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GOVERNMENT OF INDIA MINISTRY OF POWER

GOVERNMENT OF INDIA MINISTRY OF NEW AND RENEWABLE ENERGY

आर्थिक कार्य विभाग DEPARTMENT OF ECONOMIC AFFAIRS

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

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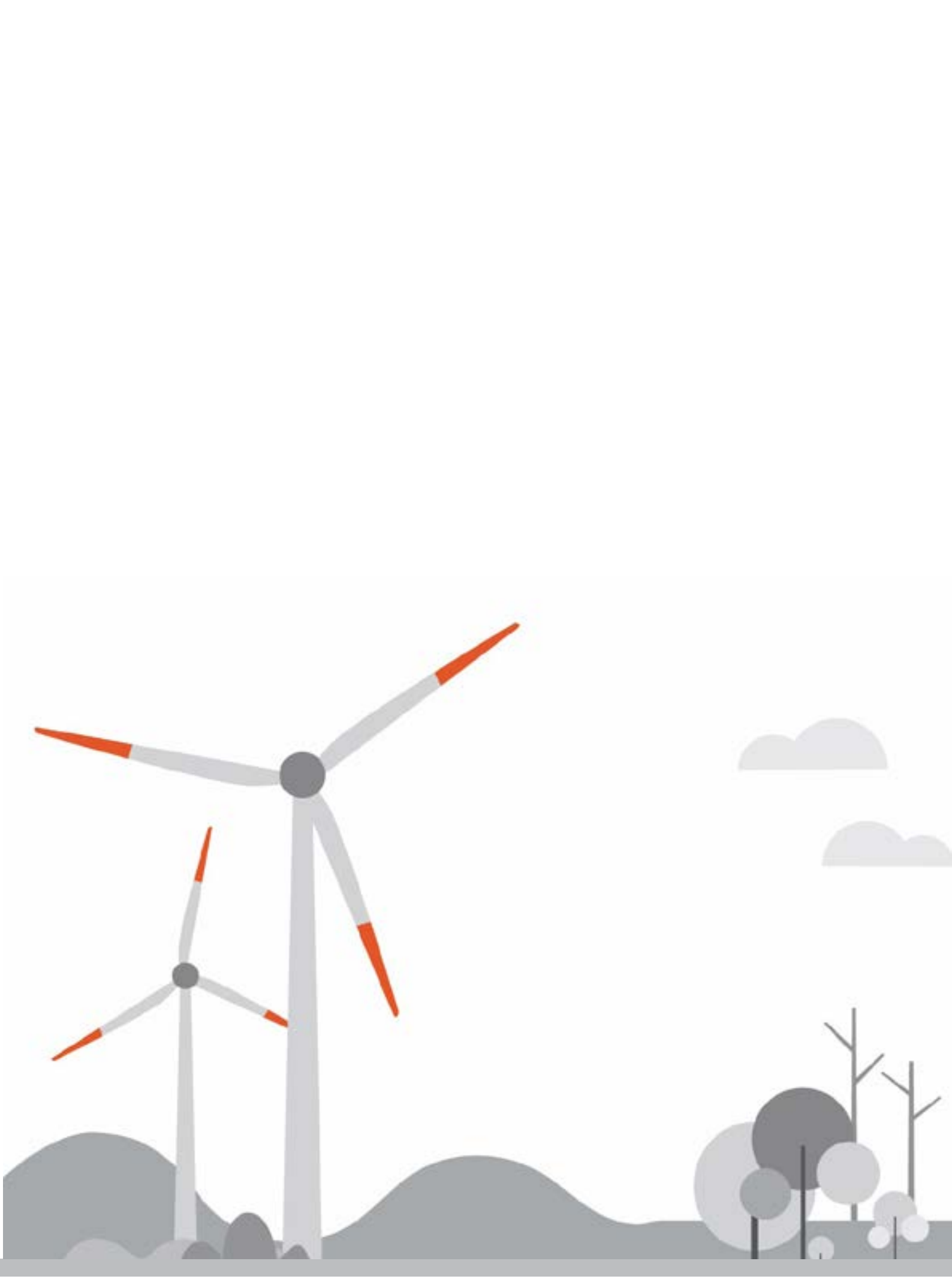


1 Introduction

Mr. Philipp Johannsen
Cluster Coordinator for Energy
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Mr. Philipp Johannsen is the Cluster Coordinator for Energy at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in New Delhi, India. With a rich background in international cooperation and development, his expertise lies in governance, inclusive growth, and sustainable economic development. In his current role, Mr. Johannsen oversees 14 technical cooperation projects totalling over 50 million Euro and manages a diverse team of more than 70 national and international staff members. He plays a pivotal role in portfolio development and operational efficiency enhancement.

Prior to his current position, Mr. Johannsen held key roles at GIZ GmbH in Jakarta, Indonesia, where he served as Lead Advisor for Governance and Inclusive Growth, as well as Principal Advisor for projects such as 'TVET System Reform' and 'Green Infrastructure Development'. He provided high-level policy advice and managed teams of international and Indonesian experts.

Before his tenure in Indonesia, Mr. Johannsen served as Country Director and Principal Advisor at GIZ GmbH in Chisinau, Moldova. He represented GIZ in Moldova, ensuring a cohesive portfolio development, and served as Sector Coordinator for Sustainable Economic Development, TVET, and Governance, providing essential support to the German Embassy.

Mr. Johannsen's experience also extends to Mozambique, where he held several roles at GIZ GmbH, including Regional Project Manager in Inhambane and Technical Advisor in Maputo, focusing on governance, rural development, and economic promotion activities.

Mr. Johannsen holds an MA in Political Science (International Relations and Development Studies) from the Johann Wolfgang Goethe University, Frankfurt, Germany.

2 Events and Activities

Renewable Power-to-X Training in Kolkata

19 - 21 December 2023 | Kolkata, India

The Indo-German Energy Forum (IGEF-SO) and the Power-to-X (PtX) Hub jointly organised a three-day capacity-building Power-to-X training course on Green Hydrogen and its derivatives in India from 19 - 21 December in Kolkata. 30 participants from government, private sector, and academia participated, guided by facilitators Ms. Kajol, Senior Manager (Energy) at the World Resources Institute India, and Mr. Vivek Jha, an energy expert and independent consultant.

The Power-to-X training provided a comprehensive overview of the PtX value chain, exploring the potential of renewable PtX in future energy systems and economies. It covered crucial aspects such as PtX technologies, production processes, economics, and infrastructure, following the holistic approach of the PtX Hub's Environmental, Economic, Social and Governance Framework (EESG).

Following an introduction to Renewable PtX, the training delved into production pathways, evaluating downstream products like green ammonia and methanol. Economic aspects, including the cost development of electrolysers, green hydrogen, and PtX derivatives, were also examined.

The subsequent segment focused on the techno-economic criteria of infrastructure, emphasising transportation, storage, and trade of renewable PtX products. Participants explored sector-specific PtX demand markets and value chains, examining various pathways and business cases.

The following module addressed sustainability criteria for Renewable PtX, encompassing the EESG Framework, PtX sustainability within EESG, and the application of sustainability standards. Shri Jaydeep Jadhav, Steel Authority of India Limited, presented on the Carbon Adjustment Border Mechanism (CBAM). CBAM is a tool to price carbon emissions in the EU and promote cleaner industrial production globally.

The concluding module discussed support policies and regulations for Renewable PtX, including policy recommendations, regulatory requirements, and strategies specific to renewable PtX. India's National Green Hydrogen Mission, aiming to position India as a global hub for Green Hydrogen production, usage, and export, was highlighted. State-level policy actions on green hydrogen were also discussed, along with a presentation on the Mission on Advanced and High Impact Research (MAHIR) by Shri Sushil Kumar Suman from the Central Electricity Authority (CEA).

The session concluded with an interactive Q&A segment, allowing participants to seek clarification, share insights, and engage in discussions. Trainers prompted participants to reflect on whether Green Hydrogen is merely a hype or a tangible reality, encouraging consideration of the complexities and potential realities of this emerging topic.

