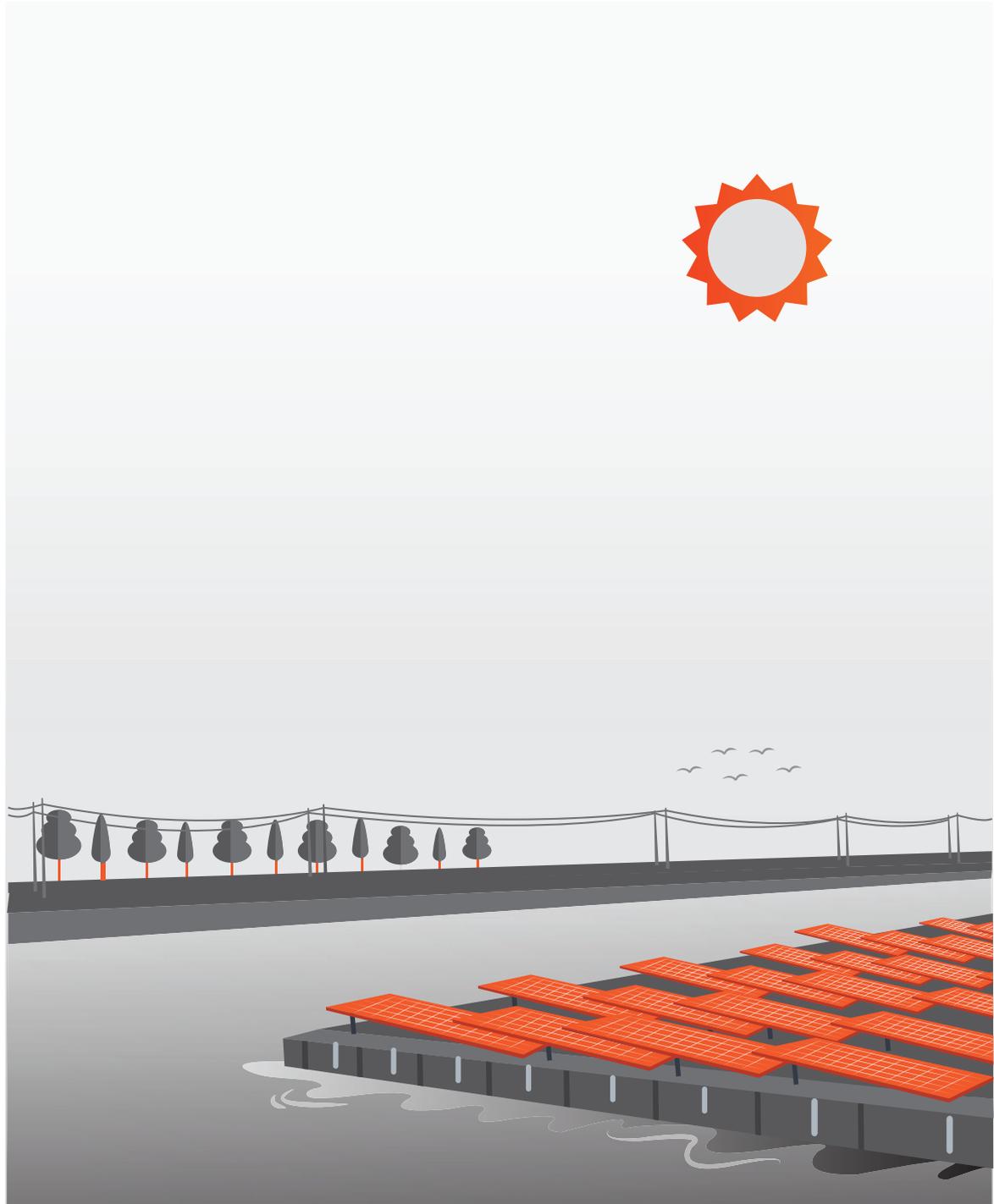


# INDO-GERMAN ENERGY FORUM NEWSLETTER

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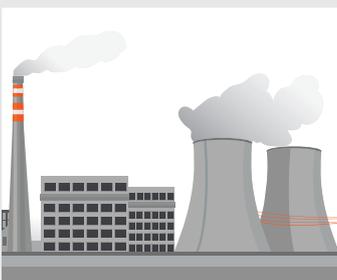
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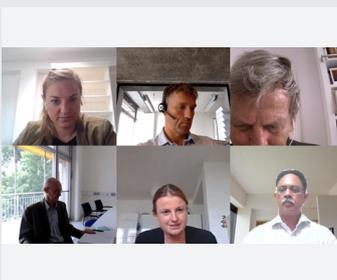
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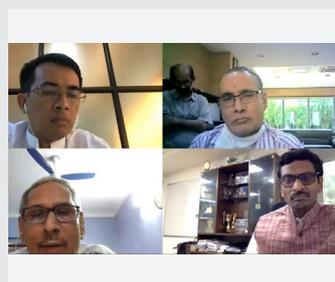
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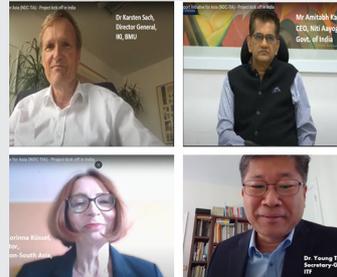
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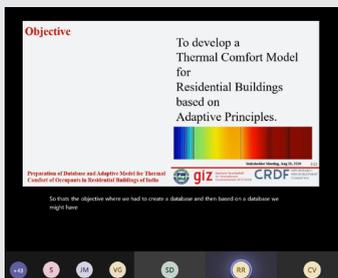
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Estimated Savings in Residential Buildings

Year	Savings (MMJ)	CO2 million tonnes
2019-20	408.9	0.3
2020-21	1469.3	1.2
2021-22	3517.5	2.9
2022-23	6699.9	5.5
2023-24	11398.8	9.3
2024-25	20122.5	16.5
2025-26	30788.5	25.2
2026-27	37058.6	30.4
2027-28	44957.1	36.9
2028-29	55206.1	45.3
2029-30	66724.8	54.7
TOTAL	278347	228

The energy saving potential through proposed labelling program is around 278 BU per year

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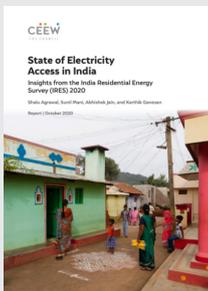


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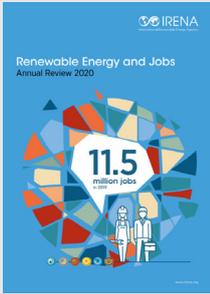
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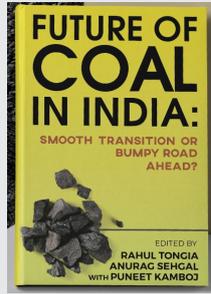
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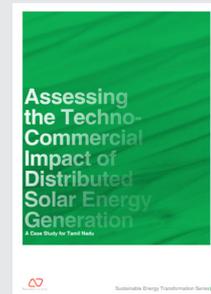
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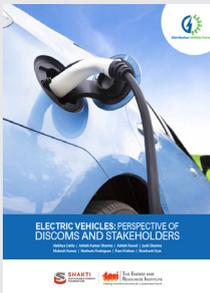
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# 1

## Introduction



**Ms. Anu P. Mathai,  
Adviser, Department of Economic  
Affairs, Ministry of Finance, GOI  
and Co-Chair of IGEF Subgroup IV  
on "Green Energy Corridors"**

Ms. Anu P. Mathai is an Indian Economic Service (IES) officer and currently the Adviser (International Economic Relations & Bilateral Cooperation) at the Department of Economic Affairs (DEA), Ministry of Finance, Government of India. Ms. Mathai did her degree in economics at the Lady Shri Ram College (LSR), Delhi and completed her post-graduate degree at the Delhi School of Economics. She also received an MBA degree with top honours by the Swinburne University of Technology, Melbourne, Australia.

Among the important positions held by Ms. Mathai, she worked at the Capital Markets division of DEA and in the Trade Policy Division of the Department of Commerce (DOC), where she represented India in critical negotiations on agriculture issues among others at the World Trade Organisation. While at DOC, she became CEO for the India Brand Equity Foundation (IBEF) for about two years. IBEF is a trust established by the Department of Commerce primarily to promote and create international awareness of Indian products and services.

On 16 June 2020, a virtual meeting was held between the Co-Chairs of the IGEF Subgroup IV with the name "Green Energy Corridors". Present were Ms. Anu P. Mathai and her German counterpart, Mr. Philipp Knill, Head of the India and South Asia Division of the Federal Ministry for Economic Cooperation and Development (BMZ). Ms. Mathai is thankful for the support of the Federal Government of Germany in the Green Energy Corridors project and is looking forward to the furtherance of the Indo-German bilateral development cooperation.



**Dr. Martin Lux,  
Head of Energy Cell, KFW  
Development Bank, India**

Dr. Martin Lux joined the India office of KFW Development Bank as Head of the Energy Cell in August 2020. Dr. Lux brings with him a very rich experience of more than two decades in the areas of climate mitigation and adaptation, energy, governance and natural resources management. He has been with KFW since 2010. Until recently, he was Senior Sector Economist for KFW Frankfurt at the Competence Center Climate & Energy. Dr. Lux was responsible for the development and the introduction of Mainstreaming Climate Change Adaption to financial corporations as well as the coordination and strategic development of the German Climate and Technology Initiative (DKTI). Additionally, he supported strategic climate think tanks and initiatives as an Adviser. Before KFW he worked with several leading global consulting groups in Germany on a range of development themes and innovative projects. Martin is a trained forester and has a PhD degree on the topic: "Secondary forests and agroforestry systems in the regional development of the

state of Sucre, Venezuela: Present Use, potentials and innovations" from the University of Freiburg, Germany. He has also acquired a master's degree in business administration and is a polyglot - fluent in five international languages.

Dr. Lux is excited to be working in India with a wide range of stakeholders and wishes IGEF all the very best in the years ahead.

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Martin is excited to be working in India with a range of stakeholders and wishes IGEF all the very best in the years ahead.

