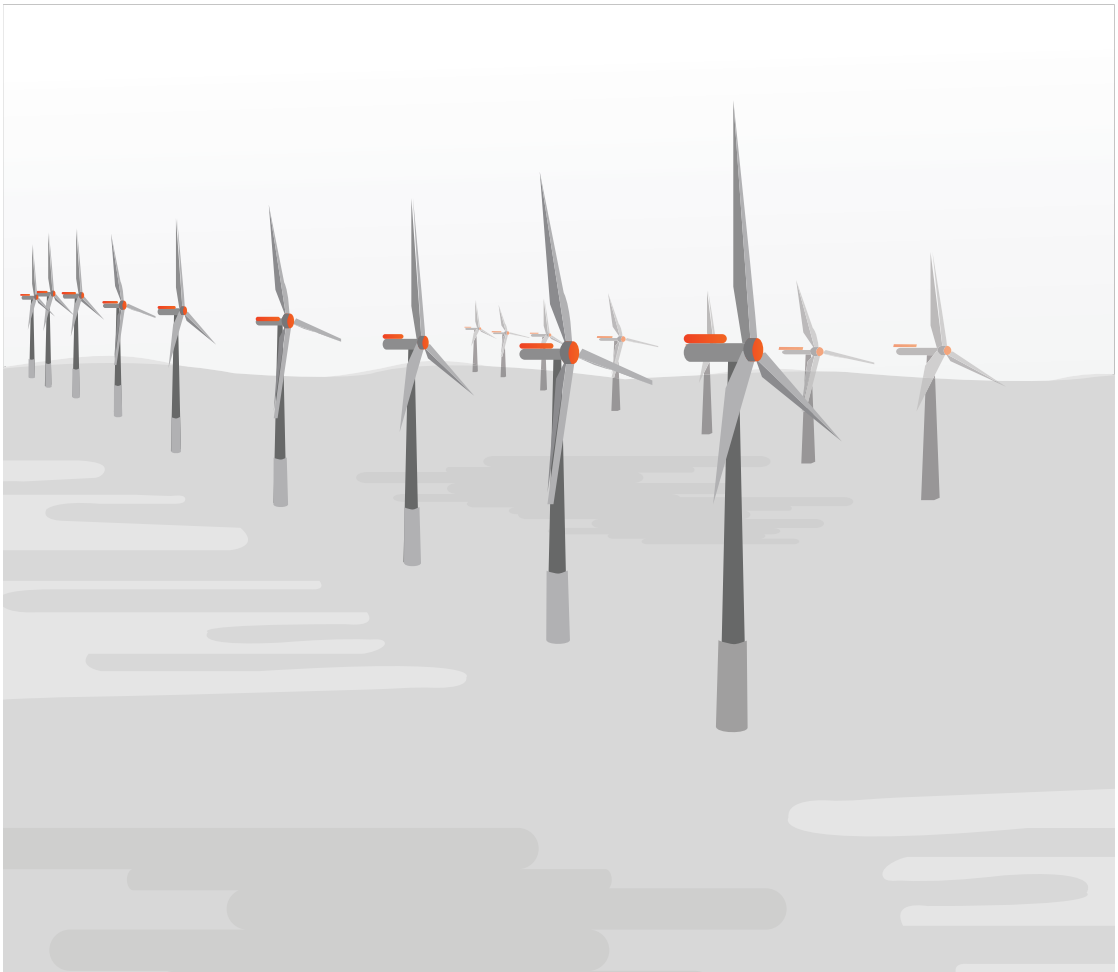
India is blessed with a coastline of nearly 7,600 km with relatively shallow waters. Under the Facilitating Offshore Wind in India (FOWIND) project supported by the European Union, eight zones each in Gujarat and Tamil Nadu were identified by National Institute of Wind Energy (NIWE) as potential zones for development of offshore wind energy projects, through techno-commercial analysis and preliminary resource assessment based on satellite data and other available data. One year analysed Light Detection and Ranging (LIDAR) data published by NIWE along with the raw data suggest annual average wind speeds of about 7.52 m/s at 104 m hub height, which seems to be more than the earlier estimation based on satellite data (Vortex). Offshore wind projects in one identified location may even operate at a CUF of about 45%. Reportedly, the government is planning to deploy five more LiDARs (two off Gujarat coast and three off Tamil Nadu coast) for carrying out the offshore wind measurements to validate the estimated offshore wind energy potential and gather precise bankable data. Further, interested private players can also carry out the required studies/surveys for establishment of offshore wind projects within the EEZ of India under the 'Guidelines for Offshore Wind Power Assessment Studies and Surveys' issued by NIWE.