Virtual Renewable Power-to-X Training

14 - 15 December 2023 | Virtual

The Indo-German Energy Forum (IGEF-SO) and the Power-to-X (PtX) Hub jointly organised a two-day online capacity-building Power-to-X training course on Green Hydrogen and its derivatives in India from 14 -15 December. 23 participants from government, private sector, and academia took part in the training. The course was facilitated by Ms. Kajol, Senior Manager (Energy) at the World Resources Institute India, and Mr. Vivek Jha, an energy expert and independent consultant.

Participants of the two-day online Power-to-X capacity building training.

Business Delegation on Green Hydrogen to Brussels, Rotterdam and Essen

20 - 24 November 2023 | Brussels, Belgium; Rotterdam, Netherlands; and Essen, Germany

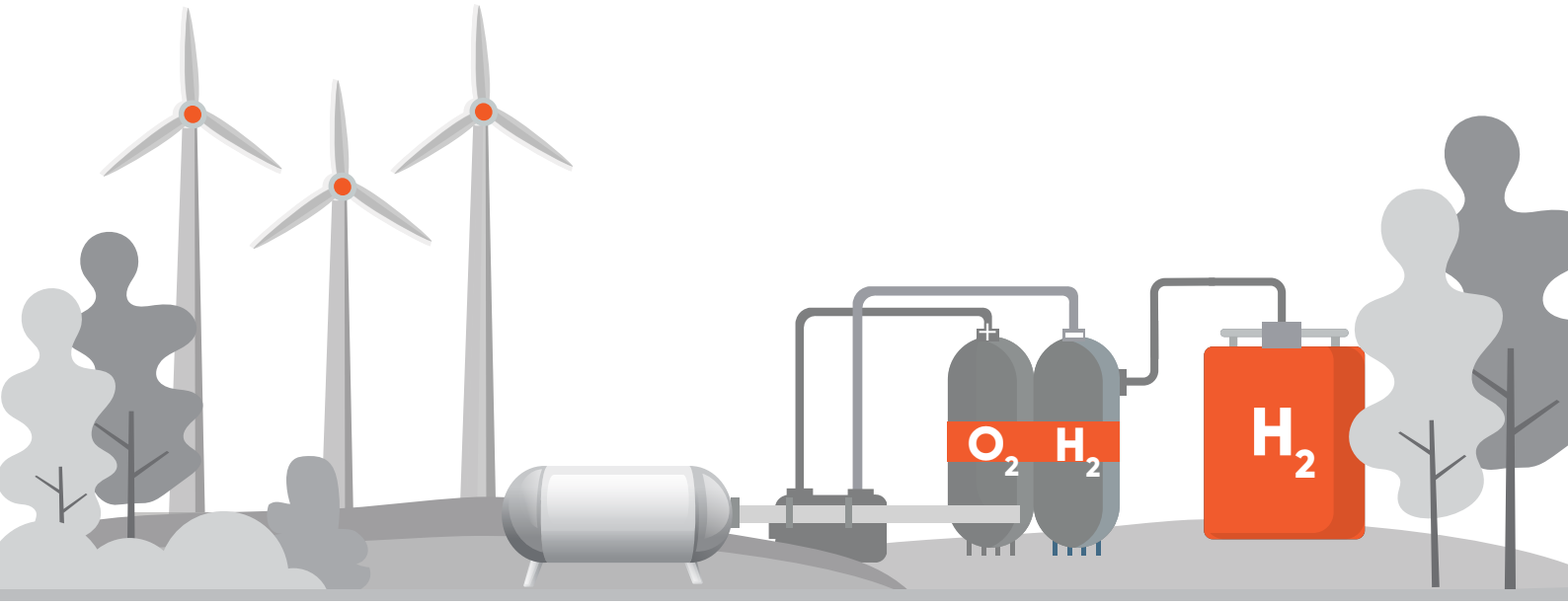
In collaboration with the Indo-German Chamber of Commerce (IGCC), the Indo-German Energy Forum (IGEF-SO) organised an Indian business delegation to Belgium, the Netherlands and Germany from 19 - 25 November 2023, focusing on the theme of green hydrogen. The delegation attended the European Hydrogen Week in Brussels.

During the Brussels trip, the delegation explored hydrogen-related sites and gained insights into electrolyser technology. At the European Hydrogen Week, they were welcomed by Ms. Maria Assumpció Rojo Torrent of Hydrogen Europe. The visit included a guided tour of exhibitors and technology providers in the emerging hydrogen economy, facilitating valuable exchanges with companies like Thyssenkrupp Nucera AG, Bosch GmbH, Hydrogenious LOHC Technologies GmbH, Ostermeier H2ydrogen Solutions GmbH, Poppe + Potthoff, Heraeus Holding GmbH, and Uniper.

The delegation actively participated in the EU-India exchange on Green Hydrogen, engaging in discussions with EU stakeholders, including Dr. Ruud Kempener, Member of the Cabinet of Ms. Kadri Simson, European Commissioner for Energy, and Dr. Prasad Chaphekar, Deputy Secretary, Hydrogen Division, Ministry of New and Renewable Energy (MNRE), on topics including green fertiliser, hydrogen valleys, green steel, and green ammonia for shipping.

A closed-door Indo-German Green Hydrogen Matchmaking event was organised by the Embassy of India, Berlin, and the German Federal Ministry for Economic Affairs and Climate Action (BMWK) to connect Indian project developers with German off-takers.

In Rotterdam, the delegation gained insights into green hydrogen import infrastructure developments in Europe. Mr. Han Feenstra, Senior Policy Officer at the Ministry of Economic Affairs and Climate Policy from the Government of Netherlands and Mr. Mark-Simon Benjamins, Business Manager at the Port of Rotterdam, spoke on the Dutch Green Hydrogen Strategy and the hydrogen developments at the Port. The subsequent tour around the Port of Rotterdam included stops at ammonia terminals of Koole, OCI and Gunvor, a visit to an offshore-wind transformer station for green hydrogen production and a stop at the "Conversion Park" development site including electrolyser projects by Shell, BP



and Air Liquide. The tour ended with an impression of the SIF Offshore wind foundation manufacturing and storage site with an impression of the GE Haliade-X 14 MW wind turbine.

The final destination was the Rhine-Ruhr-Area, where the delegation engaged in various site visits. In Duisburg, the group visited the steel industry company Hüttenwerken Krupp Mannesmann (HKM), contributing to approximately 11% of Germany's steel production. Accompanied by Mr. Gunther Schmucker and Mr. Marten Sprecher, representatives of HKM, the group gained insight into carbon-free and hydrogen-based steel production while also experiencing the operation of a steel mill, a coke plant, two blast furnaces, a power plant, and a sinter plant.

The Indian delegation also visited the Port of Duisburg, the world's largest inland port and a crucial European logistics centre, accompanied by Mr. Johannes Eng, Project Manager for Corporate Development & Strategy at the Port of Duisburg. The RH2INE initiative, or Rhine Hydrogen Integration Network of Excellence, aims to develop a sustainable H2 infrastructure along waterways from Rotterdam to Genoa.

On the last day of the trip, the delegation had the opportunity to explore the H2-Center in Herten. The Center is a former coal mine where modern systems and components of hydrogen application and technology are developed and tested. Mr. Dieter Kwapis guided the tour and gave interesting insights on electrolysis, methanol fuel cells and more. The trip concluded with a visit to the Zollverein Coal Mine Industrial Complex in Essen, recognised on the UNESCO World Heritage List.

Overall, the tour facilitated a comprehensive understanding of various developments in the European green hydrogen sector, fostering relationships for future collaboration and networking opportunities.

Participants and organisers of the Business Delegation on Green Hydrogen at the European Hydrogen Week 2023.

Study Tour to Germany on "Flexibilisation of Existing Thermal Power Plants" with NTPC and Steag

20 - 28 November 2023 | Germany

A 16-member delegation, comprising employees from various facilities of NTPC Limited, India's largest state-owned power plant operator accompanied by Mr. Rakesh Chopra, Director of the Excellence Enhancement Centre (EEC) for the Indian Power Sector, undertook a visit to Germany from 20 - 28 November 2023. This visit, conducted in collaboration with STEAG India, was part of an ongoing initiative to support Indian endeavours aimed at enhancing the flexibility of existing thermal power plants. His objective is to enable the seamless integration of fluctuating renewable energies into the grid, aligning with India's plans to scale up renewable energy capacity.