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## Events and Activities

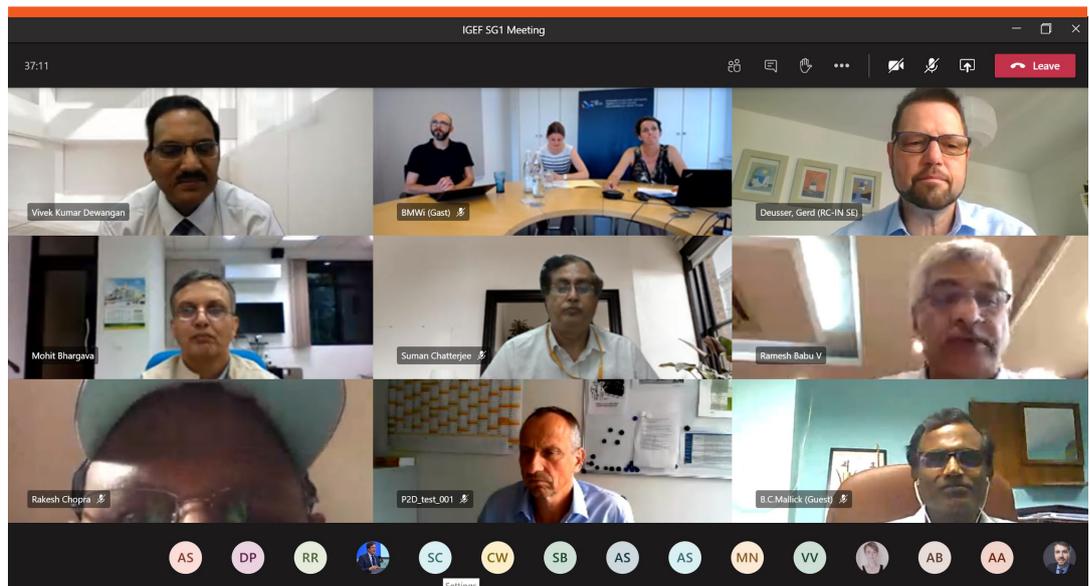
### Subgroup I Meeting on Flexibilisation of Thermal Power Plants

13 August 2020 | New Delhi and Berlin

On 13 August 2020, the IGEF Subgroup I met under the headline "Flexibilisation of Thermal Power Plants" to discuss the adaptation of thermal generation assets to fluctuating Renewable Energies. The meeting was chaired by Dr. Falken-Grosser, Head of Bilateral Cooperation at the Federal Ministry for Economic Affairs and Energy (BMWi), Government of Germany and Shri Vivek Kumar Dewangan, Joint Secretary for International Cooperation at the Ministry of Power (MoP), Government of India. Among

others, representatives of German and Indian power plant operators, power plant associations such as VGB PowerTech e.V. and the Indian Excellence Enhancement Centre as well as the Indian power planning authority Central Electricity Authority (CEA) took part. In addition to the flexibilisation of thermal power plants, the topic of hydrogen was also on the agenda. Dr. Simon Koesler (BMWi) informed the Indian side accordingly about the current status of the German hydrogen strategy.

(L to R) Co-Chair Shri Vivek Kumar Dewangan (MoP), Dr. Simon Koesler (BMWi), Dr. Nicole Glanemann (BMWi), Co-Chair Dr. Christine Falken-Grosser (BMWi), Mr. Gerd Deusser (Siemens), Mr. Mohit Bhargava (NTPC), Mr. Suman Chatterjee (MoP), Mr. Ramesh Babu (NTPC), Mr. Rakesh Chopra (EEC), Dr. Martin Lux (KfW), Mr. Bikash Mallick (CEA).



## 7th Indo-German Energy Day with German Pavilion

2 September 2020

On 2 September 2020, the 7th Indo-German Energy Day took place within the 2nd virtual Renewable Energy India (REI) E-Expo 2020. The fair was inaugurated among others by Ms. Ursula Borak, Deputy Director-General of the energy department in the Federal Ministry for Economic Affairs and Energy (BMWi), Government of Germany. In cooperation with the Indo-German Chamber of Commerce (IGCC), the IGEF-SO organised a virtual German Pavilion at which more than 35 German companies and associations were represented. The virtual fair focused on Renewable Energy technologies

and served as a platform for stakeholders to establish contacts and exchange knowledge. More than 1100 participants visited the German Pavilion and had the opportunity to learn more about PV niche-markets and Agrophotovoltaics (AgroPV). IGEF-SO also organised a virtual conference session on the topic of "PV Rooftop & Storage", which was kicked off by Dr. Nicole Glanemann, Federal German Ministry for Economic Affairs and Energy, BMWi. 234 participants attended the event live via the exhibition platform and a parallel streaming channel.

Virtual German Pavilion  
of the Indo-German  
Chamber of Commerce  
and the IGEF-SO at the  
2nd Renewable Energy  
India E-Expo.



## Flexibility Test Runs in Indian Power Plants to Support Grid Integration of Renewable Energies

### October 2020 | Jharkhand and West Bengal

The Indo-German Energy Forum (IGEF) with its stakeholders of Subgroup I are investigating the flexibility potential of two Indian power plants.

A team of Indian and German experts is currently preparing highly complex test runs at the power plants Andal and Maithon. These test runs aim at evaluating the potential of the flexible operation of these two thermal power plants which would prepare them to participate in a Renewable Energy dominated energy market with fluctuating power generation. The Andal power plant is located in the state of West Bengal and is operated by the Damodar Valley Corporation (DVC). Unit 2, which has a capacity of 500 Megawatt (MW), is included for the test runs. Maithon power station, located in the State of Jharkhand, is operated by Tata Power. There as well, Unit 2 with a capacity of 525 MW is the focus of the test runs.

The work is coordinated by the Task Force Flexibility under the umbrella of IGEF, which is led by the Director Operations at National Thermal Power Corporation Limited (NTPC). On the Indian side, the task force is composed of members from NTPC, the Central Electricity Authority (CEA), the grid operator Power System Operation Corporation Ltd. (POSOCO) and Bharat Heavy Electricals Ltd. (BHEL). The VGB partner organisation the Excellence Enhancement Centre (EEC) coordinates the work, which is accompanied on the German side by VGB, GIZ, Siemens and Steag Energy Services.

The topic "Flexible Operation of Thermal Power Plants" has already been at the top of the IGEF agenda since 2016. Important milestones of the activities so far have been the successful test runs at the thermal power plant Dadri operated by NTPC and the publication of the Flexibility Toolbox, a compilation of technical measures for flexible power plant operation.



## IGEF supports First World Solar Technology Summit organised by ISA

8 September 2020 | India and Germany

The International Solar Alliance (ISA) organised the "First World Solar Technology Summit" on 8 September 2020. According to the organisers, more than 26,000 participants from 153 countries registered. It is estimated that up to 10,000 participants attended the event via live stream. The First World Solar Technology Summit focused on cutting-edge and next-generation technologies that will strengthen efforts to use solar energy more efficiently. CEOs of leading global companies and associations of the German solar industry, that were suggested by the German Embassy in New Delhi and the Indo-German Energy Forum Support Office, presented their innovations. Among others the following companies were represented on the highest level with NexWafe on innovative solar wafer manufacturing, Meyer Burger on highly efficient hetero junction cell production, Sono Motors on electric mobility combined with PV and the European Solar Manufacturing Council (ESMC) as well as the German Mechanical Engineering Industry Association VDMA on latest technology developments across the globe.

Apart from four Indian state ministers, the following high-ranking personalities actively participated in the event:

- ▼ H.E. Ms. Barbara Pompili, Hon'ble Minister of Ecological Transition, Govt. of France and Co-President of the ISA Assembly
- ▼ H.E. Ms Kadri Simson, Commissioner for Energy, representing Hon'ble President, European Commission, Brussels
- ▼ H.E. Mr. Poasi Mattaele Tei, Hon'ble Minister for Meteorology, Energy, Information Management, Environment, Climate Change & Communications of Tonga & Vice President, ISA Assembly (Asia Pacific)
- ▼ H.E. Mr. Luis Miguel Incháustegui Zevallos, Minister of Energy and Mines, Republic of Peru & Vice President of ISA Assembly (LAC Region)
- ▼ H.E. Mr. Abyl Bidamon Dederiwe, Minister of Mines and Energy, Togolese Republic & Vice President of ISA Assembly (Africa Region)



Partnership agreements were signed in the areas of transmission grids, large-scale PV systems and cooling. Among others, an agreement between ISA and the Indian state power plant operator National Thermal Power Corporation Limited (NTPC) was signed on the construction of 47 specific solar projects in ISA member countries. Another partnership was signed by the International Institute for Refrigeration, Paris, to formalise cooperation on an "ISA Cooling Initiative", which aims to combine solar energy

with energy efficiency and cooling. Worldbank signed a cooperation agreement to support ISA in the mega project "One Sun, One World, One Grid" (OSOWOG) envisioned by the Hon'ble Prime Minister of India, Shri Narendra Modi. Such a trans-national electricity super grid shall supply solar power across the globe and bring peace to this world by making conflicts related to fossil fuel resources obsolete as well as by creating physical bonds between nations.