The government has planned to develop the first offshore wind energy project of 1 GW capacity in the identified zone-B off the coast of Gujarat in

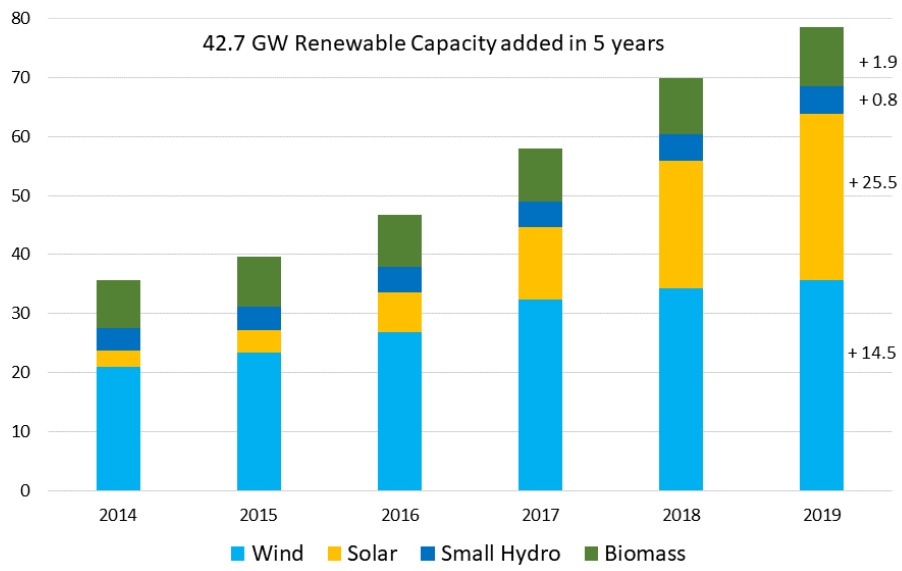
a commercial scale. This may be due to the fact that the logistics and ecosystem development cost for offshore wind energy projects are quite high. Accordingly, a small capacity demonstration project will be too costly and only solves the purpose of technology feasibility. The project size of 1 GW may realize the economy of scale and bring down the tariff in the first project itself. The Expression of Interest (EoI) for this project was floated in April 2018 and 35 international/Indian developers/OEMs had participated and consulted for preparing the final bidding document. Being the first of its kind, all the perceived risks associated with the project needs to be identified and taken care of by the government in order to keep the tariff at a lower level. Although, substantial information on execution of offshore wind energy projects is available globally, specific customizations in Indian context will be a key challenge.

Although, it will be very challenging to achieve a cost competitive tariff for the proposed first offshore wind project, it will open up a complete new sector for India to contribute to its overall economy and India may emerge as a global leader in this sector similar to onshore wind due to its experience in providing quality systems at a lower cost. MNRE has already officially announced its intention of installing 5 GW of offshore wind installations by 2022 and 30 GW by 2030. The Union Cabinet, chaired by the Prime Minister Shri Narendra Modi, has now given its approval for a Cooperation Agreement between Ministry of New and Renewable Energy of India and Ministry for Energy, Utilities and Climate of the Kingdom of Denmark on strategic sector cooperation in the field of renewable energy with a focus on offshore wind energy.

Source: Mr Prabir Kumar Dash, MNRE in https://mnre.gov.in/akshay-urja as well as http://pib.nic.in



Highlights from the renewable energy sector in India



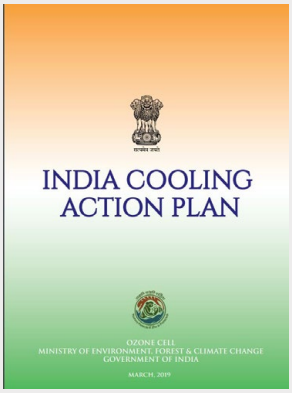
Source wise grid interactive installed power capacity in India during last five years (in GW)

India is now ranking 5th in global position for overall installed renewable energy capacity. As on 31 March 2019, India's renewable power installed capacity has reached over 78 GW. Solar energy capacity has reached 28.18 GW by 31 March 2019. The wind energy capacity increased to 35.62 GW by the end of 2018–19. India registered the lowest ever solar tariff of 0,03 EUR/kWh in reverse auctions carried out by Solar Energy Corporation of India (SECI) in May 2017, for 200 MW and again in July 2018, for 600 MW. The solar tariff has come down from around 0,23 EUR/kWh in 2010 to 0,03/kWh in 2018 due to various factors like economies of scale, assured availability of land and power evacuation systems. The National Wind–Solar Hybrid Policy was issued in May 2018. The main objective of the policy is to provide a framework for promotion of large grid connected wind–solar PV hybrid system. The wind–solar PV hybrid systems will help in reducing the variability in renewable power generation and achieving better grid stability.