Dr. Claudia Weise from the German Power Plant Association vgbe, along with the representatives from Iqony GmbH, RWE AG, TÜV Rheinland and Uniper SE, shared their experience in flexible coal-fired power plant operations with the Indian delegation. Through on-site visits, the delegation gained first-hand insight into the flexible operation of the German lignite-fired power plant Niederaussem and the hard coal-fired power plant Walsum, both located in the German state of North Rhine-Westphalia.

A notable aspect of the trip was a workshop conducted at a power plant simulator from KWS Energy Knowledge eG. This session allowed the delegation to explore various flexible operating modes and parameters crucial for enhancing power plant flexibility.

The group also visited the EUREF-Campus in Berlin and the energy self-sufficient village of Feldheim to understand innovative concepts related to grid flexibility, including vehicle2grid and self-sufficient energy supply using renewable energies.

The delegation at the power plant Walsum control room.

Webinar on Sustainable Aviation and Sustainable Maritime Fuels

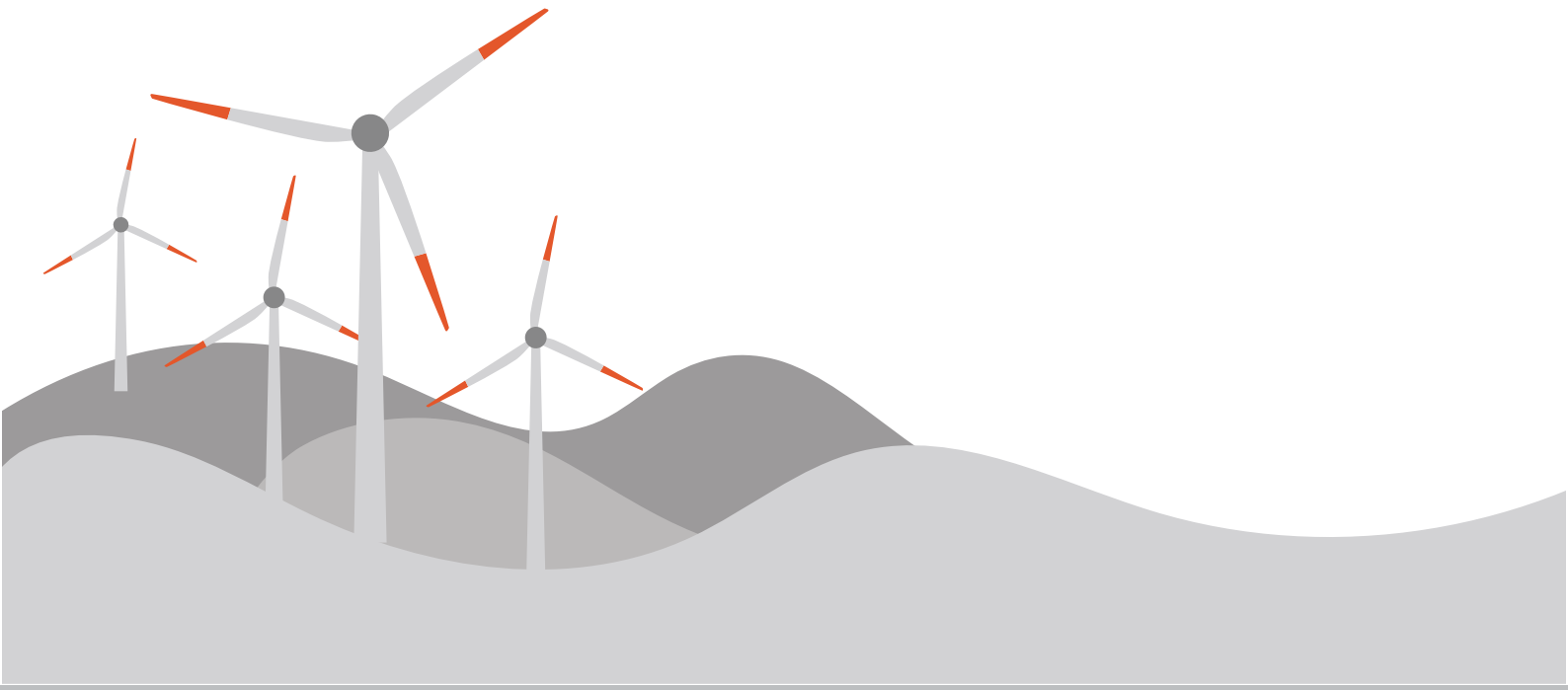
15 November 2023 | Virtual

With support from the International PtX Hub, the Indo-German Energy Forum (IGEF-SO) organised a webinar on 15 November, 2023, to introduce and provide insights into the "Sustainable Aviation Fuels (SAF) and Sustainable Marine/ Maritime Fuels (SMF) Stakeholder Mapping and Survey." The webinar drew approximately 60 participants from industry, academia, research organisations, consultancy, and the public sector.

Mr. Kumar Abhishek, Energy Advisor, IGEF-SO, initiated the webinar by providing a brief overview of the SAF/SMF sector and its importance in the decarbonisation efforts of typically hard-to-abate aviation and maritime sectors. He also outlined global developments on the topic.

Mr. Heino von Meyer, Head, Sustainability and Global Relations, PtX Hub, Germany, highlighted the importance of SAF/SMF and the opportunities it offers for transitioning India and the world into carbon-neutrality within the aviation and marine sectors. Acknowledging the efforts of Dornier Group, Mr. Meyer emphasised that this study, being first of its kind in India, serves as a valuable guide for newcomers in the sector, requiring both policy support and government assistance to progress. The study captures developments in India and identifies key stakeholders whose synergies are essential for sector growth.

Mr. Arun Sarna, MD & CEO, and Mr. Chandan Mishra, Manager, both from Dornier Group India, presented the stakeholder mapping and survey study, highlighting crucial aspects of the efforts required to promote SAF/SMF. The study offered a comprehensive overview of the current landscape and potential pathways for the successful integration of Sustainable Aviation and Marine Fuels in India. Given the expected 17% Compound Annual Growth Rate (CAGR) in Aviation Turbine



Fuel (ATF) demand, the decarbonisation of these industries becomes imperative to meet net-zero targets by 2070. India's favourable position with lower green energy costs, abundant feedstock, and potential for employment generation and exports adds to the significance of this transition.

The survey unveiled key insights, including increased awareness among stakeholders, government promotion of public-private partnerships, and the identification of key drivers, priorities, and challenges. Significant policy incentives from the Government of India, such as the Green Hydrogen/Green Ammonia Policy and the National Policy on Biofuels, were highlighted, demonstrating a commitment to fostering a sustainable energy landscape. Recommendations to accelerate SAF/SMF adoption included government support for research, grants, concessions, recognition under carbon credits, and mandates for increasing usage trajectories. The importance of certification processes, sustainability standards, and collaborations were also emphasised for a holistic approach.

The outputs of the study and the presentation can be accessed here.

Participants in the seminar on sustainable aviation and marine fuels in India.

Business Delegation to Agrivoltaics Europe 2023

6 - 10 November | Amsterdam, Netherlands

The 2nd annual AgriVoltaics Europe 2023, an international conference hosted by Leadvent, took place from 8 - 9 November 2023, in Amsterdam, Netherlands. The event brought together the entire agrivoltaics sector to engage in discussions on business models, legal framework conditions, and remaining challenges in the field.. The delegation to the AgriVoltaics Europe 2023 included the managing directors of Sunseed APV (Mr. Vivek Saraf, CEO) and GroSolar (Mr. Gulabsing Girase, Director), Dr. A.K. Singh from the Indian Agricultural Research Institute, and Ms. Priya Yadav, scientist at the Ministry of New and Renewable Energy (MNRE).

In her presentation "India: A Terawatt Scale Opportunity for Agrivoltaics" Ms. Priya Yadav highlighted the potentials and the current state of development of India in the field of agrivoltaics. Mr. Vivek Saraf, CEO of Sunseed APV, presented a case study titled "Integrating Climate Controlled Cultivation with Solar PV". Additionally, the delegation had the opportunity to visit an innovative vertical agrivoltaic system developed by the German project developer Next2Sun, where they engaged in discussions with Mr. Sascha Krause Tünker, the Managing Director of the company.

