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Capacity Building for the Indian Energy Transition

The Fraunhofer Institute for Energy Economics and Energy System Technology IEE has launched a capacity building program for energy system transformation in India together with the Indian institute IIT Mumbai and partners from industry. The focus of this program is on grid integration of renewable energy. It is initiated by the German Gesellschaft für Internationale Zusammenarbeit GIZ and aims at employees of Indian grid operators who are active in grid operation and management. The training program combines online and presence modules in topics such as generation, forecasting, system integration, control and visualization of renewable energies as well as market mechanisms, regulation and politics.

The targets for expanding the use of renewable energy in India are ambitious. Overall, the world's eleventh largest country is aiming to install new production capacities for renewable energy with a capacity of 500 gigawatts over the next ten years. By 2030, at least 40 % of India's electricity is to come from renewable sources.

Power generation from wind and solar sources depends heavily on the weather. Intermittent generation poses new challenges for grid operators, who are responsible for secure grid operation. At the institutional level, the Indian government is therefore opening eleven REMC centers (Renewable Energy Management Centers) which will support the further integration of renewable energies into the electricity grid together with the existing LDC centers (Load Dispatch Centers).

In India there has been a lack of targeted training programs that qualify grid operators' employees to manage the system integration of renewable electricity generators in these REMC centers. In particular, the knowledge of which political, regulatory, market-related and technical instruments are available to integrate a higher proportion of renewable energies into the grid needs to be further developed.

The Ministry of New and Renewable Energy and the Ministry of Energy of the Indian Government are cooperating with the German government on the »Green Energy Corridors« (IGEN-GEC) project in order to meet the challenges of grid integration of high shares of renewable energy with solutions for India. The GIZ implements the project in cooperation with various Indian governmental authorities. The training program for grid operators was developed by GIZ in cooperation with Power System Operation Corporation Ltd. (POSOCO) and the National Power Training Institute (NPTI). They were supported by experts from the Fraunhofer IEE, the two German companies Energynautics and Overspeed and the Indian Institute of Technology (IIT) Bombay. For Fraunhofer IEE, Prof. Dr. Martin Braun contributed his expertise to the program design,

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Dr. Bernhard Ernst developed the three topics »Forecasting of Renewables«, »Balancing and Scheduling« and »Policy Regulatory and Market Mechanisms« and Dr. Gunther Arnold the topic »Grid Codes«.

Under the direction of Fraunhofer IEE, the implementation of the »REMC Training in India« has now begun. The first part is designed as a 3-month online course, supplemented by on-site training in India. The first course took place in the training rooms of the National Power Training Institute (NPTI) in New Delhi/Faridabad with about 20 participants. In the second course, the project partners Fraunhofer IEE, Overspeed, Energnautics and IIT Mumbai trained another 50 engineers in Bangalore from August 26 to 31, 2019. The third and for the time being last training course will take place in January/February 2020 in the Indian state of Kerala.

Expert contact Fraunhofer IEE:

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Background

The Fraunhofer Institute for Energy Economics and Energy System Technology IEE in Kassel researches the transformation of energy supply systems and develops solutions for technical and economic challenges.

The business area of further education and knowledge transfer accumulates the know-how from more than 30 years of successful research into the use of renewable energy. Together with the current results of applied research and partners from industry, consulting and universities, Fraunhofer IEE offers tailor-made courses for the qualification of specialists and executives in current renewable energy topics, for the transfer of research knowledge into professional practice, for customer-oriented training formats and for workshops and expert dialogues.

Fraunhofer IEE has already gained experience with the implementation of international online courses and courses in blended learning format by participating in the study program Online M.Sc. Wind Energy Systems and the online training course Grid Integration, which was conducted for the Colombian transmission system operator XM.

<https://www.iee.fraunhofer.de/training>

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REMC Training in India: In the second course, the project partners Fraunhofer IEE, Overspeed, Energy-nautics and IIT Mumbai qualified further 50 engineers in Bangalore from 26 to 31 August 2019. Photo: GIZ India



REMC Training in India: In the second course, the project partners Fraunhofer IEE, Overspeed, Energy-nautics and IIT Mumbai qualified further 50 engineers in Bangalore from 26 to 31 August 2019. Photo: Fraunhofer IEE | Bisevic



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REMC Training in India: At the end of the qualification training »Grid integration of renewable energy« the participants received a certificate.
Photo: Fraunhofer IEE | Bisevic