The latest MNRE newsletter (Volume 12, Issue 5) can be viewed here https://mnre.gov.in/akshay-urja

6 Publications

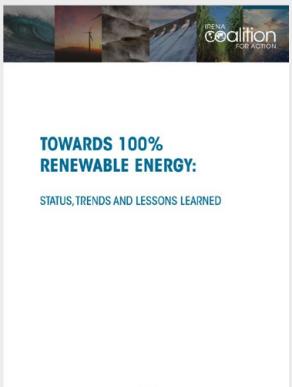
India Cooling Action Plan released



The official India Cooling Action Plan is a comprehensive roadmap to address the country's burgeoning cooling requirements over the next 20 years and has been prepared by the Ministry of Environment, Forest and Climate Change (MoEFCC) through an extensive stakeholder consultation process. According to projections, the building sector will show significant growth in cooling demand, nearly 11 times keeping 2017-18 as base year, the cold-chain and refrigeration sectors around four times and transport air-conditioning by around five times. As India faces the reality of climate change, the release of this plan is an important development. The Bureau for Energy Efficiency (BEE) had given several inputs based on results of the work under the Subgroup III of the Indo-German Energy Forum. Over the last two years research and analysis by Alliance for Energy Efficient Economy (AEEE) and The Energy Resources Institute (TERI) gave highly valuable inputs to this work.

The latest version of the ICAP can be downloaded here

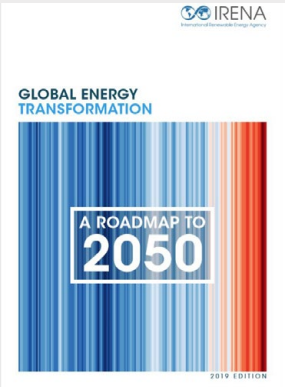
Lessons learned from 100% RE power challenges by cities, municipalities, islands and countries all over the world



"Towards 100% Renewable Energy: Status, Trends, and Lessons Learned" provides a global mapping of 100% renewable energy targets, along with several case studies from national, regional, city and islands levels that illustrate different paths to a 100% renewable energy transformation. Amongst others Hans-Josef Fell (Energy Watch Group) was one of the contributing authors. The report was published this year by the IRENA coalition for Action, a network of leading renewable energy players with a vision to drive the energy transformation in line with the Sustainable Development Goal on energy.

Download report here

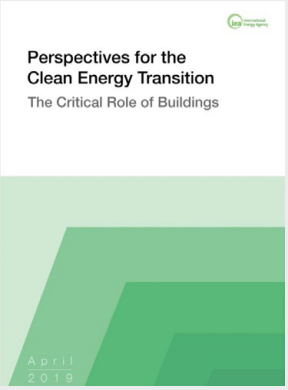
Current status and potential of energy transition – Global Energy Transformation



The International Renewable Energy Agency (IRENA) launched its 3rd edition of Global Energy Transformation: A roadmap to 2050 during the Berlin Energy Transition Dialogue (BETD) that took place from 9-10 April 2019 in Berlin. The report examines technology pathways and policy implications to ensure a sustainable energy future and shows, that wind- and solar energy could cover 86% of world-wide energy demand, given strong global incentives towards green energy. Accordingly, the energy transformation is the strongest motor to limit the rise of global temperatures and would bring significant socio-economic benefits, such as increased economic growth, job creation and overall welfare gains.

Download report here

Perspectives for the Clean Energy Transition



In its third series edition, Perspectives for the Clean Energy Transition explores the critical role buildings can play in meeting climate change ambitions, using a portfolio of clean energy solutions that exist today. It considers the investment needs and strategies to enable the buildings sector transition, and the multiple benefits that transformation would deliver, including improving the quality and affordability of energy services in buildings for billions of people. Importantly, it sets out what policy makers can do to overcome the economic and non-economic barriers to accelerate investment in low-carbon, energy-efficient solutions in the buildings sector.