Delegation members visiting a local agrivoltaic plant in the Netherlands.

Train of Trainers on Renewable PtX

30 October - 10 November 2023 | Bonn & Berlin, Germany

The International PtX Hub organised an extensive 8-day training on Renewable PtX in Bonn and Berlin from 30 October - 8 November 2023. This training brought together technical experts in renewable energy from 10 partner countries, featuring content-related discussions, didactic sessions, inputs from technical experts, and a practical site visit to enhance practical understanding. A Networking Event in Berlin on 9 -10 November 2023, provided participants with an opportunity to network and foster connections within the global community.

Ms. Bidisha Banerjee, Analyst in the Energy and Power team at CSTEP, and Mr. Deepak Yadav, Programme Lead at CEEW, represented India in the 4th Train-of-Trainers (ToT) workshop. Participants described the course as value-packed, well-curated, informative, and interactive. Key takeaways emphasised the necessity of expanding renewable energy capacities to scale up PtX production.

The curriculum provided invaluable insights, emphasising the importance of adopting a holistic approach in the renewable hydrogen sector by integrating elements such as demand, supply, and market development. Facilitated by highly knowledgeable trainers, including Prof. Dr. Christoph Menke, Mr. Werner Warmuth, and Mr. Frank Mischler, the training was commendable. Educationalist Mr. Michael Zillich guided participants through methodological activities and adult learning principles to enhance didactic skills.

A notable highlight of the training was the practical application of theoretical knowledge during a visit to Enapter's Saerbeck facility. Mr. Jan-Justus Schmidt and his team showcased practical uses of AEM electrolysers in green hydrogen, refuelling, energy storage, PtX, and research. Another insightful visit to the Institute of Distance Learning in Berlin provided further understanding of emerging trends and practices in the field.

After completing the ToT on Renewable PtX, the participants are equipped to effectively support the PtX Hub and local H_2 -projects on-site by implementing training sessions, supporting workshops, or engaging in other exchange formats related to Renewable PtX. The participants are now preparing to implement the PtX training with the International PtX Hub in their respective countries.

Participants from 10 partner countries participated in the 4th Train-of-Trainers.

India Agrivoltaics Alliance (IAA)

30 October 2023 | India

The India Agrivoltaics Alliance (IAA) was officially launched on 30 October 2023, and is sponsored and supported by the Indo-German Energy Forum (IGEF-SO), as well as Bloomberg Philanthropies and the India Climate Collaborative. The National Solar Energy Federation of India (NSEFI) manages the secretariat of the IAA. The primary objective of the alliance is to bring together all stakeholders along the agrivoltaic value chain. Additionally, it seeks to promote the development of effective business and financing models, ensure the inclusion of women and young people, and work towards formulating concrete recommendations for agrivoltaic development in India. Shri Lalit Bohra, Head of Department at the Ministry of New and Renewable Energy (MNRE), delivered the inaugural speech, highlighting the importance of international cooperation in this still emerging technology.

Head of Department Shri Lalit Bohra and representatives of the founding organisations at the launch of the IAA.

Webinar on "Tool for Locations of Green Hydrogen Hubs in India"

30 October 2023 | Virtual

In collaboration with the Indo-German Chamber of Commerce (IGCC), the Indo-German Energy Forum (IGEF-SO) organised a comprehensive webinar on 30 October 2023, addressing a pivotal tool designed for the identification of Green Hydrogen Hubs in India. This tool, developed by GIZ along with PwC, analyses and maps logistics and storage infrastructure for Green Hydrogen and its derivatives. The graphical tool aims to highlight the synergy between supply nodes of Renewable Electricity and the demand for Green Hydrogen across various sectors in different demand centres. Approximately 130 participants from industry, public sector and research institutions took part in the webinar.

Ms. Sonia Prashar, Deputy Director General at IGCC, welcomed participants with opening remarks, emphasising the importance of maximising awareness about green hydrogen and fostering collaboration between Germany and India in this domain.

Mr. Rolf Behrndt, Senior Hydrogen Specialist, GIZ Germany, introduced the speakers and moderated the discussion, highlighting the versatility of the tool. He underscored its utility not only for developers but also for state governments, offering invaluable insights for effective planning and execution.

Mr. Raman Jha, Director at PwC, explained the objective of the graphic tool and its key features, while Mr. Aneeb Ul Islam, Senior Associate at PwC, gave an in-depth insight into the intricacies of the tool. The tool serves as a guide, navigating users through the renewables supply in India and the demand for Green Hydrogen in potential sectors such as Refineries, Petrochemicals, Fertilisers, Steel, Cement, Aluminum, and Long-distance shipping. Additionally, it scrutinises and maps the logistics and storage infrastructure for Green Hydrogen and its derivatives within the Indian context.

After introducing the tool, participants engaged in a discussion, asking questions that helped everyone understand its importance and how it could make a difference.

There is also a short explanation on the mapping tool: Mapping Tool for Green Hydrogen Hubs and Valleys in India - YouTube

Graphical tool for identification of locations for Green Hydrogen Hubs in India.

Powering Tomorrow with Green Hydrogen - India's 'SUNRISE SECTOR'

26 October 2023 | Virtual

The Make in India Mittelstand hosted a webinar "Powering Tomorrow with Green Hydrogen - India's Sunrise Sector" on 26 October 2023, featuring distinguished speakers from the Ministry of New and Renewable Energy (MNRE), Invest India, and the Indo-German Energy Forum (IGEF-SO), among others. The webinar provided comprehensive insights into green hydrogen, India's burgeoning 'sunrise sector,' and the myriad opportunities the country holds for German companies.

Dr. Dinesh Antil, First Secretary (Economic & Commerce) & ITOU, Embassy of India Berlin, set the tone for the webinar, outlining the significance and potential of India's Green Hydrogen sector. Mr. Ajay Yadav, Joint Secretary, Ministry of New and Renewable Energy (MNRE), delivered a presentation on "India's Green Hydrogen Mission – Opportunities for German Investors", providing valuable insights into potential collaborations and investment prospects within the context of the National Green Hydrogen Mission. Subsequently, Mr. Deepanshu Kaul Philip, Senior Investment Specialist at Invest India, shared his valuable insights on the subject of Green Hydrogen, specifically focusing on the recent developments in India. Mr. Tobias Winter, Director, IGEF-SO, provided insights into the topic of "Hydrogen Derivatives: Transport and Applications from the Perspective of German and Indian Companies".

The webinar highlighted the global trend of nations embracing hydrogen as a pivotal element in transitioning away from fossil fuels. Green hydrogen, generated through renewable energy sources, is playing a vital role in this global energy shift. India, with its ambitious targets for renewable energy adoption and commitment to carbon emission reduction, presents a highly promising market for green hydrogen technologies and applications. The recently approved National Green Hydrogen Mission in India aims to produce five million metric tons (MMT) of green hydrogen by 2030, supported by a favourable policy ecosystem and incentives.

Recognizing the crucial role of hydrogen in diversifying energy supply and achieving climate objectives, Germany is likely to increasingly depend on imports of green hydrogen. The partnership with India becomes pivotal in this context, given the surging demand for green hydrogen.

Please find the webinar recording here.

Experts sharing their knowledge and expertise with the virtual audience during the MIIM webinar.

Workshops on "Flexible Thermal Power Plants: Bridge to a Decarbonised Energy System" in Raipur and Bangalore

9 - 12 October 2023 | Raipur & Bangalore, India

On 9 - 12 October 2023, workshops focused on "Flexible Thermal Power Plants: Bridge to a Decarbonised Energy System" were organised by the GIZ under the auspices of the Indo-German Energy Forum (IGEF-SO), the Excellence Enhancement Centre (EEC) for Indian Power Sector, and the German association Vgbe energy in Bengaluru and Raipur, respectively. These workshops were part of a larger series, with similar events organised in Kolkata and Delhi in 2022.

In both, Bengaluru and Raipur, approximately 100 participants from the private and public sectors were educated on the flexible operation of thermal power plants. National and international speakers from organisations such as NTPC Limited, the Central Electricity Authority (CEA), the Technical University of Vienna (TU Wien), Siemens, RWE Germany, among others, covered various topics, including recent developments in the sector and shared their experiences regarding the flexible operation of power plants.

