



Conference on

# Evacuation and Integration of Renewable Energy

Changing Requirements, Growing Challenges and Emerging Technologies

February 25-26, 2019, Le Meridien, New Delhi

Organisers:

**RenewableWatch**

**POWERLINE**

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# EVACUATION AND INTEGRATION OF RENEWABLE ENERGY

## Mission

- India has an ambitious renewable energy target of 175 GW by 2022. However, installing a large renewable energy capacity has its own set of problems, evacuation and grid integration being the key among these.
- The intermittency of renewables and grid integration challenges underscore the heightened risk of curtailment, in terms of technical issues and misalignment with demand-supply forecast. There have already been instances in some states, where solar and wind power plants have been asked to restrict generation, resulting in financial losses to developers.
- On the project development front, transmission connectivity constraints are leading to an increasing number of tendering and project development delays, as well as downsizing of tenders. Meanwhile, anticipating the challenges in integrating intermittent renewables into the grid, a number of states have proposed deviation charges.
- All these problems will only get aggravated with the increase in the quantum of renewable power available for grid injection. In order to address these challenges, a comprehensive plan covering transmission and control infrastructure was identified as a part of Green Energy Corridors. This programme includes an intra-state and an interstate transmission system to strengthen the infrastructure, and establishment of renewable energy management centres at the state, regional, and national load dispatch centre levels. But the progress has not been up to the mark.
- The mismatch between the number of demand centres and the available corridors is a major concern. The distance between the demand and supply centres is also a key issue with six states in the western and southern parts accounting for 80 per cent of the country's installed solar power capacity but only 38 per cent of the power demand.
- Moreover, the interstate transmission corridor being developed by Power Grid Corporation of India Limited will help only if supplemented by the efforts of state transmission utilities to develop and strengthen their transmission infrastructure. While some states have been taking significant interest in upscaling and modernising their grids, most of them need to step up their efforts.
- The aforementioned challenges can, however, be overcome with modern technological breakthroughs and advancements like smart grids, renewable energy storage solutions and renewable energy hybrids. Further, immediate attention is needed towards effective planning and implementation of longer-term network infrastructure. The scheduling and despatch between states and regions must be coordinated on priority. Finally, it is imperative to equip states with state-of-the-art renewable energy forecasting tools.
- **The mission of this conference is to discuss the trends, developments, plans and opportunities in the renewable energy transmission space in India. The conference will highlight the grid integration and evacuation-related challenges facing the renewable energy sector, and the possible solutions and ongoing initiatives to address these. It will also showcase the relevant technologies and noteworthy projects.**

## Previous Participants

*The participating organisations in our previous edition and related conferences include : ABB, Aditya Birla Insulators, Bajaj Electricals, BHEL, BSPTCL, Bridge To India Energy, Brookings Institution India Center, Central Electricity Supply Utility of Orissa, Central Electricity Utility (Odisha), CERC, Clean Max Enviro Energy Solutions , Cleantech Energy Corporation CLP Power, CLP Wind Farms (India), Continuum energy, Customized Energy Solutions , Delta Power Solutions ,Delton Infra, DLF Power & Services , Druk Green Power Corporation, Dupont India Private ,DVNL, Eaton Power Eastern Power Distribution Company of Andhra Pradesh, First Solar, Fluent Grid, Fortum, Gamesa Renewable Private ,Gammon India ,GE Renewable Energy, GE T&D, Gensol Consultants, GE Intelligent Platforms, GE Power & Water, GIZ, Greenko Group, Gujarat Energy Transmission Corporation, Idam Infrastructure Advisory, IL&FS Energy Development Company, Gamesa Renewable Private ,Gammon India, Gensol Consultants, Indian Energy Storage Alliance, IREDA, Karnataka Power Transmission Corporation, Kohler Power, KFW, KPMG Advisory Services, Maharashtra State Electricity Distribution Company, Maharashtra State Power Generation Company, MP Power Transmission Co, MPPTCL (SLDC), Mtantd, NTPC, Paschim Gujarat Vj Company, PFC Green Energy Limited, Power Finance Corporation, Power Grid Corporation Of India, Power System Operation Corporation, Praxair India, PTC Financial, REC Power Distribution Company, Refex Energy ,ReGen Powertech , Reliance Infrastructure, Rajasthan Rajya Vidyut Utpadan Nigam, Reconnect Energy, ReGen Powertech, Reliance Infrastructure, SBI Capital Markets, Sembcorp Green Infra, Sharda University, Siemens, Sterlite Power Transmission, SLDC MPPTCL, SU-KAM, Suzlon Energy Ltd, Transrail lightings, Tamil Nadu Generation and Distribution Corporation, Tata Steel, TATA Power Delhi Distribution Limited, The State Load Despatch Centre Chhattisgarh, Transmission Corporation of Andhra Pradesh, UJVN Limited, WindForce Management Services, World Wind Energy Association, etc.*

## AGENDA/STRUCTURE

### GRID INTEGRATION OF RENEWABLE ENERGY: KEY CHALLENGES AND OUTLOOK

- ❖ What are the key problem areas in the evacuation and grid integration of renewable energy in India?
- ❖ What has been the impact of these issues on renewable project development? What steps are needed to address these issues?
- ❖ What are the possible solutions? What is the likely role of storage technologies and smart grids in addressing the challenges?