Download report here

IEA World Energy Investment 2019 Edition

The International Energy Agency's annual benchmark for tracking energy investment, World Energy Investment 2019 provides a full picture of today's capital flows and what they might mean for tomorrow's energy sector. For the first time it shows that India is investing more in new coal than China. This year's edition looks at trends in investment and financing in 2018 across all areas of energy supply, efficiency, and research & development, key markets and sectors driving these trends and examines how industry is responding to investment risks and opportunities.

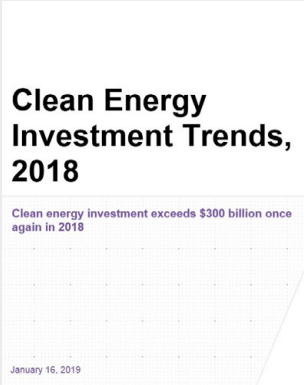
Download report here

20% electricity worldwide from RE says IEA

New record every year. Renewables already account for 20% of global power output! The IEA's second Global Energy and CO2 Status Report provides a snapshot of recent global trends and developments across fuels, renewable sources, and energy efficiency and carbon emissions, in 2018. According to the report, Global energy consumption in 2018 increased at nearly twice the average rate of growth since 2010. Demand for all fuels increased, led by natural gas, even as solar and wind posted double digit growth. Higher electricity demand was responsible for over half of the growth in energy needs. Energy efficiency saw lacklustre improvement. As a result of higher energy consumption, CO2 emissions rose 1.7% last year and hit a new record.

Download report here

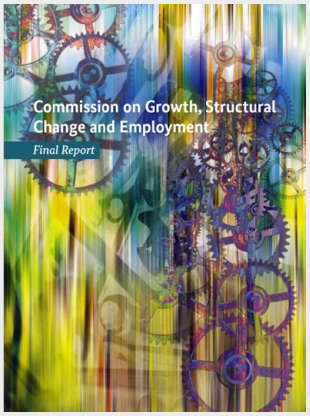
Clean Energy Investment Trends



BloombergNEF (BNEF) released the new Clean Energy investment Trends report in January 2019. It explores investment in 2018 for solar, wind, geothermal, fuel cells, biofuels, and other clean energy technologies on a global scale. BNEF insights help corporate strategy, finance and policy professionals separate the reality from the hype, navigate change and generate opportunities. The figures used in the report are built up from a proprietary database of more than 100,000 deal and project records collected and maintained by over 100 analysts and researchers based in 17 locations worldwide.