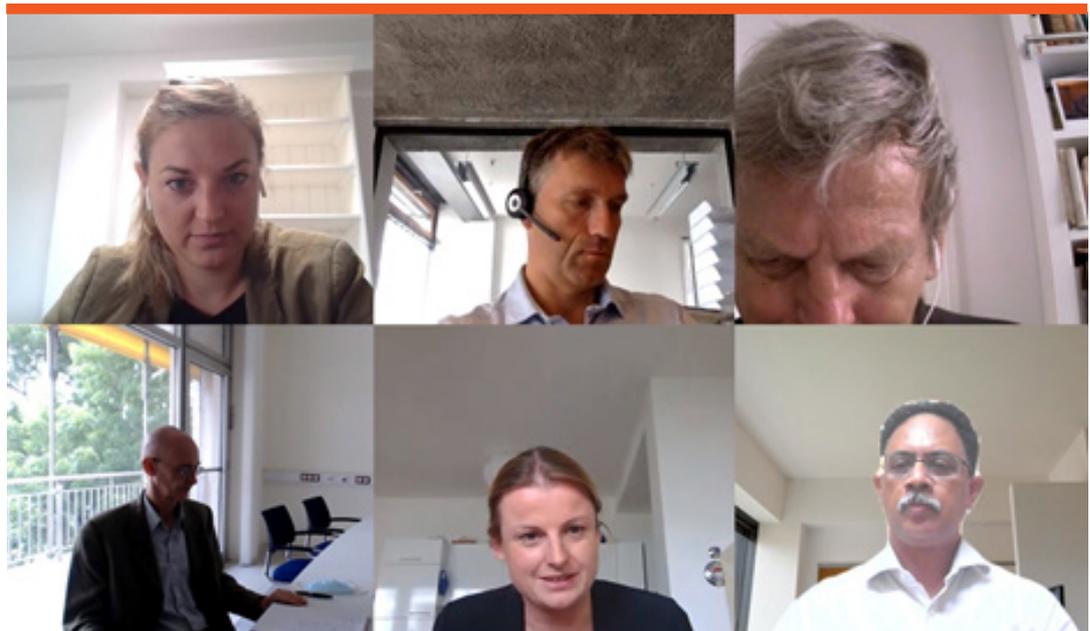
## 3rd Local Business Advisory Council

2 September 2020 | Virtual

On 2 September 2020, the 3rd Meeting of the Local Business Advisory Council took place within the framework of the Indo-German Energy Day. Participants were German companies from the wind, solar and bioenergy sector, Indo-German German Chamber of Commerce (IGCC/AHK Indien), Renewable Energy associations as well as representatives of the German Embassy in New Delhi, the Federal Ministry for Economic Affairs and Energy (BMWi), GIZ, KfW and the IGEF-SO. German companies welcomed that the Government of India increased its ambitions for Renewable Energy capacity additions to 450 Gigawatt (GW) of Renewable Energy capacity grid connected by 2030. German companies have repeatedly praised the past development and these ambitious targets. However, certain issues were addressed to enable further sustainable, long-term growth and successful German industry participation.

- ▶ High impact of COVID-19 in the short term. Lockdown-induced economic slowdown for India so far has been stronger than expected. The COVID-19 recovery may take longer than anticipated but COVID-19 is not seen as a major issue in the long run.
- ▶ A tendency towards more protectionism is observed. While some good experiences with localisation or self-reliance have been made in India, concerns have been raised especially from German business associations and German Embassy that protectionism will harm the Indian economy in the long run. The past has shown that required foreign investments are mainly made

(L to R) Theresa Jocham (IGEF-SO), Dr. Richard Meyer (suntrace), Prof. Dr. Eicke Weber (ISES), Dr. Jörg Polster (German Embassy), Dr. Nicole Glanemann (BMWi), Anup Bhargava (Dornier Group).



based on free trade assumptions combined with increasing local demand. Some German companies could face unexpected risks such as in public procurement with the exclusion of imports from foreign companies.

- ▶ Some German companies see the present drive for localisation as a chance for manufacturing in India for German machines to replace imports from certain Asian countries.
- ▶ Lack of coordination between State and Central Govt. has been observed which makes it often difficult for German companies to come to clear conclusions and make relevant business decisions.
- ▶ Clear long term regular frameworks are required. A tendency of policy overdrive with changes in existing regulation and retrospective amendments are still being observed and may lead to confusion for long term investors.
- ▶ Less bureaucratic simpler tender processes are requested. Especially public tenders are considered as complicated, shying away potential foreign bidders.

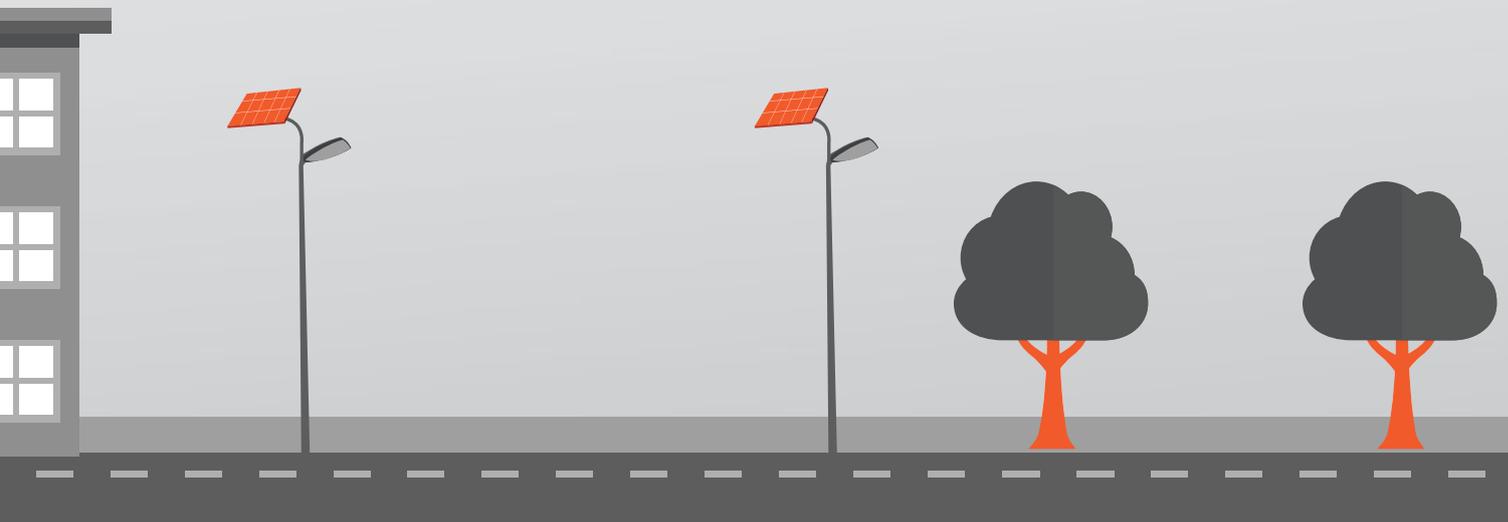


## CO<sub>2</sub>-Neutral Battery Manufacturing in Europe

4 September 2020 | Virtual

Chances for European and Indian players and industry segments to still enter supply chains for battery manufacturing despite certain missing infrastructure and local production facilities were discussed on 4 September 2020. In a presentation held by the German P3 group GmbH success factors and roadblocks for new entrants in the battery cell manufacturing business were outlined. How to participate and compete with dominant market players were thereby key aspects. In this context, the depth of vertical integration into the value chain of battery

cell production was most of the interest as it defines the number of potential chances and risks. Among other points, the availability of CO<sub>2</sub> friendly energy grids, resulting in beneficial CO<sub>2</sub> friendly components and raw material production were considered. Given the initial motivation of setting CO<sub>2</sub> targets for the automotive industry, this specific characteristic of European location was another focus of the presentation. The Indo-German Energy Forum Support Office promoted the workshop and was the official partner of the same.



## IGEF at WB India Summit

### 11 September 2020 | Virtual

German Mittelstand companies with an interest in the Indian market came together at the WB India Summit on 11 September 2020. Altogether about 150 participants attended the event. IGEF-SO was represented with a virtual booth and organised a conference session on the topic of "Competitive advantage of own power generation for industrial companies in India". Representatives from German companies were able to gain insights from local experts on which possibilities for sourcing green power in India already exist and which economic benefits come

along. On the ground experiences with solar rooftop installations as well as battery storage systems were shared with the participants. The presentations can be downloaded on [www.energyforum.in](http://www.energyforum.in) or viewed on IGEF's Youtube channel at <https://youtu.be/RyUevwwV0ig>. The summit was organised by Dr. Wamser & Batra and was supported by the State Development Corporation of Thuringia, German Asia-Pacific Business Association (Ostasiatischer Verein e.V., OAV), IGEF-SO and Germany Trade and Invest (GTAI).

(L to R) Mr. Tobias Winter (IGEF-SO), Mr. Rupam Raja (Fluence a Siemens and AES company), Mr. Vinay Rustagi (Bridge2India), Mr. Frank Polhaus (Green City AG).



## Insights and Opportunities in Indian Wind Turbine Manufacturing Ecosystem

23 September 2020 | Virtual

Embassy of India in Berlin, under its initiative “Make in India Mittelstand” conducted a webinar on “Insights and Opportunities in Indian Wind Turbine Manufacturing Ecosystem” on 23 September 2020. The webinar provided insights into government policies and reforms as well as potential opportunities for German companies in the wind energy sector. The first presenter, Mr. Anup Barapatre, Managing Consultant at EAC-Euro Asia Consulting, elaborated on “Insights and Opportunities in Indian Wind Energy Manufacturing Value-chain”. With the fourth largest wind capacity of 38 Gigawatt (GW) in the world and as one of the five countries with the fastest-growing capacity in 2019, India is one of the most promising global players in wind energy. Mr. Barapatre illustrated that domestic demand in India will continue to grow and that the

export potential shows enormous opportunities in the area of turbine manufacturing. Hence, India also offers promising opportunities as an export hub to the world. Ms. Kanika Verma, Associate for Renewable Energy and Power at Invest India spoke on “Government policies and reforms for promoting Renewable Energy manufacturing in India”. She highlighted the rapid development of Indian transportation hubs. She also demonstrated that a majority of Indian subsidiaries now outperform their corporate parent in terms of revenue. Vice-Chairman and Managing Director of ENERCON WindEnergy Pvt. Ltd. in India, Dr. P.K.C. Bose, gave insights into the vision of Enercon for the Indian and the global market. India is on the way to become Enercon’s global sourcing hub with a global research and development centre for its wind energy technology development.



MAKE IN INDIA MITTELSTAND!