The flexibilisation of existing thermal power plants has gained increased importance in India, particularly since the Central Electricity Authority (CEA) implemented a new law requiring all thermal power generating units to be capable of flexible operation. This regulation mandates coal-based power plants to be designed or retrofitted to provide a minimum load of 40%. Subsequently, CEA drafted a phasing plan for the implementation of 40% technical minimum load regulation for thermal power plants. In a pilot phase from May to December 2023, 11 selected plants will be throttled back to 40% of their nominal output for testing. Results will be analysed from January 2024, and the scheme will be extended to all plants in three phases, With the first phase starting in July 2024 and the last phase expected to be completed by December 2030.

Participants of the workshop "Flexible Thermal Power Plants: Bridge to a Decarbonised Energy System" in Raipur.

Bridge to a Decarbonised Energy System" in Bengaluru.

Due to the significance of this topic in India, further workshops are planned in other strategically important cities in the country.

Further information on the flexible operation of existing thermal power plants can be found here:

Guidelines for Flexible Operation of Coal Fired Power Plants in India

Thermal Electricity Storage in India Retrofitting Potential for Coal-Fired Power Plants in India

Business Roundtable Meeting on 'Green Hydrogen' during Renewable Energy India

5 October 2023 | Noida, India

The Indo-German Chamber of Commerce (IGCC) in collaboration with the Indo-German Energy Forum (IGEF-SO) organised the tenth business round table on the topic of 'Green Hydrogen' on 5 October, 2023 during Renewable Energy India 2023 at Greater Noida. The aim of the meeting was to discuss the green hydrogen market developments and the potential of Indo-German green hydrogen projects.

Dr. Stefan Kaufmann, Hydrogen Executive Advisor to the Thyssenkrupp Board, highlighted the key objective of Germany's "National Green Hydrogen Strategy" which is fostering an international green hydrogen economy. He emphasised how this presents an excellent opportunity for collaboration between India and Germany.

Ms. Seema Bhardwaj, Director, Germany Trade & Invest (GTAI), explained GTAI's pivotal role for both German and Indian companies. She underlined the significance of the Trade and Invest segments of GTAI for organisations.

Ms. Shivani Chaturvedi, General Manager, IGCC, mentioned that Germany anticipates the need for 20 to 50 Gigawatts of Power-to-X (PtX) plants by the year 2030. Furthermore, the German industry will continue depending on energy imports in the form of green hydrogen or green ammonia from overseas sources. This presents a timely opportunity to evaluate prospects within this sector.

Mr. Tobias Winter, Director, IGEF-SO briefed the audience about the German funding schemes for green hydrogen projects and laid out the objectives of Germany's "National Hydrogen Strategy", the grant funding for Indo-German Green Hydrogen projects. He moderated discussions with the attendees who were senior representatives from diverse industry segments of the green hydrogen value chain and thanked all representatives for their inputs for a meaningful exchange.

For any further information, please contact Ms. Shivani Chaturvedi at shivani.chaturvedi(at)indo-german.com

German Pavilion at Windergy India 2023

4 - 6 October 2023 | Chennai, India

In collaboration with the Indo-German Chamber of Commerce (IGCC), the Indo-German Energy Forum (IGEF-SO) organised a German pavilion at Windergy India 2023, which took place in Chennai from 4 - 6 October 2023. The pavilion was inaugurated by Ms. Michaela Küchler, Consul General of the Federal Republic of Germany in Chennai, together with high-ranking representatives of the industry.

German Pavilion at Windergy India 2023.

Business Roundtable Meeting on 'Green Hydrogen' during Windergy India at Chennai

4 October 2023 | Chennai, India

The 9th business roundtable on the topic of 'Green Hydrogen' was organised by the Indo-German Chamber of Commerce (IGCC) in collaboration with the Indo-German Energy Forum (IGEF-SO) at Chennai on 4 October, 2023 during the Windergy India exhibition and conference.

Mr. Michaela Küchler, Consul General of the Federal Republic of Germany in Chennai, welcomed the participants by emphasising on the need for collaboration between the policy makers and industry, and cooperation between India and Germany.

Mr. Mallikarjuna S, Regional Director, IGCC also welcomed the participants at the roundtable, encouraged discussions on this important topic and moderated the roundtable. .

The meetings witnessed participants from the wind energy industry who were keen to learn about the green hydrogen market and the available funding instruments. Mr. Swarnim Srivastava, Manager, MEC Intelligence provided an overview on 'Green Hydrogen in India'.

Mr. Kumar Abhishek, IGEF-SO, briefed the audience about the German funding schemes for Green Hydrogen projects. He laid out the objectives of Germany's "National Hydrogen Strategy" and the grant funding for Indo-German Green Hydrogen Projects. The presentation was followed by detailed discussions with the senior industry representatives who attended the session.

For any further information, please contact Ms. Shivani Chaturvedi at shivani.chaturvedi(at)indo-german.com.

Agrivoltaics: Exploring Agrivoltaic Potential in India

5 October 2023 | New Delhi, India

The Indo-German Energy Forum (IGEF-SO) hosted a side event on Agrivoltaics during the Renewable Energy India (REI) Expo on 5 October. This event delved into the nuances of defining Agrivoltaics in the context of India, exploring potential business models and practical implementations. Esteemed experts shared their insights and experiences in the field, guiding developers, farmers, and institutions towards aligning with the established definition of Agrivoltaics.

Prof. Eicke Weber, Vice-Chair of the European Solar Manufacturing Council (ESCMC), highlighted the Agrivoltaic potential in Germany. He projected a substantial increase in solar energy investments, emphasising the significant role of Agrivoltaics in the country.

Ms. R. Kalpana Sastry, Managing Director of AG Hub, discussed a 10-kilowatt Agrivoltaics pilot programme initiatedin November 2022, emphasising its potential as a sustainable tool in India's agriculture sector.

Mr. Vivek Saraf, CEO and Founder of SunSeed, shared experiences from an ongoing Agrivoltaic Shadehouse project. He explained how agricultural infrastructure enhances solar yields through increased bifacial gains and partial on-site consumption.

Mr. Deepak Zade, Assistant Vice President of Industry Services for Green Energy & Sustainability at TÜV SÜD, emphasised the importance of a deeper understanding of factors contributing to success and challenges in achieving widespread adoption of renewable energy.

Mr. Moshe Horowitz, the VP of Global Business Development at Solargik, provided insights into current Agrivoltaic projects in Israel and the company's innovative structural solutions.

Dr. Dilip Kushwaha, a scientist at the Indian Agricultural Research Institute, stressed the significance of harnessing the potential of Agrivoltaics to drive sustainable agricultural development and promote renewable energy growth in India.

The concluding discussion highlighted the proposal for an Agrivoltaics center of excellence and the need for an Agrivoltaics alliance with the National Solar Energy Federation of India (NSEFI).

Before the speakers of the session were rewarded.

Webinar on the Modelling Costs of Green Ammonia in India

12 September 2023 | Virtual

The Green Hydrogen Organisation, in collaboration with the Indo-German Energy Forum (IGEF-SO), organised a webinar on 12 September 2023, to introduce a modelling tool designed for calculating the production cost of green ammonia in India. This webinar was a deliverable agreed upon by the members of the Subworking Group on Plant Engineering Production under the Indo-German Green Hydrogen Task Force.

Mr. Tobias Winter, Director, IGEF-SO, highlighted the global importance of green ammonia as a hydrogen transport medium, as mentioned in the G20 New Delhi Leaders' Declaration. The Indo-German Green Hydrogen Task Force, responding to the global interest in determining the cost of green ammonia production in India, undertook the creation of this tool at the request of the Indian Ministry of New and Renewable Energy and the German Ministry of Economic Affairs and Climate Action.

Mr. Jonas Moberg, Chief Executive Officer, Global Green Hydrogen Organisation, also addressed the participants, and Mr. Rolf Behrndt, Senior Hydrogen Specialist, GIZ Germany, provided a brief overview of the analysis scope.

Mr. Sidharth Jain, the Founder and Managing Director of MEC Intelligence, presented the cost modeling tool, providing a demonstration of its functionality. The tool allows users to calculate production quantities, associated costs, and operational profiles for ammonia, hydrogen, and renewable power. It simulates 14 parameters related to the costs of producing green ammonia.