Download report here

Final Report on how Germany plans to exit coal until 2038



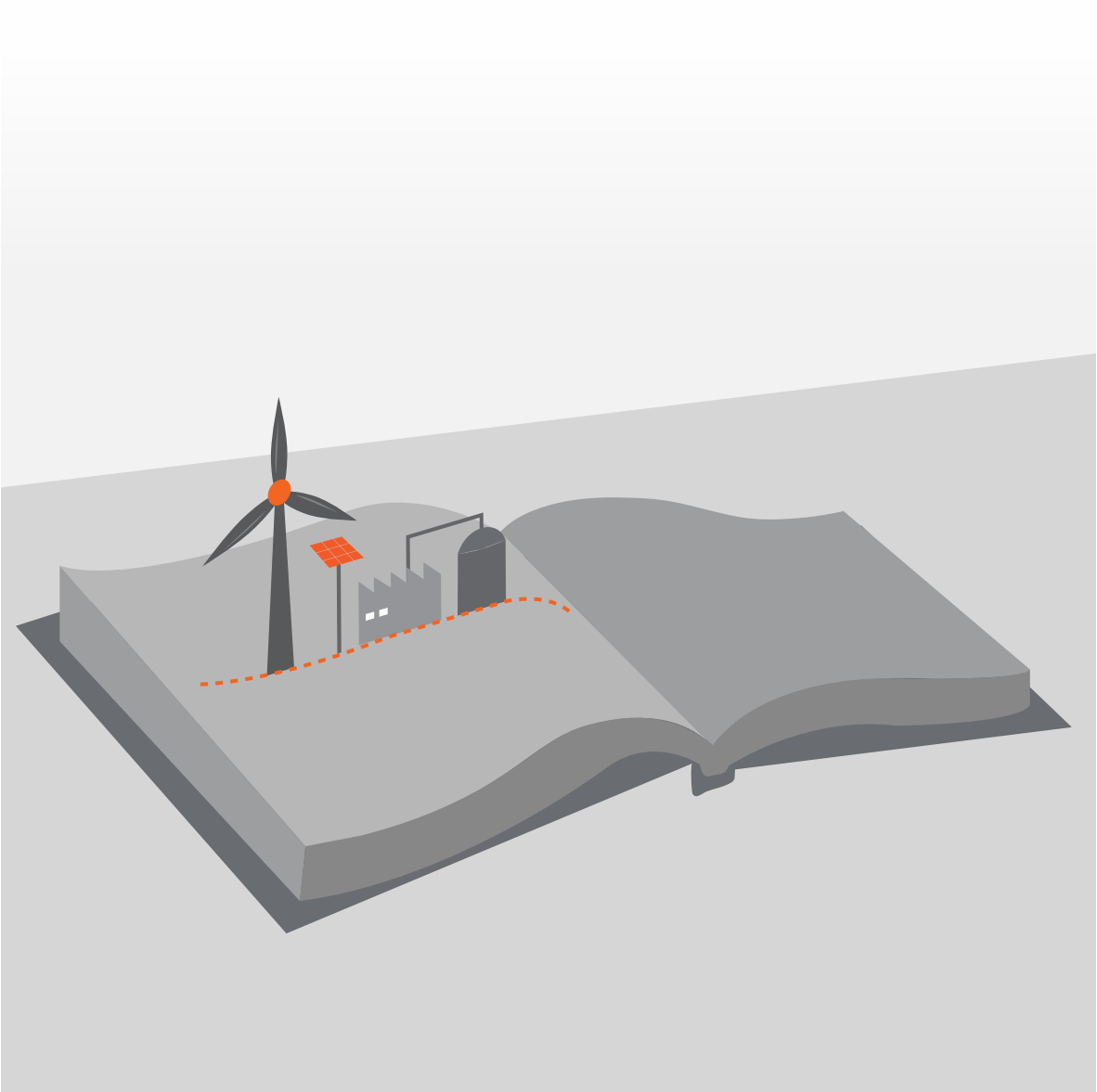
This official report published by the German Ministry for Economic Affairs and Energy is being written by the German Commission on Growth, Structural Change and Employment. The report was presented after months of negotiations and proposes a pathway for ending the use of coal-fired power in Germany. It sets a target for the stop of all concerning plants by 2038, and by 2035 if certain conditions are met. In either case, the number of coal-fired power plants is to be halved by 2030. Over the next 20 years, EUR 40 bn will be invested for the structural change of traditional coal-mining German states, as proposed in the report. Furthermore, the commission recommends compensation for pension deficit for older employees in the coal sector. The commission names a number of 60.000 jobs being directly or indirectly linked to brown coal.

Download full report here

India Solar Rooftop Map – June 2019

India is estimated to have added a record 1,836 MW of rooftop solar capacity in FY 2019. Rooftop solar continues to grow rapidly registering a growth rate of 61% over the previous financial year. This report provides a snapshot of regional capacity addition, market shares of leading players and other key industry trends.

Download here



7 Upcoming Events

Visit RENAC's 7th Green Energy Summer School from the 12 to the 30 of August 2019. This summer school provides trainings on renewable energy and energy efficiency and offers a mix of theory, practice, site visits as well as networking opportunities.

The trainings are designed for different target groups, taking into account their previous knowledge on the subject and their background. They will be of interest for national or international staff from development agencies and banks as well as stakeholder representatives and beneficiaries these organisations are working with. Link: Green Energy Summer School

Renewable Energy India Expo

Date: 18 - 20 September
Place: Delhi-Greater Noida, India

UBM India will hold another edition of Renewable Energy India Expo, a three-day event that brings together decision makers and influencers as well as technical experts and professionals from leading companies involved in the renewable energy sector in India and across the globe. The 2019 Renewable Energy India Expo will take place from 18 – 20 September, 2019 in India Expo Centre, Greater Noida. As a platform for technological developments and sustainable development opportunities to businesses in the Solar, Wind, Bio-mass/fuel, and Energy Efficiency & Energy Storage sectors, the Expo aims to support India's transition towards energy transition and sustainable economic development. German companies will be represented at a German pavilion.

For more information, please visit https://www.renewableenergyindiaexpo.com/

India Renewable Energy Award

Date: 19 September
Place: Delhi-Greater Noida, India

We are proud to present the 5th edition of India's most acknowledged Renewable Energy awards. The nomination for the award is now open. Winners will be announced 19 September at the 2019 Renewable Energy India Expo in India Expo Centre, Greater Noida

The REI awards are conducted with EY as the process advisors and a neutral jury. Click here to fill up nominations online. Last Date for submission 30 July 2019.