INVITATION TO MIIM WEBINAR  
“INSIGHTS AND OPPORTUNITIES IN INDIAN  
WIND TURBINE MANUFACTURING ECOSYSTEM”



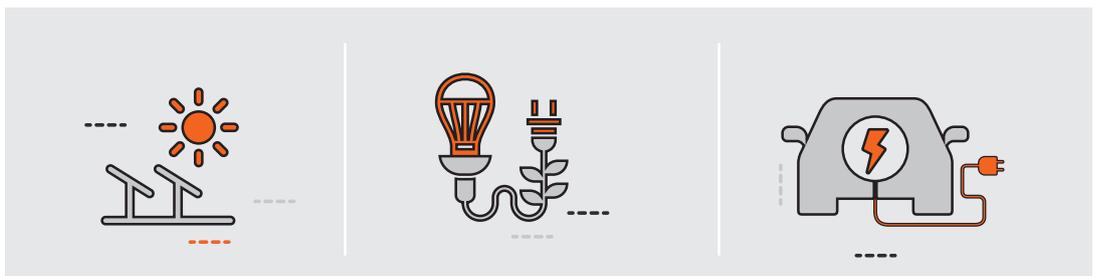
## Webinar on Economic Uncertainties and a Just Transition for India's Coal Mining Sector

16 September 2020 | Virtual

On September 16 the Initiative for Sustainable Energy Policy (ISEP) of the Johns Hopkins University School of Advanced International Studies presented a report on the COVID-19 Impact on Coal Mining and Chances for a Just Transition in India at the workshop on “Economic Uncertainties and a Just Transition for India's Coal Mining Sector”. The report was commissioned by the IGEF Support Office on behalf of the Federal Ministry for Economic Affairs and Energy (BMWi). The report outlines the economic uncertainty brought about by the COVID-19 pandemic, which is raising questions about the outlook for the thermal power generation and coal mining sectors in the coming decade and beyond. India's coal belt states Chhattisgarh, Jharkhand, Odisha and to a lesser extent, West Bengal and Madhya Pradesh were found to be characterised by limited progress in economic diversification. A large amount of the population is dependent on coal mining directly or indirectly regarding their livelihoods. Many daily workers are dependent on Coal India Limited (CIL) as an employer and a large part of the population in the coal belt relies on the local coal markets to make a living. It is no secret that the informal workforce in this sector is high. There are multidimensionally poor people in the region, the highest-earning members in rural households make probably less than 60 EUR a month in coal mines and 80% live on government food subsidies. The vulnerability of these people is

especially high due to unorganised employment or unemployment. Moreover, their poor education and skill sets still undermine their scope of employability in better paying and secure jobs. Difficulties to describe employment in India's coal sector are caused by the lack of data available, but it is estimated that millions of jobs are needed in the coal belt states, resulting in a further need to develop alternatives to coal and create employment. With an uncertain outlook for coal and the need to stimulate the Indian economy without accumulating unsustainable public debt, new ideas are necessary. ISEP experts Mr. Setu Pelz and Ms. Shrestha Banerjee argue that policy intervention shall look to the future and focus on strengthening community resilience to economic shock through expanding access to alternative, sustainable livelihoods. Both are drawing on their recent research into a just-transition for India's coal belt states and highlight the need for the development of a set of broader policy recommendations. This should include the design of a green stimulus programme to shift finance away from coal and towards renewable energies. Public sector undertakings need to create job opportunities and embrace regional hub strategy to enable job creation as well as regional economic development.

The report can be downloaded [here](#). The recording of an insightful discussion on the topic can be found [here](#).



## Online Training Program for Power Sector Professionals on Renewable Energy Grid Integration through Hydro Pumped Storage

20 - 21 August 2020 | Virtual

The Government of India set a target of 175 Gigawatt (GW) of Renewable Energy capacity by the year 2022 and a further target of 450 GW by the end of 2030. The generation from wind and solar has already increased substantially during the past few years and forms a significant portion of the total electricity mix in the grid. Excess Renewable Energy needs to be stored so that it can be used when needed. Integrating a significantly increased amount of wind and solar facilities into the electricity supply system requires balancing strategies and storage options. While many forms of energy storage systems have been installed globally, Pumped Storage Plants (PSP) are playing an increasingly important role in providing peaking power and maintaining system stability in the power system of many of the developed countries. So far, PSP hydro is one of the very few, large scale, long term and technically proven, cost-effective and highly efficient energy storage options available which also allows flexible operation at short notice.

The Central Board of Irrigation and Power (CBIP) and The Indo-German Energy Forum (IGEF) jointly organised a virtual visit to a PSP plant and online training on Renewable Energy Grid Integration through Pumped Hydro Storage on 20-21 August 2020. The program was attended by 127 participants from 35 organisations in

India including various State utilities, PSU's, NHPC, NTPC, POSOCO, TCS, BSES Rajdhani, ANDRITZ HYDRO, Marubeni and 40 officials from four neighbouring countries - Bhutan, Nepal, Bangladesh and Myanmar. The program had been approved by the BIMSTEC Division, Ministry of External Affairs, Govt. of India.

The topics of the training included technical and economic advantages and assessed the role of pumped storage balancing load and generation as well as providing reliably available capacity. The highlight of the training program was a virtual tour through the Kadamparai PSP plant itself. Dr. G.P. Patel, Secretary of CBIP welcomed all the dignitaries and expressed his gratitude on behalf of CBIP. Shri Anil Kumar Bellary, Co-Director of the IGEF-Support Office gave the introductory address and briefed the delegates regarding the objectives of the online training program. The keynote address was delivered by Chief Guest Shri K.V.S. Baba, Chairman & Managing Director of POSOCO. Mr. Baba complimented both CBIP and IGEF for the excellent initiative of organising an online training program with a virtual visit to a PSP plant. He recalled the significant role played by hydropower on an event on 5 April 2020 when at the clarion call of the Honourable Prime Minister of India to shut down electrical lights for 9 minutes at 9 pm throughout the country

to show solidarity with COVID-19 warriors. The security and stability of the national grid were ensured successfully by the national dispatch centre POSOCO to a great extent because of the flexible hydro systems.

More information and the presentations can be downloaded [here](#).

(L to R) Shri Biswajit Basu (Chief General Manager, NHPC Limited), Dr. G.P. Patel (Secretary, CBIP), Mr. Anil Kumar (Co-Director, IGEF Support Office), Shri K.V.S. Baba (Chairman & Managing Director, POSOCO).



## World Energy Storage Day 2020

**22 September 2020 | Virtual**

Emphasising the importance of energy storage as part of industrial progress and sustainable lives, the 4th World Energy Storage Day was celebrated on 22 September. On this occasion, India Energy Storage Alliance (IESA), organised a virtual Global Conference & Expo intending to bring together industry leaders, policymakers, academia, researchers as well as professionals and deliberate upon the need for nurturing a global ecosystem for energy storage. Indo-German Energy Forum was a supporting partner for the conference. German experts such as Dr. Andreas Hauer, Head Energy Storage Division from the Bavarian Center for Applied Energy Research (BVES), Mr. Martin Zierer, Application Manager at Schaltbau GmbH, Mr. John Zahuranick, Chief Operating Officer of Fluence Energy and Mr. Chris King, Sr. Vice

President eMobility at Siemens as well as Mr. Brieux Boisdequin, Vice President Automotive & Materials at BASF India were giving deep insights into German technology advancements and were engaged in insightful discussions.

The energy storage market in Germany is projected to witness a compound annual growth rate (CAGR) of more than 10%. Factors, such as the increasing share of renewables in the electricity generation mix, a decline in the cost of storage batteries and solar photovoltaic panels, supportive government policies like low-interest rates on loans as well as investment grants on battery systems, are driving the Germany energy storage market.

More information can be accessed [here](#).



# 3

## Developments in Indo-German Energy Cooperation

Germany's Support to India to Fight COVID-19

21 August 2020 | New Delhi, India

On behalf of the Federal Ministry for Economic Cooperation and Development (BMZ), KfW signed a loan agreement on 21 August 2020 with the Indian Ministry of Finance amounting to EUR 250 Million for the COVID-19 Social Protection Crisis Response Programme. The loan is the first tranche of an overall package amounting to EUR 460 Million, with the second tranche to be made available by the end of the year.

The Financial Corporation assistance is tailored towards supporting both immediate assistance for poor and vulnerable households that have been among the worst hit by the Covid-19 pandemic, while at the same time promoting institutional reforms to widen and deepen the coverage of social protection schemes. The first phase of the operation is being rolled out through the Pradhan Mantri Garib Kalyan Yojana (PMGKY), the Government of India's emergency social assistance program which is providing vulnerable groups and migrant workers with a mix of direct cash transfers, food security, and medical insurance cover through established national platforms and programs. The total outlay under PMGKY has been estimated at INR 1,70,000 crore or approximately USD23 billion.

India has been heavily affected by the global COVID-19 pandemic rising fears that the devastating socio-economic impacts could cause large segments of the population to slip back into extreme poverty. In a country where over 90% of the workforce is employed in the informal sector with virtually no recourse to workplace-based social protection benefits, the role of national social assistance programs becomes even more critical.

The FC program will provide further support for the social security system through long-term institutional reforms. The objective is to integrate the abundance of different social security programs at both national and state levels into a flexible and adaptable system that provides portable benefits to India's vast migrant worker population. Moreover, the primarily rural focus of existing social assistance programs will be expanded to include those in need in urban regions.

The COVID-19 Social Protection Crisis Response Programme is parallel financing with the World Bank and includes the participation of other bilateral and multilateral donors. The World Bank is the lead agency.

(L to R) Mr. Ashish Sharma, Under Secretary, (DEA)-standing, Mr. Hanish Chhabra, Director, (DEA), Mr. Kiran Avadhanula, Senior Sector Specialist - Sustainable Urban Development, (KfW), Dr. C.S. Mohapatra, Additional Secretary, (DEA), Dr. Stephan Grabherr, Deputy Head of Mission (German Embassy).





## India and Germany Collaborate on 'Nationally Determined Contributions - Transport Initiative for Asia (NDC-TIA) Programme' to Promote Decarbonized Mobility

### 27 August 2020 | Virtual

NITI Aayog and International Climate Initiative (IKI) of the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) jointly launched Nationally Determined Contributions - Transport Initiative for Asia (NDC-TIA) Programme with its India component on 27 August 2020 in an online kick-off event.

The NDC Transport Initiative for Asia (NDC-TIA) is a joint programme of a consortium of seven organisations, supported by the International Climate Initiative (IKI) of the German Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU).

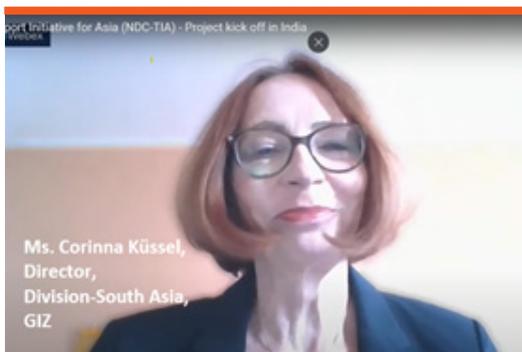
The consortium of implementing partners include the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the International Council on Clean Transportation (ICCT), the World Resources Institute (WRI), the International Transport Forum (ITF), the Agora Verkehrswende

(AGORA), the Partnership on Sustainable, Low Carbon Transport (SLoCaT) Foundation and the Renewable Energy Policy Network for the 21st Century e.V. (REN21).