Mr. Jain showcased the tool's dashboard, focusing on inputs and outputs, and presented three modeling scenarios, illustrating potential cost reductions of 16-20% under various configurations. The scenarios included hourly settlement and monthly settlement options.

The webinar concluded with an open Q&A session moderated by Mr. Behrndt.

Speakers of the webinar on the modelling tool for the production costs of green ammonia in India.

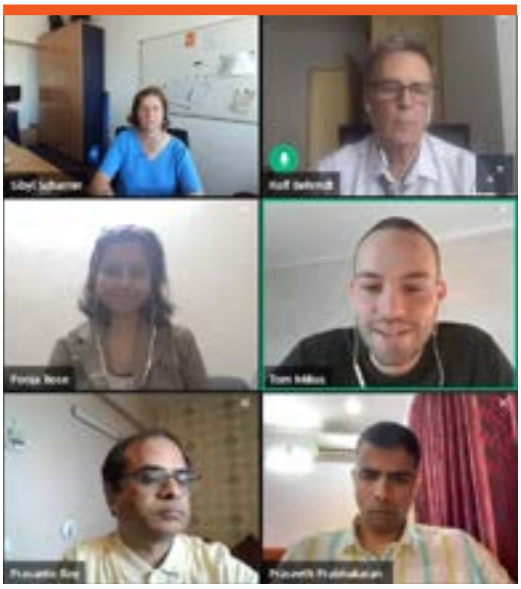
Webinar on Hydrogen Valleys

8 September 2023 | Virtual

The Indo-German Chamber of Commerce (IGCC) and the Indo-German Energy Forum (IGEF-SO) jointly hosted a webinar on "Hydrogen Valleys" on Friday, 8 September 2023. The webinar was a deliverable agreed upon by the subworking group on Transport, Storage and Consumption of the Indo-German Green Hydrogen Task Force.

Approximately 200 participants from industry, public sector and research institutions attended the webinar. Mr. Rolf Behrndt, Senior Hydrogen Specialist, GIZ Germany, welcomed participants and highlighted the potential of Hydrogen Valleys in advancing the transition to sustainable energy systems.Mr. Tom Mikus, Programme Manager at NOW GmbH and head of the subworking group, the significance of Hydrogen Valleys in the Green Energy Transition and explored opportunities for cooperation between India and Germany.

The Ministry of New and Renewable Energy (MNRE) is responsible for the overall coordination and implementation of the National Green Hydrogen Mission. Dr. Prasad Chaphekar, Deputy Secretary, MNRE delivered a special address discussing the requirements, development, design and incentives related to Hydrogen Valleys.



Participants of the webinar on Hydrogen Valleys.

Mr. Prasanto Roy, representing FTI Consulting and India Hydrogen Alliance (IH2A), spoke on the development of a hydrogen map and emphasised the importance of consumption as a primary driver. He shared IH2A's plan to establish five national green hydrogen consortia requiring investments of up to $5 billion by 2030. Mr. Roy highlighted the Green Kochi Hydrogen Hub as a replicable model and emphasised the need to build domestic ecosystems alongside exports.

Ms. Sibyl Scharrer, Renewable Energy Hamburg, provided insights into various hydrogen projects in Hamburg, including the Hamburg Green Hydrogen Hub and the city's import strategy. She discussed the potential uses of hydrogen, including the Green Ammonia terminal.

Mr. Praseeth Prabhakaran, DVGW-EBI, focused on simulation models and scenarios, emphasising the heterogeneous nature of energy valleys, the need for adaptable networks, and the requirement to adapt each valley to the specific circumstances of its location. He noted that optimising all three aspects simultaneously is a complex challenge.

The presentations were followed by an open Q&A session, covering topics such as hydrogen refuelling system standards, methanol hubs, port preparations for loading facilities, and the convergence of electric vehicles and hydrogen technologies.

The presentations can be downloaded here.

3

Developments in Indo-German Energy Cooperation

Webinar on PtX Development Fund

11 December 2023 | Virtual

The German government is actively promoting the global expansion of Power-to-X (PtX) technology in India and six other partner countries through its PtX Development Fund. With a funding commitment of 30 million Euro in grant funds, the PtX Development Fund aims to support the establishment of local value chains and facilitate the utilisation of green hydrogen and its derivatives, connecting them to future technologies.

The funding covers projects across the entire PtX value chain, spanning from the generation of green electricity through renewable sources to the production and transportation of green hydrogen and its derivatives. The primary objective is to support capital-intensive PtX projects that may currently lack financial viability, addressing existing financing gaps.

To inform interested Indian private and public companies about the available funding opportunities, KfW, in collaboration with the Indo-German Energy Forum (IGEF-SO), organised a webinar on "PtX Development Fund - Closing the financing gaps in PtX projects" on, 11 December 2023.

Mr. Stefan Kliesch, Head of Energy Team at KfW Office in India, moderated the webinar, with opening remarks delivered byMr. Wolf Muth, Country Director at KfW Office in India. Mr. Muth emphasised the significant role the PtX Development Fund, financed by the German Federal Ministry for Economic Cooperation and Development, can play in addressing financing gaps in PtX projects. He highlighted the possibility of supporting viability gap funding through reduced interest/promotional loans from KfW Development Bank and other financing instruments within the KfW Group, including equity, mezzanine, and debt financing.

KGAL has been commissioned to manage the PtX Development Fund on behalf of KfW. During the webinar, KGAL provided key information, eligibility criteria, details about the call for expressions of interest, and the registration process on the Fund's website. The presentation sparked a lively discussion among participants.

Mr. Stefan Kliesch concluded the webinar, emphasising that the PtX Development Fund, along with potential subsidies from the Ministry of New and Renewable Energy (MNRE) and other financing instruments from KfW Group, could make PtX projects for both public and private companies in India economically viable. He identified Mr. Ramana Reddy, Senior Energy Specialist, and Mr. Vivek Jha, an energy expert and external consultant at KfW Office in India, as the primary contacts for partners interested in funding from the PtX Development Fund.

Interested partners can also receive further information via the PtX Fund website .

Participants of the webinar on PtX Development Fund.

Shining bright: GIZ India Embraces Solar Power with New Office Rooftop PV System Launch

27 September 2023 | New Delhi, India

On 27 September 2023, a significant milestone was marked with the inauguration of an 11 kW rooftop solar PV system on GIZ India's B5/5 office roof. This innovative installation not only exemplifies the efficient use of urban spaces but also underscores GIZ's dedication to India's energy transition, serving as a model for sustainable energy practices. Colleagues from the energy cluster gathered amidst a captivating New Delhi sunset to celebrate the achievement. Concurrently, the event featured the handover of leadership from the former energy cluster coordinator, Dr. Winfried Damm, to the new cluster coordinator, Mr. Philipp Johannsen.

Practically, the rooftop solar PV system is expected to generate an average of 1517 kWh/ month, resulting in an annual output of 20 MWh. This not only translates to significant energy savings but also a substantial reduction in GIZ India's collective carbon footprint. To provide perspective, the installation leads to an annual carbon dioxide offset of 296.1 metric tonnes, equivalent to preserving 347.6 acres of forest or avoiding the burning of 147 metric tonnes of coal each year. Another noteworthy feature is the use of efficiency-enhancing bifacial modules. These transparent glass-to-glass modules, complemented by stylish wooden-metal structures, enhance the social space on the GIZ rooftop, providing colleagues with a comfortable spot to enjoy their coffee outdoors - even on rainy days.

For more information please contact Mr. Nicolas Meier, nicolas.meier(at)giz.de.

Inauguration of the rooftop solar PV system on GIZ India's B5/5 office roof.

Colleagues on GIZ India's B5/5 office roof.

GIZ India supports Holkar Cricket Stadium's Solarisation

24 September 2023 | Indore, Madhya Pradesh

In December 2022, GIZ India and the Madhya Pradesh Cricket Association (MCPA) India collaborated under a Memorandum of Understanding (MoU) to undertake a transformative project: the solarisation of the Holkar Cricket Stadium in Indore, Madhya Pradesh. This partnership has now yielded results. GIZ, in close coordination with MCPA, provided technical support that led to the successful implementation of an advanced 200 kWp rooftop solar PV system on the stadium. The grand inauguration of the solar PV system occurred on September 24, 2023, just before the commencement of the second One Day International (ODI) match between India and Australia. The event was attended by the Indian cricket team captain, Kananur Lokesh Rahul, representatives from the Board of Control for Cricket in India (BCCI) and the MCPA, along with the dedicated team from GIZ.