For more details log on to www.reiawards.com, call +91 9664988221 or email nester.carvalho@ubm.com

Climate Opportunity

Date: 15 - 16 October
Place: Berlin, Germany

How can the co-benefits of renewable energy raise the ambition of NDCs in order to deliver on the Paris Agreement? Come to the Climate Opportunity 2019 conference dedicated to "Co-Benefits for Just Energy Futures" on 15 and 16 October 2019 Berlin to explore the socio-economic potential of ambitious climate protection measures. The first day will present the latest research on co-benefits and has a strong focus on policies and institutional frameworks. The second day is targeted at a scientific audience and will discuss assessment tools and methodologies.

For more information, please visit https://www.cobenefits.info/climate-opportunity-2019/

Public funding of up to 20 Lakhs Euro (2,0 Mio. EUR) for your innovative business idea!

Up to 20 Lakh Euro grant on top of your investment into an innovative business idea. This is what Government of Germany is promising German and Indian companies from the energy sector who are keen to break into new market segments with viable solutions and new technologies that improve long-term resource-efficiency and create new employment prospects in India. The minimum volume to be invested by your company itself is 1 Lakh Euro. German Government is offering to double your investment amount by providing a 100% grant. The so called www.develoPPP.de scheme targets especially start-ups and SMEs. Innovative projects can be promoted with companies that comply with international environmental and social standards, support positive developments in India and thus contribute to the Sustainable Development Goals (SDGs). The proposed investment must be clearly in the business interest of your company. Your company must have an experience of at least 2 operative business years, at least 8 employees and a turnover of at least 8 Lakhs Euro per annum. The grant amount can make up to 50% of the total costs of the project. For projects that have the potential to achieve outstanding development policy value the public funding can reach up to 20 Lakhs Euro. The total project duration can be up to 3 years.

For more information please first visit www.develoPPP.de. For further questions please contact our specialist Mr. Dieter Frick via dieter.frick@giz.de

3rd Global RE-INVEST

Date: 30 October - 02 November
Place: Greater Noida, India

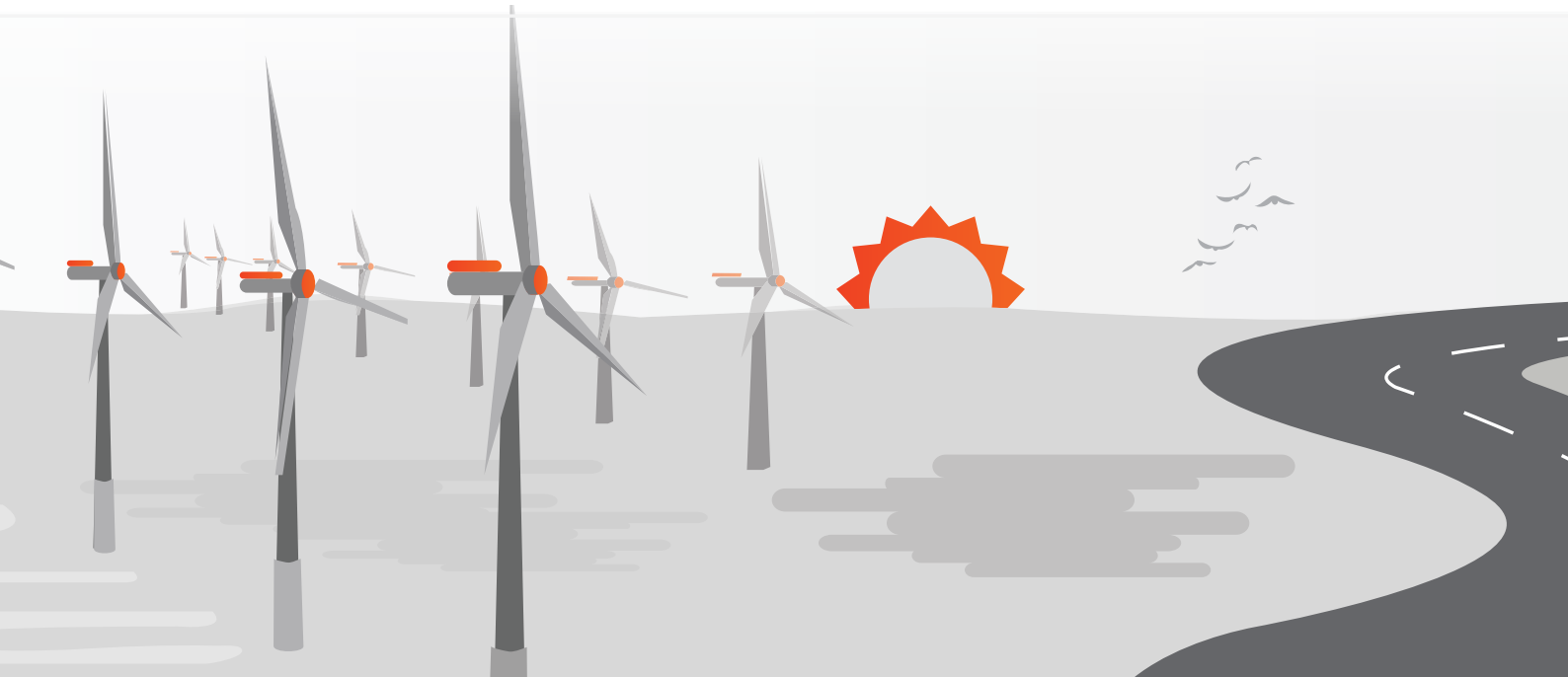
The Ministry of New and Renewable Energy, Government of India has announced the 3rd Global RE-INVEST Renewable Energy Investors' Meet and Expo, which will be held from 30 October – 2 November 2019 at India Expo Mart, Greater Noida. The RE-INVEST series of Investors' Meet & Expo hosted by the Ministry of New and Renewable Energy (MNRE), Government of India, showcases India's renewable energy potential and the Government's efforts to scale up capacity to meet the national energy requirement in a socially, economically and ecologically sustainable manner. It will also host the Second Meeting of the ISA Assembly and the ASEAN Ministerial Meet.