Opening remarks were given by Ms. Corinna Küsel, GIZ Director of the Division South Asia, Mr. Stephan Grabherr, Deputy Ambassador German Embassy and Dr. Karsten Sach, Director General IKI International and European Policy, Climate Policy, BMU. Mr. Amitabh Kant, CEO, NITI Aayog delivered the keynote address, followed by a special address from Dr. Young Tae Kim, Secretary General, ITF.

During her opening address, Ms. Küsel, Director South Asia at GIZ stated that the project intends to support the development of policies and regulations to promote Electric Vehicle (EV) charging infrastructure uptake and smooth wide-scale adoption of EVs in India. This will

(L to R) Dr. Karsten Sach (Director General, BMU), Shri Amitabh Kant (CEO, NITI Aayog), Ms. Corinna Küsel (GIZ Director of the Division South Asia), Dr. Young Tae Kim (Secretary General, ITF). ©GIZ



## India and Germany Collaborate on 'Nationally Determined Contributions - Transport Initiative for Asia (NDC-TIA) Programme' to Promote Decarbonized Mobility

require coupling of transport and energy sectors and receiving cross-sectoral expertise from ministries, international development agencies, think tanks as well as public and private organisations.

The Deputy Ambassador of the German Embassy, Mr. Stephan Grabherr, stated that new and alternative forms of mobility, especially urban mobility, are of utmost importance for Germany and hence, its cooperation with India. He also emphasized that innovative technological developments and behavioural change will be key pillars in reducing emissions from mobility.

In his keynote address, Mr. Amitabh Kant, CEO of NITI Aayog acknowledged the support of the BMU and other consortium partners and assured his full support in return. He emphasized that through this project, India will strengthen its transport and GHG modelling capabilities at the national level – paving its way towards cleaner mobility.

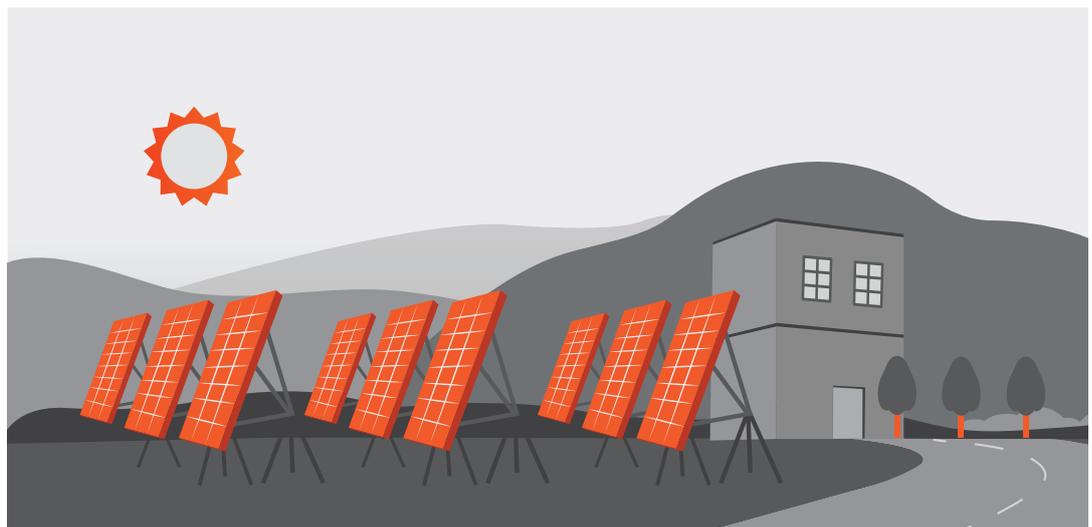
Dr. Karsten Sach, Director General at BMU and in charge of International and European Policy, Climate Policy and the International Climate

Initiative (IKI), stated that with rapid economic growth and explosive need for transport in India, there is a need to address the challenges of providing improved and decarbonised transport. Projects like NDC-TIA will be essential to find solutions and meet climate goals.

The remarks were followed by a briefing presentation from the consortium members about the activities and targeted outputs of the project in India. The aim of NDC-TIA, over the next four years, will be to slow the growth of transport emissions and show added benefits related to improvements in traffic congestion and air pollution.

To know more about the NDC-TIA programme and ongoing activities, please visit the Changing Transport [website](#). Kindly also refer to the recording of the kick-off event on NITI Aayog's YouTube Channel [here](#).

For further information, please contact Dr. Indradip Mitra ([indradip.mitra@giz.de](mailto:indradip.mitra@giz.de)), Dr. Winfried Damm ([winfried.damm@giz.de](mailto:winfried.damm@giz.de)) and Mr. S.K. Saha ([sonjoy.saha@gov.in](mailto:sonjoy.saha@gov.in)).



## Virtual Workshop on Financial Products for Solarisation of Pumps under PM-KUSUM Scheme

19 August 2020 | Virtual

Ministry of New and Renewable Energy (MNRE) has been promoting the implementation of Solar Water Pump to meet irrigation needs for agriculture in the country. Pradhan Mantri Kisan Urja Suraksha evam Utthaan Mahabhiyan (PM-KUSUM) scheme was announced in July 2019. Solar Agriculture Pumps offer multifold benefits to various stakeholders and currently have a huge untapped demand. However, higher capital investment and lack of appropriate financing instruments for extending credit for SWP to farmers have been some key hindrances in the large scale adoption of Solar Agriculture Pumps in India. A study has been conducted by MNRE and GIZ to identify suitable Financial Products and implementation models for Off-Grid and Grid-connected Solar Agriculture Pumps under Component B and Component C of the PM-KUSUM scheme. A virtual workshop was conducted to disseminate the details and benefits of the identified financial products. The workshop focused on deliberations and feedback on proposed financial products with and without subsidy support, to facilitate adoption and roll-out of the products by Financial Institutions (FI) which will enable the development of financing ecosystem and achieve scalability under PM-KUSUM scheme. Under subsidy models, the two proposed financial products target farmers in Off-grid areas for providing Loan to Individual

Farmer and Loan to Water Group User. The other three proposed financial products target farmers in Grid-connected areas for providing Loan to Individual Farmer, Loan to Discom, and support through a Central Agency. It was discussed that currently, SWP is a push market and with further market development, the amount of subsidy requirement will come down eventually. It was also pointed out that most private companies have tried non-subsidy models and as prices are coming down and efficiency is going up for SWP, non-subsidy models can also be considered. The adequate focus has to be given on capacity building of bankers and FIs which will play a major role in creating awareness and would expedite implementation under PM-KUSUM scheme. Next phase of action would be to strengthen the supply side. The focus will be on seamless integration between demand-side & supply side.

The doodle videos which are created in this project will be available on MNRE & GIZ websites. The workshop was attended by 27 participants from 18 FIs and banks. The opening and closing remarks were given by Joint Secretary, MNRE- Shri Amitesh Kumar Sinha.

For more details, please contact Ms. Perna Sharma ([perna.sharma@giz.de](mailto:perna.sharma@giz.de)).



## Feasibility of Solar Energy Generation for Dairy Processing

29 September 2020 | Gujrat, India

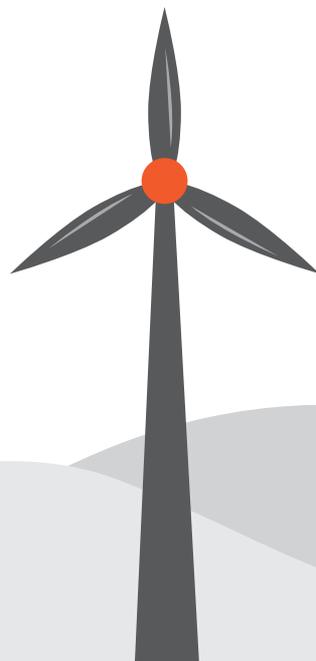
The entire dairy value chain from village level milk pooling points to product delivery is quite energy-intensive. Extensive use of solar energy in the dairy value chain can significantly reduce operational cost and ensure the usage of clean energy. In that regard, KfW aims to develop a joint program with the National Dairy Development Board (NDDB) that supports the implementation of solar energy applications for dairy processing facilities in the cooperative sector in India.

The consumption in dairy processing plants is mostly thermal energy and in part also electrical energy for the operation of machines and auxiliary applications. The consumption in the collection and chilling sites is purely electrical energy used for chilling, pumping and auxiliary applications. Consequently, a feasibility study is being ongoing to develop adequate solar energy applications suitable for each of the two stated areas.

The study is expected to develop sub-programmes that support the sustainable application of adequate solar technologies to

cover the respective energy needs of each of these three areas. In doing so the consultant will further recommend the most suitable technological solutions, to establish the economic viability of the suggested investments and to analyse the environmental and social impacts of the proposed investments.

KfW aims to provide a Line of Credit to the National Dairy Development Board (NDDB), through the Ministry of Agriculture Government of India, for the development of solar applications across the dairy value chain in India. The aim is that NDDB shall further on-lend the funds to state and district dairy cooperative societies (who are the partners of NDDB), such as villages, district and state-level cooperative societies owning village collection centres, MCCs and dairy processing plants. The different stakeholders will use the funds to implement solar-based energy-supply applications at their dairy processing plants, village chilling and collection centres. Ongoing feasibility study expects to provide the savings from the application of solar energy across the dairy value chain or at specific points of the value chain, then the proposed loans would be routed to the ultimate beneficiaries of the loan i.e. the state and district cooperative societies through NDDB.





## Preparation of Database and Adaptive Model for Thermal Comfort of Occupants in Residential Buildings of India

### 20 August 2020 | Webinar

The Bureau of Energy Efficiency (BEE) in collaboration with the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH launched the project 'Preparation of Database and Adaptive Model for Thermal Comfort of Occupants in Residential Buildings of India'. Thermal comfort is one of the most essential aspects of user satisfaction and energy consumption in buildings. It is necessary to provide thermal comfort to the people without compromising environmental safety.

The Stakeholder Consultation Meeting on Preparation of Database & Adaptive Thermal Comfort Model was held on 20 August 2020. During the meeting, discussions were held on the framework, methodology as well as the data collection criteria for thermal comfort study for Urban India.