The project not only underscores the potential of new and innovative solar areas but also highlights the significant financial and environmental benefits it offers. With the installation of the rooftop solar PV system, Holkar Cricket Stadium is expected to generate an impressive 300 MWh annually. Additionally, it will contribute significantly to the reduction of carbon emissions, preventing approximately 277 tonnes of CO_2 from entering the atmosphere each year.

For more information please contact Mr. Kuldeep Sharma, kuldeep.sharma(at)giz.de.

The stadium's 200 kWp rooftop solar PV system from a bird's eye perspective.

India's cricket team captain KL Rahul inaugurated the stadium's 200 kWp rooftop solar PV system.

One Day Training cum Consultation Programme on "Innovative Construction Technologies & Thermal Comfort for Affordable Housing

1 & 22 September 2023 | Chandigarh & Bengaluru, India

The Ministry of Housing and Urban Affairs has been conducting living laboratory experiments at the 6 Light House Projects inaugurated by PM Modi. These experiments are conducted via Building Material and Technology Promotion Council and GIZ's Climate Smart Buildings to test new age construction technologies and designs with respect to thermal comfort. Thus, MoHUA, BMTPC, and GIZ have organised training cum consultation programs aimed at enhancing the skills of senior government officials, policymakers, and stakeholders on the topics of Innovative Construction Technologies, and inviting suggestions on Thermal Comfort Recommendations. The core aim of these training cum consultation programs is to empower and engage senior government officials, policymakers, professionals in the built-environment sector, and stakeholders from relevant government departments. The focus is on exploring Innovative Construction Technologies, both globally and domestically, to expedite and streamline the construction of affordable housing. Additionally, the goal is to achieve thermally comfortable, resilient, and cost-effective homes. This involves implementing passive design strategies, utilising locally available materials with low embodied energy, and integrating cutting-edge technologies. The consultation will cover crucial aspects such as Thermal Comfort Recommendations and Principles for critical suggestions.

For more information, please contact Mr. Nitin Jain,nitin.jain(at)giz.de.

Chandigarh event.

Bengaluru event.

Training Program on Digitalization, Data Analysis, and Change Management

12 - 14 July; 13 - 15 September | Varanasi, Uttar Pradesh; Goa

The training program was conducted in collaboration with Power Finance Corporation (PFC). The program is a series of six trainings, and the first two have already been conducted. The program is tailored for senior officers of public DISCOMs responsible for implementing the digitalization in their organisations. The objective of this training was to equip senior DISCOM management with the competencies necessary to navigate the complexities of smart metering, digitalization, and data analytics, empowering them to lead their organisations toward a more efficient and sustainable future. This event also gives them a platform to discuss the issues faced by their DISCOMs and think about the possible solutions.

In addition to the training sessions, GIZ organised a visit to PuVVNL Facility at Varanasi for the first training session which was held between 12 - 14 July and to Siemens facility, in Goa for the second training held between 13 - 15 September. These visits were intended to help the participants gain a deeper understanding of the solutions that can be implemented in their respective organisations.

1st Training in Varanasi, Uttar Pradesh.

India Smart Energy Workshop

2 March 2023 | New Delhi, India

During the India Smart Utility Week (ISUW), which is an event dedicated to promoting smart grids, energy transition, and electric mobility, GIZ conducted two sessions as part of its "Energy Transition with DISCOM"project. The project is funded by the Federal Ministry of Economic Cooperation and Development (BMZ) in Germany and falls under the umbrella of the Indo-German Energy Programme. This was the 9th edition of ISUW and was held in New Delhi from 28 February - 4 March 2023, as a physical event.

The first session, titled "Germany - India Smart Energy Workshop," was in collaboration with Accenture and focused on IT-OT integration and smart metre interoperability. This session aimed to explore the prospects of digitalising Indian DISCOMs and integrating IT and OT systems to derive business benefits while highlighting the importance of interoperability and facilitating Advanced Metering Infrastructure (AMI) interoperability in India.

The event also marked the launch of reports on smart metre interoperability and IT-OT integration, providing recommendations and roadmap to support Government of India's 250 million Smart Meter target under the Revamped Distribution Sector Scheme (RDSS). Furthermore, the reports also provide valuable resources for stakeholders in the energy sector to promote the adoption of smart grids and energy transition in India.

GIZ invited Prof. Stefan Tenbohlen, Head of Institute of Energy Transmission and High Voltage Engineering, University of Stuttgart to speak during a thematic session on "Climate Proofing of Future Grids and Advanced Materials for Extreme Weather Events". The session emphasised the impact of climate change on grid equipment, particularly transformers, and how extreme weather conditions may decrease the lifespan of these critical components. Prof. Tenbohlen also delivered a master class on "Energy transition to Net-Zero systems: Strategies and Pathways",

Group picture of all the speakers from the panel discussion (from left to right: Abhinav-Public Policy Advisor, Secure Meters; Gautam Kumar-CTO, Intellismart; Ganesh Das-Chief Collaboration & Innovation, Tata Power Company Ltd; Sharanbir Bal-Associate Vice President, Accenture; Rahul Drivedi (IAS)-CEO RECPDCL/ ED, REC Ltd.; Arvind Gujral-Managing Director, Bidgely Technologies Inc; Sunil Kumar Sharma-Project Manager, GIZ).

Professor Stefan Tenbohlen delivering the master class.

where he spoke about saving resources by condition-based maintenance of power transformers.

GIZ's participation in the India Smart Utility Week was intended to promote sustainable development in the energy sector, exchange knowledge and ideas with experts, stakeholders, and policymakers from around India, and contribute to a cleaner and greener future.

4 Quote of the Month from India and Germany

Quote of the Month from India

Shri R. K. Singh,

Union Minister for New & Renewable Energy and Power

"We have set up a huge ecosystem for renewable energy. Our pace of capacity addition in renewable energy is one of the fastest in the world. Our cost of making renewable energy and our cost of producing green hydrogen will be one of the lowest in the world."

Source: PIB

Quote of the Month from Germany

Dr. Robert Habeck,

Federal Minister for Economic Affairs and Climate Action, Govt. of Germany

"The expansion of renewables safeguards jobs in Germany and creates new ones. In this way, the energy transition is making a key contribution to Germany's prosperity and competitiveness."

Source: BMWK

5 Energy Transition News

What actually is the System Development Strategy?

How can our energy system reliably and rapidly become climate-neutral? The System Development Strategy points the way forward. Follow us on a brief visit to the future of our energy supply.

This is what it's all about: our energy system is to become climate-neutral. The System Development Strategy offers a route and a framework for this. Heading for 2045! Amount of harmful greenhouse gas emissions in Germany: zero. Can we make it, and if so, how? It is true that the greenhouse gas emissions in Germany are falling steadily, but fossil fuels like oil, coal and gas have yet to be consigned to history as mainstays of our energy system.

Three roadmaps to a climate-neutral energy system

The Federal Government has drafted an overarching strategy for this: the System Development Strategy. It is developing a shared vision for a climate-neutral energy system (in German only) and maps out the transformation paths to it. The basis for the System Development Strategy are long-term scenarios covering the energy system up to 2045 and taking account of the climate targets of the Federal Climate Change Act and the Paris Climate Agreement.

The strategy is being drawn up by the Federal Ministry for Economic Affairs and Climate Action in an in-depth dialogue with the energy sector, industry and civil society. The intention is to produce three "route planners": the vision and the transformation strategy; sector and programme coordination (e.g. with data on the network development plans for electricity, gas and hydrogen); and an overview of further necessary analyses (e.g. on the need for research and development).