For more information, please visit https://re-invest.in/

The Smarter E India 2019 – Intersolar India, EES India and Power2Drive

Date: 27 – 29 November
Place: Place: Bangalore, India

The Smarter E India will take place from 27 to 29 of November 2019 in Bangalore. This trade fair and conference is India's largest event completely dedicated to solar energy as well as emobility and storage. The Smarter E India unites three energy exhibitions: Intersolar India – India's most pioneering exhibition and conference for the solar industry, ees India – India's leading electrical energy storage exhibition and Power2Drive India – India's premier exhibition for electric mobility and charging solutions. The initiative German Energy Solutions offers small and medium-sized companies from Germany the best opportunity to participate in The smarter E India by organizing a joint booth at attractive conditions. Deadline for registration is July 26, 2019. Find your application form here.



All upcoming events in the next six months – Save the date!

International conference on large scale RE grid integration
http://regridintegrationindia.org/
Date: 05 – 06 September 2019 | Place: New Delhi, India

International conference on Energy Efficiency in Buildings
Date: 09 – 11 September 2019 | Place: New Delhi, India

Husum Wind Energy
https://husumwind.com/
Date: 10 – 13 September 2019 | Place: Husum, Germany

Renewable Energy India Expo 2019
https://www.renewableenergyindiaexpo.com/
Date: 18 - 20 September 2019 | Place: Delhi-Greater Noida, India

Climate Opportunity 2019
https://www.cobenefits.info/climate-opportunity-2019/
Date: 15 - 16 October 2019 | Berlin, Germany

3rd Global RE-INVEST
https://re-invest.in/
Date: 30 October - 02 November 2019 | Place: Delhi-Greater Noida, India