For more details, please contact Mr. Govinda Somani ([govinda.somani@giz.de](mailto:govinda.somani@giz.de)).

**Objective**

To develop a Thermal Comfort Model for Residential Buildings based on Adaptive Principles.

Stakeholder Meeting, Aug 20, 2020 3/22

Preparation of Database and Adaptive Model for Thermal Comfort of Occupants in Residential Buildings of India

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

CRDF KEEP RESEARCH AND DEVELOPMENT FOUNDATION

So thats the objective where we had to create a database and then based on a database we might have

**People**

- Currently in this meeting (50)
- RS Ritesh Singh01 Outside your organisation
- S Sameer Outside your organisation
- SV Sandeep Verma Outside your organisation
- SS Santosh Salian Outside your organisation
- SD Saurabh Diddi Outside your organisation
- SS Seemant Sharma Outside your organisation
- SS Shatakshi Suman Outside your organisation
- S shifttosp Outside your organisation
- SD Shubhashis Dey Outside your organisation
- SM Shweta Manchanda Guest
- AS Siddiqui, Abdullah Nisar GIZ... Guest
- S Smita (Guest) Guest
- GS Somani, Govinda GIZ IN



## Awareness Programme and Design Studio on Eco-Niwas Samhita

27 August 2020 | Maharashtra, India

Under the Indo-German Energy Programme (IGEN), Energy Efficiency implementation of Eco Niwas Samhita (ENS) is being implemented in various states of India. VK:e environmental LLP has been appointed to facilitate the implementation of ENS code in the state of Maharashtra and establishing an ENS. Accordingly, ENS cell Maharashtra will provide technical support for the notification, the development of rules, the demonstration of the code and the capacity building for various stakeholders under the guidance of the steering committee - Bureau of Energy Efficiency and

GIZ. The awareness programme was conducted in parts. The first part consisted of a technical session on the introduction and technical aspects of Eco Label i.e. Energy Efficiency Label for residential buildings and the second part was on Eco-Niwas Samhita. Around 86 participants were present for this session which included students and faculties of BKPS College of Architecture, Pune and JNEC College of Architecture Aurangabad.

For more details, please contact Mr. Govinda Somani ([govinda.somani@giz.de](mailto:govinda.somani@giz.de)).

## Development of Eco-Niwas Samhita (ENS)



**Bureau of Energy Efficiency (BEE)**

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH



Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Extensive consultations with all stakeholders



Implementation of Eco-Niwas Samhita, in various states of India under **Indo-German Energy Programme-Energy Efficiency (IGEN-EE)** in association with BEE



Developed Eco-Niwas Samhita



Launched Eco-Niwas Samhita on 14<sup>th</sup> Dec 2018





## Awareness Programme on Eco-Niwas Samhita Implementation & Residential Label

1-30 September 2020 | Maharashtra, Karnataka, Delhi, Punjab

Under the Indo-German Energy Programme (IGEN) - Energy Efficiency, implementation of Eco Niwas Samhita (ENS) is being implemented in various states of India. Accordingly, ENS cells have been established in Maharashtra, Karnataka, Delhi, Punjab, and Uttar Pradesh. These ENS Cells will provide technical support for the development of rules, the demonstration of the code, the notification as well as the capacity building for various stakeholders under the guidance of the steering committee, Bureau of Energy Efficiency and GIZ. As a part of the awareness program, twelve webinars have been conducted in Maharashtra, Karnataka,

Delhi, and Punjab. Out of which ten webinars (6 - Maharashtra, 3 - Delhi, 1 - Punjab) were conducted for Architectural Colleges & Institutions with a total of 1,559 participants. The other two webinars were conducted in the state of Karnataka focussed on Architects & Developers with a total of 87 participants. The overall programme was well-received by participants and have shown an inclination towards understanding the ENS code.

For more details, please contact Mr. Govinda Somani ([govinda.somani@giz.de](mailto:govinda.somani@giz.de)) or Mr. Abdullah Nisar Siddiqui ([abdullah.siddiqui@giz.de](mailto:abdullah.siddiqui@giz.de)).



### Estimated Savings in Residential Buildings



Summary of energy savings considering 2018-19 as base year		
Year	Savings (MU)	CO2 million tonnes
2019-20	408.9	0.3
2020-21	1469.3	1.2
2021-22	3517.5	2.9
2022-23	6699.9	5.5
2023-24	11398.8	9.3
2024-25	20122.5	16.5
2025-26	30788.5	25.2
2026-27	37058.8	30.4
2027-28	44957.1	36.9
2028-29	55200.1	45.3
2029-30	66725.8	54.7
<b>TOTAL</b>	<b>278347</b>	<b>228</b>

*The energy saving potential through proposed labelling program is around 278 BU per year*

## Building Performance Analytics - EcoNiwas Samhita Phase II

The conception of the EcoNiwas tools was based on the fact that at present no platform is available in the Indian market which is simply dynamic in the sense that it uses a live simulation engine on a web-based platform to generate the results and can assist professionals in providing a solution for designing an energy-efficient building.

In the first phase of the EcoNiwas website development, a basic tool was developed for common mass, to quickly assess the energy performance of the most essential building parameters. For the next phase of EcoNiwas, two more tools were conceived, which have been designed as an update for the basic tool, namely the Advanced Tool and the Envelope Optimisation Tool.

The EcoNiwas Advanced Tool has been designed to assist the users in understanding and evaluating the design features of the residential projects on account of their energy performance based on the benchmarks of the ENS Code 2018. Plus, the ECONIWAS Optimisation Tool is a techno-commercial feasibility evaluator that is designed for evaluating various building envelope parameters (Wall, Roof & Window) based on their technical and economic feasibility. These analytical tools are made available on [www.econiwass.com](http://www.econiwass.com). The backend code for EcoNiwas Advanced Tool is written in PHP having Operating System Ubuntu (Linux) with the database type as a SQL and running on Apache server.



## Demonstration Project for EcoNiwas Samhita Implementation in Uttar Pradesh

Under the EcoNiwas Samhita (Energy Conservation Building Code for Residential Buildings) Implementation Programme, EcoNiwas Samhita Cells have been established in five different states – Uttar Pradesh, Punjab, Delhi, Karnataka and Maharashtra – to successfully enforce residential building energy efficiency policies.

The PMAY affordable housing project was selected by the Uttar Pradesh Cell with the support of UPNEDA and GIZ to demonstrate the ENS Compliance of the building. The Project is located at Lucknow Gomti Nagar Extension in Uttar Pradesh and it is constructed by Lucknow Development Authority. According to the Energy Conservation Building Code (ECBC) for Residential Buildings, the Residential Envelope Transmittance value (RETV) for building envelope is categorised into four climate zones namely

Composite-Climate, Hot-Dry Climate, Warm-Humid Climate and Temperate Climate. This project falls under the Composite Climate zone. It consists of a total built-up area of 1645.56 m<sup>2</sup> (G+3 including all Wall, Corridor, Stairs) and 4 Floors (G+3) with a total of 48 flats having Carpet Areas of 24.14 m<sup>2</sup> each.

With the technical assistance provided by the team, the project was able to achieve an energy-efficient envelope having lower thermal transmittance value of roof and RETV (Residential Envelope Transmittance Value) of 9.19 W/m<sup>2</sup>, which complies with the code. As per the calculations, the Energy savings for each dwelling on the top floors with air-conditioning and efficient roof insulation is 1863 kWh per dwelling unit, with an annual savings of more than 25% with respect to the base case.

PMAY Affordable  
Housing Project  
Sharda Nagar,  
Lucknow. ©GIZ



# 4

## Quote of the Month from India and Germany

### Quote of the Month from India



**Shri R.K. Singh,**  
Hon'ble Minister of Power, Govt.  
of India at virtual "India PV  
Edge 2020."



We had promised on the sidelines of COP-21 that by 2030, 40% of our installed (electricity generation) capacity will be from non-fossil fuel sources. We are already at 38.5% and by 2030, at least 60% of our capacity will be from non-fossil fuel sources."

Source: NITI Aayog

### Quote of the Month from Germany



**Dr. Angela Merkel,**  
Hon'ble Chancellor of Germany



[...] we cannot simply adopt a stimulus package that seeks to preserve the status quo. We need a package that is designed for the future."

Source: The Federal Government

# 5

## Energy Transition News

### How does European Emissions Trading actually work?

Precision landing for the climate: European emissions trading is considered to be particularly accurate when it comes to reducing emissions in the long term. It is regarded as an incentive as well as an insurance guarantee.

That's what it's all about: Harmful greenhouse gas emissions are to be reduced to protect the climate - at the lowest possible economic costs.

It is the most important instrument of European climate policy and is introduced to achieve nothing less than the reduction in greenhouse gas emissions, which is urgently needed for climate protection. In 2003 the European Emissions Trading Scheme (ETS) was passed by the European Parliament and the Council of the EU, and on 1 January 2005, it came into force with the Emissions Trading Directive. In 2019, 31 European countries with around 11 000 emission-intensive systems from electricity production and CO<sub>2</sub>-intensive industries participated in the European emissions trading scheme - with success: Since 2005, emissions in the world's largest emissions trading system

have fallen by almost 30% and are thus above the EU Target of 21%. ([Read more about this here](#)) But how exactly does the ETS work and how can it be controlled?

#### This is how the ETS works in practice

Anyone who operates an emission-intensive system that is recorded in the ETS must have a certificate in the "drawer" for every tonne of CO<sub>2</sub> emitted. Some plant operators receive a certain amount of emission rights free of charge every year so that their international competitiveness is not jeopardized. Otherwise, the plant operators have to buy the emission rights - either at auctions or from other market participants. Every ton of CO<sub>2</sub> saved (also known as 1 EUA for short) has a direct monetary value that is determined by supply and demand. Every year at the end of April, the system operators have to take stock. Does the number of certificates not match the actual CO<sub>2</sub> emitted-Quantity, a fine of 100 euros per missing EUA will be charged. Based on the figures disclosed, an emissions forecast for the next year is also drawn up.