Interim report pools findings and sketches out transformation paths

The final text is currently being compiled by the Federal Ministry for Economic Affairs and Climate Action and is to be presented in the first half of 2024. The interim report on the System Development Strategy from November 2023 collates the findings from scenarios, from a technical and systemic viewpoint. These are the key findings of the report for the various aspects of the energy system:

The transformation of industry necessitates deep-reaching changes to production processes in energy-intensive industry. Most process heat can be electrified. As things stand today, hydrogen will be needed in particular for the chemical and steel industry. In the buildings sector, energy efficiency and improved energy performance, heat pumps and the expansion and conversion of heat networks are particularly important for the reduction of emissions that damage the climate.

In the field of energy provision, wind and photovoltaics, as pillars of the future energy supply, must be very rapidly rolled out. Also, the availability of green hydrogen and hydrogen derivatives should be expanded as quickly as possible. The provision of heat from heat networks must be swiftly and continuously converted to the use of waste heat and renewable energy.

The demands placed on the energy infrastructure will rise in future. In 2045, electricity and hydrogen will mainly be used, i.e. forms of energy that require grid infrastructure. It is correspondingly necessary to significantly expand the electricity grids and to build up infrastructure for hydrogen.

6 Publications

Agrivoltaics in India

The report provides an overview of operational agrivoltaic projects, relevant policies, and policy recommendations to foster the adoption of agrivoltaics in the country.

The full report is available for download here.

Briefing Note: Financial Attractiveness of Rooftop Solar Energy for (Lt) Commercial and Industrial Consumers In Tamil Nadu

This report focuses on determining the 'financial attractiveness' of rooftop solar for C&I consumers under the Low-Tension (LT) category in Tamil Nadu. In the report 'financial attractiveness' of grid-interactive rooftop solar PV system is defined as a system that achieves a simple payback of less than or equal to five (5) years.

The full report is available for download here.

7 Upcoming Event

Training programme on Decarbonization of Power Sector

The training is provided in partnership with GETRI. The objective of the training workshop is to provide senior power sector professionals in India with a comprehensive understanding of the decarbonization of the power sector and its impact on the energy transition towards a sustainable and low-carbon economy.

Participation is on an invitation basis.

Training programme on best practices of O&M of Distribution Grids

6 trainings will be held for a period of 18 months | Vadodara, Gujarat

The training program on 'Best practices in Operation & Maintenance (O&M) of Distribution Grids' is held in partnership with GETRI. Thet training is designed to provide participants with an understanding of the best practices and emerging trends related to Operation & Maintenance (O&M) of Distribution Grids.

Participation is on an invitation basis.

Training programme on grid integration of RE and EV

6 trainings will be held for a period of 18 months | Vadodara, Gujarat

The trainings are conducted in collaboration with GETRI. The program will cover the grid integration of renewable energy sources such as solar and wind power, highlighting best practices for grid management, including forecasting, balancing, and dispatching. Overall, the program's goal will be to equip power system professionals with the necessary knowledge and skills to effectively manage the integration of renewable energy sources and electric vehicles into the power grid.

German Chancellor Fellowship for Tomorrow's Leaders at German Solar Association BSW in Berlin

The Alexander von Humboldt Foundation is searching for the Indian leaders of tomorrow. The German Chancellor Fellowship offers you an opportunity to take the next step in your career in Germany – irrespective of your field of work. In order to apply, develop your own project idea and find a host of your choice to mentor you. Once your host has confirmed, you can apply for a fellowship. German Solar Association BSW in Berlin has already offered to be a host for you. The Chancellor of the Federal Republic of Germany is the patron of this fellowship programme. The Foundation grants up to 50 German Chancellor Fellowships annually – up to ten for each country.

If you are interested in a fellowship with the German Solar Association BSW you should get in touch with Ms. Luz Alicia Aguilar via aguilar(at)bsw-solar.de.

Retired German Energy Experts Offering Their Support to Indian Institutions

You are a freshly retired German engineer with experience in Energy Efficiency and already familiar with India's rich culture? Become part of the largest retired expert's database of the world, a group of more than 10 000 experts offering their German know-how to the world free of cost.

You are an India-based company or institution looking for a German expert to lower your expenditures for Energy?

Senior Experten Service (SES) India is constantly matchmaking German experts and Indian institutions in several potentially supported fields and is also able to finance such expert visits. SES is the worldwide leading organisation for voluntary assignments carried out by retired specialists and executives.

For further information please click here or
contact Mrs. Sharon Mogose via sharon.mogose(at)indo-german.com.

Information about DeveloPPP

DeveloPPP.de is a mechanism by the German Federal Ministry for Economic Cooperation and Development (BMZ) to promote the involvement of the private sector in its development work. The BMZ provides financial and technical support to companies that want to become active in developing and emerging countries or already are, and whose investment has long-term benefits for the local population. The company bears at least half of the total project costs.

Interested companies cooperate with one of the two public partners that implement the program on behalf of the BMZ: Deutsche Investitions- und Entwicklungsgesellschaft (DEG) GmbH or Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH. The companies receive individual advice, benefit from regional market knowledge of the locations worldwide and gain access to local networks and political decision-makers.

Projects cover a wide range of sectors, such as training local skilled workers, piloting innovative technologies and demonstration plants, securing value chains and improving ecological and social standards in production plants.

Four times a year, companies can submit their project ideas to DEG or GIZ. The project should be developmentally effective and go beyond investments in the company's core business. To be eligible for funding, companies must have an annual turnover of at least 800,000 EUR, employ no less than 8 people and have a minimum of 2 audited annual financial statements. The duration is up to 3 years.

For further information please click here. .

Information about H2Uppp

The H2Uppp programme accompanies and supports efforts to ramp-up the market for green hydrogen (GH2) and Power-to-X (PtX) applications in India and other selected developing countries and emerging economies in cooperation with the private sector. Unlike other hydrogen support initiatives, H2Uppp focuses on the early stages of green hydrogen project development.

H2Uppp aims to identify, prepare and accompany the implementation of projects for the production and use of GH2 and PtX application, and to raise awareness and promote knowledge transfer for the development of projects relating to green hydrogen. Together with the partner countries, this approach enables GIZ to identify cost-effective production paths, pinpoint project opportunities along the value chain and develop business models.

To achieve the programme objectives, H2Uppp focuses on three fields of action: In the field of action 1 (Networking & Project Scouting), H2Uppp supports companies in identifying project ideas and building networks, for example with project partners or potential off-takers. Partners from the private and financial sectors are also offered training on green hydrogen, and public-private dialogue is strengthened through conferences and trade fairs. In the field of action 2 (PPP – Public-Private Partnerships), H2Uppp works with private companies to jointly implement pilot projects in the field of green hydrogen and power-to-X. Formal public-private-partnerships (PPPs) are set up for this purpose (see following section). In the field of action 3 (Know-How and Capacity Development), H2Uppp accompanies the various project ideas with in-depth studies and technical training. Through specialist conferences, the activities of local institutions are further strengthened and joint measures are developed to ensure a successful market launch.

The programme has been commissioned by the German Federal Ministry for Economic Affairs and Climate Action (BMWK). Support is provided for PPPs along the entire hydrogen value chain (production, storage, conversion, transportation and usage). It is important that the PPP project focuses on public-benefit activities and contributes to the promotion of sustainable development in the project country. To be eligible for funding, companies must contribute at least 50% of the volume of the PPP project and comply with sustainability standards during the project.

For further information on H2Uppp, support opportunities or to receive the PPP application form, please contact H2Uppp(at)giz.de.

All Upcoming Events in the Next Six Months – Save the Date!

World Hydrogen 2024 Summit & Exhibition
13 - 15 May 2024 | Rotterdam Ahoy, Netherlands
https://www.world-hydrogen-summit.com/

AgriVoltaics World Conference 2024
11 - 13 June 2024 | Denver, Co, USA
www.agrivoltaics-conference.org

5th Annual India Power Conference
20 - 21 June 2024 | New Delhi, India
https://www.pv-magazine.com/events/india-power-conference/

Hydrogen Tech World
26 - 27 June 2024 | Essen, Germany
https://hydrogentechworld.com/news-category/news

India Energy Storage Week
1 - 5 July 2024 | New Delhi, India
https://www.energystorageweek.in/

18th International Conference on Hydrogen Production and Storage
5 - 6 September 2024 | Tokyo, Japan
https://waset.org/hydrogen-production-and-storage-conference-in-september-2024-in-tokyo

8 DISCLAIMER

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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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