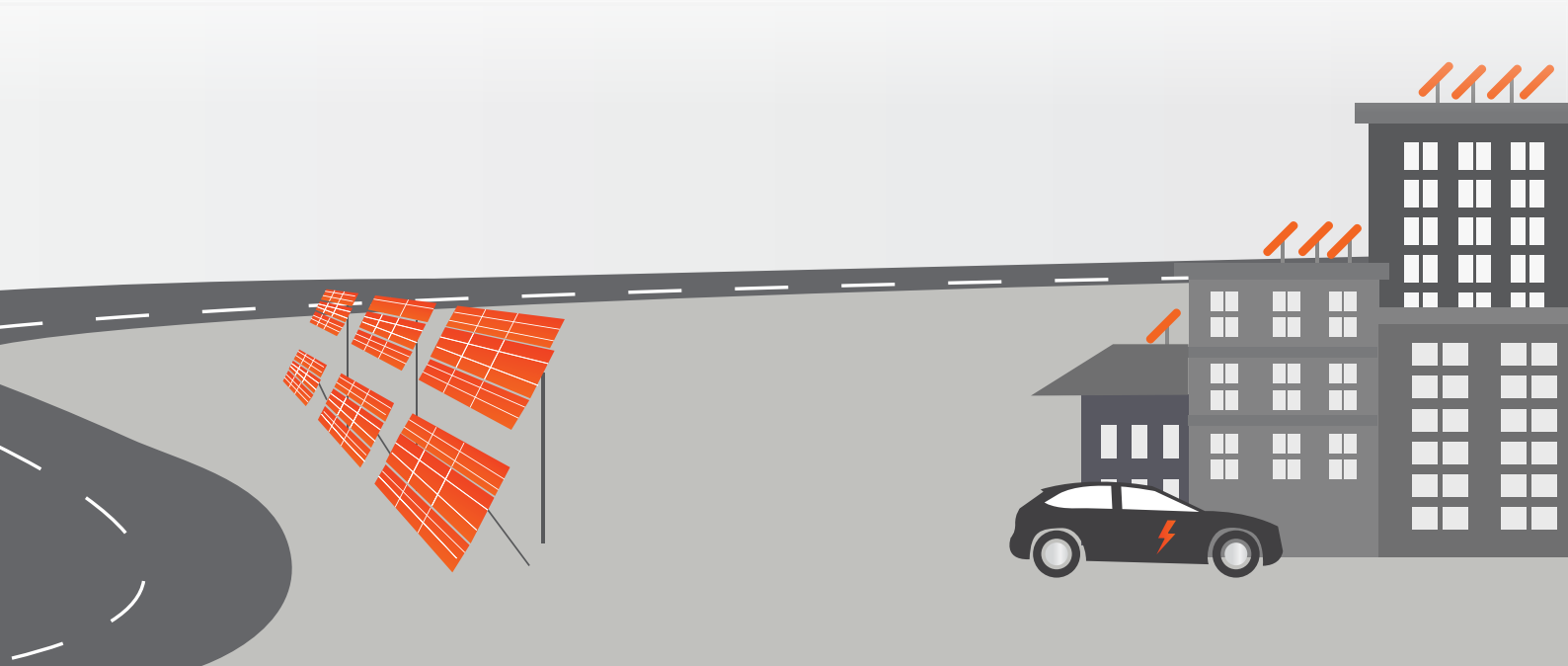
ISA General Assembly
http://isolaralliance.org/
Date: 31 October 2019 | Place: Greater Noida, India

Global Energy Xpo
https://www.gexpo.in/
Date: 20 – 22 November 2019 | Place: New Delhi, India

Intersolar Bangalore
https://www.thesmartere.in/en/intersolar-india
Date: 27 – 29 November 2019 | Place: Bangalore, India

World Utility Summit
https://www.worldutilitysummit.org/
Date: 20 – 22 January 2020 | Place: Delhi, India

Energise 2020
https://www.energiseindia.in/
Date: 12 – 14 February 2020 | Place: Hyderabad, India



8 Disclaimer

The views expressed in this newsletter are solely those of the Indo-German Energy Forum (IGEF) Support Office team. The IGEF Support Office cannot assume any responsibility for the contents of other websites linked in this newsletter.

The Support Office of the Indo-German Energy Forum provides liaison services for all stakeholders. It serves as a first point of contact both to the Indian and German governments as well as companies seeking to get involved in the process. The Support Office answers queries regarding proposals for the IGEF dialogue or IGEF projects and any other subject relevant to the private sector.

9 Contact

New Delhi »

Indo-German Energy Forum Support Office
c/o Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH
1st Floor, B-5/2, Safdarjung Enclave
New Delhi – 110 029
India

E communications@energyforum.in
T +91 11 4949 5353
W www.energyforum.in

Berlin »

Indo-German Energy Forum Support Office
c/o Deutsche Gesellschaft für Internationale
Zusammenarbeit (GIZ) GmbH
Köthener Strasse 2
10963 Berlin
Germany

E info@energyforum.in
T +49 (0)30 338424-462
W www.energyforum.in

Follow us on www.twitter.com/igefso

Like us on www.facebook.com/Indo-German-Energy-Forum-1453993401502553/

Thank you for subscribing to our newsletter. If you wish to unsubscribe, please view manage your subscription

To access all hyperlinks, please visit the online version of the IGEF Newsletter available on: http://energyforum.in/newsletter.html