© BMWi

### Certificates from the digital drawer

The drawer in which the system operators store the CO<sub>2</sub> certificates allocated to them is a digital one. Because trading of CO<sub>2</sub> certificates only takes place in electronic form. It works similarly to the electricity market via exchanges, but also outside them. Such mostly long-term and direct transactions are also called “over-the-counter” in technical jargon. The most important trading

places for CO<sub>2</sub> certificates are the ECX (European Climate Exchange) in London, the EEX in Leipzig or the EXAA in Vienna. Every day at 11 am EEX publishes the so-called EEX Carbon Index, the market price for short-term trading (spot market price) for the development of CO<sub>2</sub> prices in Europe.

### Cap & Trade - the most effective idea for the long-term tackle of climate change

Emissions trading works according to the so-called “Cap & Trade” principle. An upper limit (cap) defines how many greenhouse gas emissions may be emitted by the installations subject to emissions trading. The member states issue a corresponding amount of emission certificates to the plants – some free of charge, some through auctions. The emission certificates can be freely traded on the market (trade). This creates a price for the emission of greenhouse gases. Trading, therefore, allows the flexibility to ensure that emissions are reduced where it causes the least cost.

The price for CO<sub>2</sub>-Emissions and the signalling effect of the upper limit (cap) also encourage

investment in clean, low-carbon technologies. Of the many emission reduction approaches that have existed so far, Cap & Trade is considered the most effective and accurate. The ETS is therefore an incentive to save emissions. However, it also acts as an insurance guarantee that the emission targets set will be achieved even if other measures in the sectors covered by the ETS – such as the expansion of renewable energies or the decommissioning of coal-fired power plants – are not sufficient. These other measures mainly affect the price of emission rights. Therefore, low prices for emission rights do not have to mean that the targets in emissions trading are not ambitious.

### Stability reserve against price fluctuations

A market stability reserve (MSR) was introduced in 2015 to make the EU emissions trading system flexible against strong fluctuations in demand and thus price fluctuations. It is intended to gradually remove excess certificates from the market. Excess certificates can arise

if significantly fewer certificates are needed in times of economic downturn. In this case, the MSR ensures that these unneeded certificates cannot be used later and would then lead to higher emissions.

### Not all emissions are recorded by the ETS

The industries involved are responsible for around 50% of European CO<sub>2</sub> emissions. This includes, for example, fossil energy generation systems with an installed capacity of 20 megawatts (MW) or more; the coal industry with its coking plants, refineries and crackers; the metal industry – including iron, steel and aluminium works; the cement and lime industries as well as gypsum and mineral fibre production; the glass, ceramic and brick industries; the pulp and paper industry, the chemical industry; the production of technical gases (such as nitrous oxide and fluorocarbons) and, since 2012, European aviation.

The ETS has proven its effectiveness over the past 15 years. That is why there is a discussion about including the heating and transport sectors and possibly the areas of agriculture and land use from EU emissions trading in the medium term. The inclusion of so-called negative emissions is also being considered. It could be a further financial incentive for companies that manage to safely, permanently, sustainably and measurably remove CO<sub>2</sub> from the atmosphere.

### National emissions trading decided in the climate package

With the climate package, the federal government decided to introduce a national emissions trading system (nEHS) during the autumn of 2019. The nEHS is independent of the European emissions trading system. It essentially applies to the transport and building sectors, which are not covered in the EU ETS. From 2021 onwards, the fuel and fuel trade is to be

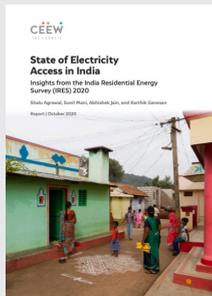
obliged to purchase emission certificates for their products. A connection of the two systems under a common cap would be conceivable in the medium to long term.

More information on emission trading can be accessed via the IGEF training video with Dr. Axel Michaelowa [here](#).



# 6

## Publications



### State of Electricity Access in India

More than three-fourths of the grid users in India are satisfied with their electricity situation. Using the nationally representative India Residential Energy Consumption Survey (IRES), this study undertakes an independent assessment of the quality and reliability of power supply and consumer satisfaction with electricity services. Further, it analyses how distribution companies (Discoms) handle the metering, billing, and payment collection (MBC) process across households. The study also proposes strategies to fill the remaining gaps to realize the goal of universal, affordable, and reliable electricity access in India.

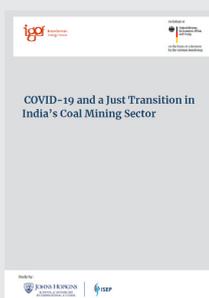
To get more insights into India's commendable efforts in providing electricity access to the country's population download the report [here](#).



### COBENEFITS Policy Report India

This COBENEFITS Policy Report for India compiles key findings from the COBENEFITS India Assessment series, quantifying the co-benefits of decarbonising India's power sector given future-oriented employment and skills development, economic prosperity in rural areas, and health benefits related to a less carbon-intensive power sector, which can be instrumental in reviving the national health system after the impacts of the COVID-19 pandemic.

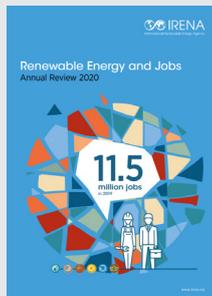
The report can be downloaded [here](#).



### COVID-19 and a Just Transition in India's Coal Mining Sector

This report evaluates the impact of COVID-19 on the Indian coal mining sector and discusses the possibility of a just transition away from coal dependence over time. Here, a just transition away from coal dependence is defined as diversification of available livelihoods away from coal mining without negatively impacting the rights and livelihoods of the workers in the coal value chain, from mining and transportation to power plants and industry.

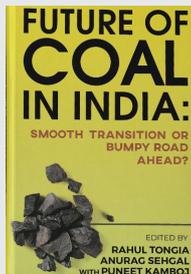
The report can be downloaded [here](#).



## Renewable Energy and Jobs

Renewable energy technologies create jobs up and down the supply chain and can spur broad and sustainable social and economic development. In 2019 renewables accounted for an estimated 11.5 million jobs worldwide, up from 11 million the previous year, according to this seventh edition of the Renewable Energy and Jobs series.

The report can be downloaded [here](#).



## Future of Coal in India: Smooth Transition or Bumpy Road Ahead?

Aiming to provide a holistic look at coal in India, the book faces the fundamental importance for how the energy demand of India can be met. Dealing with this question and supported by expertise and data provided by Tata Steel, coal should be replaced by cleaner fuels. But coal is entrenched in a complex ecosystem. In some states, it's amongst the largest contributors to state budgets. The Indian Railways, India's largest civilian employer, is afloat because it overcharges coal to offset under-recovery from passengers. Coal India Limited, the public sector miner that produces 85% of domestic coal, is the world's largest coal miner.

An overview of the chapters of the book can be found [here](#).



## Study on: The Short-term Costs of Local Content Requirements in the Indian Solar Auctions

Scientists from the University of Cambridge and Germany's Fraunhofer Institute for Systems and Innovation Research ISI have studied the costs of local content requirements (LCR) in 28 solar energy auctions held by the Indian authorities between 2014 and 2017. They have determined that local content requirements have driven up PV costs by an average of 6% per kWh. The researchers found that solar panels procured under LCRs throughout the 2014-17 period were about 14% more expensive than imported PV modules. "This additional

cost adds up to between USD 69 million and USD 88 million per installed gigawatt of solar PV under the LCR policy," the scientists explained. They added that Indian PV module manufacturers have not taken advantage of protectionist measures by raising their products' prices. "The gap in the cost of solar PV panels manufactured in India versus imported – which we computed to be around 14% – remained the same between 2014 and 2017," they emphasized. "This cost decrease shows that, despite protective measures, domestic players were also able to bring down costs substantially with experience over a short time frame." However, in terms of LCRs produce short-term benefits for the Indian PV industry they found that there was a significant increase in new patent applications from Indian entities after the LCR policy was introduced in 2014.

The scientists presented their findings in a study "The short-term costs of local content requirements in the Indian solar auctions," which was recently published in Nature Energy.

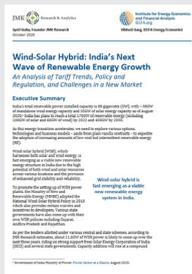
The study can be downloaded [here](#).



### Smart Home Program - Technology Assessment Study and Pilot Design

The Smart Homes Program under the Energy Efficiency Residential Building Programme deals with the concept of Smart Home, technologies used to design a Smart Home, and different survey results which are conducted as a part of baseline assessment and current scenario of smart homes in the Indian market. It also focussed on Global Policies of Smart Homes & Design Smart Homes Community Scheme.

For further information, please contact Mr. Vikash Ranjan ([Vikash.ranjan@giz.de](mailto:Vikash.ranjan@giz.de))



### Wind-Solar Hybrid: India's Next Wave of Renewable Energy Growth

Wind-solar hybrid (WSH), which harnesses both solar and wind energy, is fast emerging as a viable new renewable energy structure in India due to the high potential of both wind and solar resources across various locations as well as the provision of enhanced grid stability and reliability. To promote the setting up of WSH power plants, the Ministry of New and Renewable Energy (MNRE) adopted the National Wind-Solar Hybrid Policy in 2018 which also provides certain waivers and incentives to developers. Various state governments have also come up with their WSH policies including Gujarat, Andhra Pradesh and Rajasthan.

The report can be downloaded [here](#).



### Assessing the Techno-Commercial Impact of Distributed Solar Energy Generation

This report presents a detailed evidence-based analysis of a selected substation in Erode District, Tamil Nadu, and explores the technical and commercial impacts of different solar PV penetration levels on the distribution network. The main objective of this report is to assess the benefits and challenges of integrating high levels of distributed solar generation at the distribution network level. This report provides evidence which shows that achieving high solar penetration levels up to 70% and 100% is technically possible and financially attractive.

The report can be downloaded [here](#).



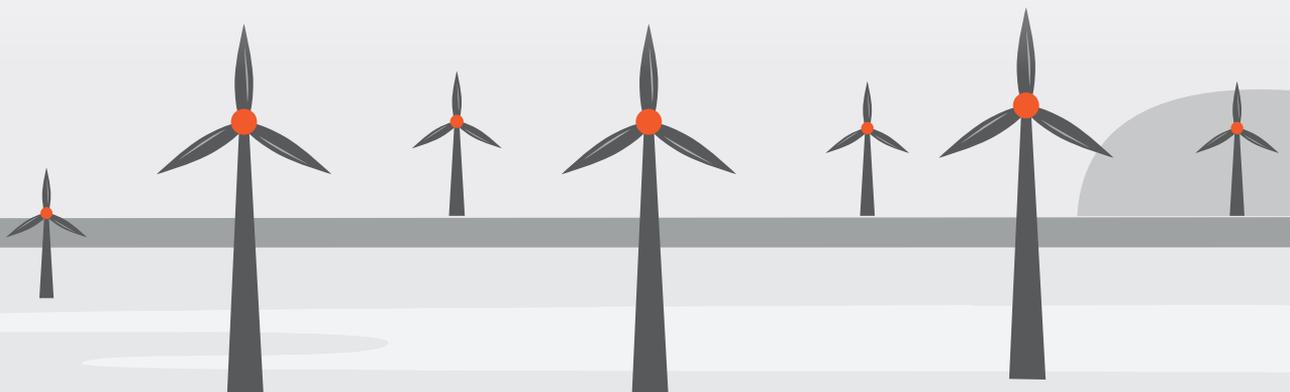
### Report by TERI on E-Mobility and the role of DISCOMS

As Electric vehicles are being introduced, Discoms play a crucial role as an EVCI (Electric Vehicles Charging Infrastructure) impacts them the most. Be it the quality of power, the issue of impact on grid stability, or possible RPO (Renewable Purchase Obligations) guidelines, or even the not so simple issue of the location of EVCI, Discoms face an impact. For instance, the most obvious option, to locate EVCI next to or inside existing fuel stations, will need permissions under the Indian explosives Act 1884, due to the location of high voltage cables required.

Key recommendations include a push by Discoms to use land at or near their existing substations for EVCI. Including through partnerships with private sector players. Using Time of Day/Time of Use Energy metering (ToU/ToD) options to push battery swapping stations to charge appropriately, or incentivise demand shifts by pricing accordingly to manage overall grid stability.

The report also makes a case for allowing EVCI aggregators to purchase power from open access without any limit (currently 1MW) without cross-subsidy surcharge and allow power banking/net-metering of RE based generation to promote reduced tariffs for EV charging.

The report can be downloaded [here](#).



# 7

## Upcoming Events

### India Energy Storage Week (IESW)

2 - 6 November 2020 | Virtual

India Energy Storage Alliance (IESA) is organising its annual event India Energy Storage Week (IESW), a virtual conference and exhibition from 2nd - 6th November. IESW is a flagship international conference & expo by India Energy Storage Alliance (IESA) incorporated in 2019, which was earlier the Energy Storage India (ESI) since 2013. It is India's premier B2B networking & business event focused on renewable energy, advanced batteries, alternate energy storage solutions, electric vehicles, charging infrastructure and microgrids ecosystem.



For further information please click [here](#).

### 3rd Global RE-Invest

26 - 28 November 2020 | Virtual

The Ministry of New and Renewable Energy (MNRE), Govt. of India, is organising the 3rd Global RE-INVEST India-ISA Partnership Renewable Energy Investors Meet & Expo from 26 to 28 November 2020. RE-INVEST 2020, themed Innovations for Sustainable Energy Transition, will feature a three-day Conference and Expo. Given COVID-19 and for contributing towards efforts to reduce global carbon footprint, the RE-INVEST 2020 related events, meetings, conference and exhibition will now be held on a digital platform. Hon'ble Prime Minister of India Shri Narendra Modi is likely to grace the Inaugural Ceremony.



For further information and registration please click [here](#).

### Virtual Visit and Online Practical Training on Floating Solar PV Project and Data Communications Infrastructure

27 - 28 November 2020 | Virtual

Indo-German Energy Forum and CBIP are organising an online training program on Floating Solar PV Projects and Data Communications Infrastructure from 27 to 28 November 2020. The training program is open to all relevant stakeholders, various utilities and industry organisations/ individuals in the field of power systems.



Please find more information on the training and the registration [here](#).

## Green Urja Awards 2020

November 2020 (tbc)

The Indian Chamber of Commerce (ICC), along with The Energy and Resources Institute (TERI), as the knowledge partner, is instituting GREEN URJA AWARDS with an overall goal of "Clean Energy Transition for Sustainability and GHG Emission Reduction." This effort is envisaged to create role models and awareness about the best practices in the sector.



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For further information please click [here](#).

## Virtual Conference & Exhibition on Smart Home Technologies

Mid November | Virtual

To assess the technology of smart home automation systems, BEE in association with the Indo-German Energy Programme (IGEN), GIZ has undertaken a study titled "Smart home program – Technology assessment study and pilot design".



**giz** Deutsche Gesellschaft  
für Internationale  
Zusammenarbeit (GIZ) GmbH

For more information please contact Mr. Abdullah Nisar Siddiqui ([abdullah.siddiqui@giz.de](mailto:abdullah.siddiqui@giz.de))

## WindEnergy Hamburg

1-4 December 2020 | Virtual

WindEnergy Hamburg is tailored toward addressing the major issues facing the international wind energy sector. It brings together a high-calibre, professional audience and 1,400 exhibitors demonstrating their innovations and solutions from across the entire value chain of the industry. For the first time, WindEnergy Hamburg presents a revised conference concept with a more focused high-level programme and a new part open for all visitors under the theme #climatefirst. There will be three stages set-up for keynotes and panel discussions featuring international experts in the middle of the exhibition halls.



For further information, please click [here](#).

## The Virtual Smarter E India Conference

9 - 10 December 2020 | Virtual



The Virtual Smarter E Conference from 9-10 December 2020 is focussing on the areas of photovoltaics, PV production and solar thermal technologies. The conference is designed for all interested stakeholders.

On Thursday, December 10th, there will be a session co-organised by IGEF-SO under the theme Agro PV and KUSUM in Doubling Energy Harvest and Income for Indian Farmers.

In India, the pressure on land is ever rising and in this context using the land for both solar power generation and agricultural production (Agro-PV) will help contribute to both food and energy security. In this session agricultural scientists, solar pump manufacturers and solar industry professionals will share their perspectives on Agro PV and the KUSUM scheme.

For further information please click <https://www.thesmartere.in/en/the-smarter-e-india/conference/program-schedule>.

## Renewable Energy India Expo

10 - 12 December 2020 | Greater Noida, India



The 14th edition of REI Expo will take place at India Expo Center in Greater Noida from 10 to 12 December 2020. Both the exhibition and the conference provide an excellent opportunity to exchange ideas and technologies, gain insights into current global trends and get connected at networking events. Last year's event attracted more than 35 000 visitors, 700 exhibitors and almost 250 conference speakers. In case you are interested in participating in the German pavilion at REI Expo 2020 kindly get in touch with Ms. Shivani Chaturvedi ([shivani@indo-german.com](mailto:shivani@indo-german.com)) from the Indo-German Chamber of Commerce.

For further information please click [here](#).

### All upcoming events – Save the date!

#### India Energy Storage Week (IESW)

2 - 6 November 2020 | Virtual

<http://energystorageweek.in/>

#### 3rd Global RE-Invest

26 - 28 November 2020 | Virtual

<https://re-invest.in/>

#### Virtual Visit and Online Practical Training on Floating Solar PV Project and Data Communications Infrastructure

27 - 28 November 2020 | Virtual

[http://www.cbip.org/ExternalFile/Floating\\_Solar\\_PV\\_Projects.pdf](http://www.cbip.org/ExternalFile/Floating_Solar_PV_Projects.pdf)

#### Green Urja Awards 2020

November 2020 (tbc)

<https://www.indianchamber.org/>

#### WindEnergy Hamburg

1 - 4 December 2020 | Virtual

<https://www.windenergyhamburg.com/en/>

#### The Virtual Smarter E India Conference

9 - 10 December 2020 | Virtual

<https://www.thesmartere.in/en/the-smarter-e-india/conference/program-schedule>

#### 14<sup>th</sup> Renewable Energy India Expo 2020

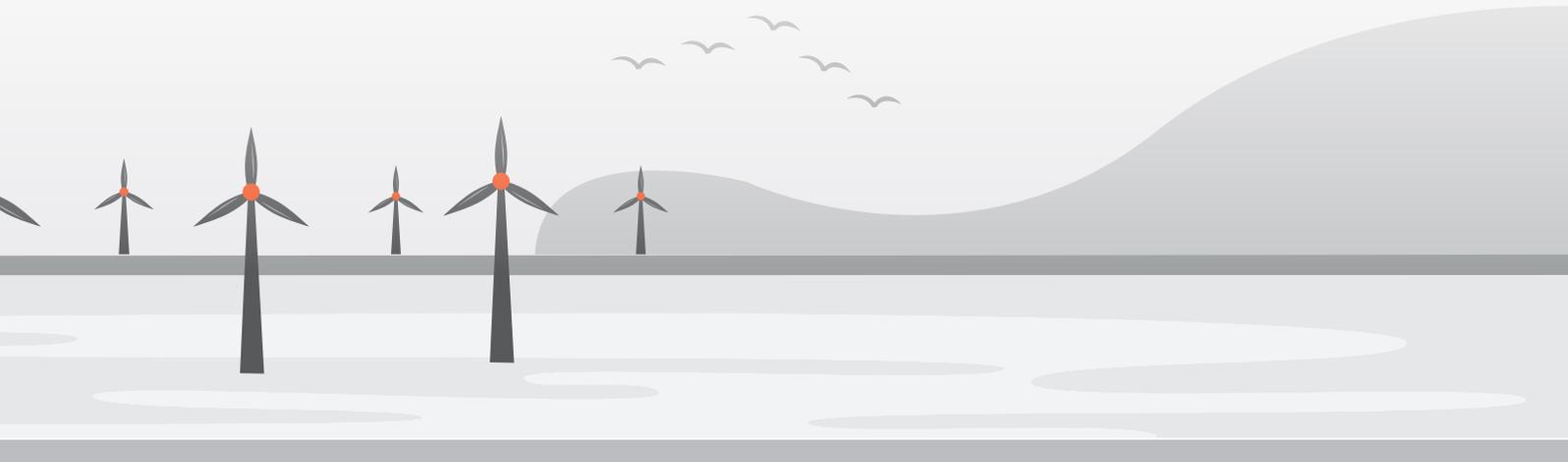
10 - 12 December 2020 | Virtual

<https://www.renewableenergyindiaexpo.com/>

#### The 16<sup>th</sup> edition of Indian Ceramics Asia

3 - 5 March 2021 | Gujarat, India

<https://www.indian-ceramics.com/>





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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.

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