### GOVERNMENT PERSPECTIVE

- ❖ What are the expansion plans for the country's transmission infrastructure in light of the growing share of renewables?
- ❖ What are the recent policies and initiatives introduced to fast-track grid expansion and upgradation?
- ❖ What are some of the issues and challenges?

### SECI's PERSPECTIVE

- ❖ What is SECI's perspective on the issues faced in grid integration and evacuation of renewable energy?
- ❖ What have been the key initiatives to resolve these issues?
- ❖ What should be the key features of the future grid?

### STATE TRANSCOS' PERSPECTIVE: EVACUATION OF RENEWABLE ENERGY

- ❖ What are the key issues and challenges related to the intra-state transmission system for renewable energy?
- ❖ What are the plans of various transcos for expanding their infrastructure over the next few years?
- ❖ What are the key initiatives and projects being undertaken by various state utilities?

### DEVELOPERS' PERSPECTIVE

- ❖ What has been the renewable power evacuation experience of developers across various states?
- ❖ What are the key issues and challenges faced in project development and operation?
- ❖ What steps need to be taken to address these concerns?

### EMERGING REGULATORY SCENARIO: FORECASTING AND SCHEDULING, DEVIATION SETTLEMENT MECHANISM, AND BANKING

- ❖ What are the recent regulatory developments?
- ❖ How will these developments impact various stakeholders?
- ❖ What are the key unaddressed regulatory issues and concerns?

### POWERGRID'S PERSPECTIVE

- ❖ What are Powergrid's initiatives in the renewable energy transmission space?
- ❖ Is the National Smart Grid Mission likely to address the grid management issues for renewable projects?
- ❖ What are Powergrid's plans for the development of the interstate transmission network for renewables?

### GRID BALANCING: ROLE OF ANCILLARY SERVICES IN MANAGING LOAD GENERATION

- ❖ How does the increasing share of renewables in the energy mix impact load balancing and management?
- ❖ What can be the role of ancillary services in maintaining grid frequency?
- ❖ What will be the financial implications of deploying ancillary services?

### SPOTLIGHT ON GREEN ENERGY CORRIDORS

- ❖ What is the scope, size and timeline of the programme? What has been the progress so far?
- ❖ What are the key issues in its implementation?
- ❖ What is the total project cost? How is it being funded? What are the future plans?

### RENEWABLE ENERGY HYBRIDS

- ❖ What have been the key policy developments in this space?
- ❖ What has been the progress so far? What are the noteworthy projects?
- ❖ How is the cost economics of these projects compared to stand-alone solar and wind power plants?

### ENERGY STORAGE

- ❖ What are the implications of energy storage for grid reliability and stability?
- ❖ What have been the key developments and initiatives?
- ❖ What are the best suited technologies? What are the cost implications?

### ROLE OF MICROGRIDS

- ❖ What role can microgrids play in addressing transmission constraints?
- ❖ What has been the experience so far?
- ❖ What steps need to be taken to promote greater uptake of microgrids?

### IMPACT OF ROOFTOP SOLAR ON THE GRID

- ❖ What are the transmission-related issues faced by rooftop solar projects?
- ❖ What are the challenges faced by discoms to offtake this power?
- ❖ What steps can be taken to address these?

## Target Audience

- The conference is targeted at officials and managers from:
  - Solar, Wind and Hydro power developers
  - Discoms
  - Financial Institutions
  - Energy Efficiency Consultants
  - Technology Providers
  - System Integrators
  - Transcos
  - Conventional Gencos
  - Rooftop Solar Equipment Manufacturers
  - Regulators
  - Certifying Agencies
  - IPPs
  - Captive power producers
  - Design and Engineering Organisations
  - Battery Manufacturers
  - Policymakers
  - Energy Storage Service Providers
  - etc.

## Conference on

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### Registration Form

I would like to register for the conference. I am enclosing Rs \_\_\_\_\_ vide cheque/demand draft no. \_\_\_\_\_ drawn on \_\_\_\_\_ dated \_\_\_\_\_ Company GST No. \_\_\_\_\_ in favour of **India Infrastructure Publishing Pvt. Ltd.** payable at New Delhi.

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### Registration Fee

| Delegates       | Discounted fee (before February 5, 2019) |           |           |           | Fee without discount (after February 5, 2019) |           |           |           |
|-----------------|--|-----------|-----------|-----------|---|-----------|-----------|-----------|
|                 | INR                                      | GST @ 18% | Total INR | Total USD | INR   | GST @ 18% | Total INR | Total USD |
| One delegate    | 18,000                                   | 3,240     | 21,240    | 335       | 22,500  | 4,050     | 26,550    | 418       |
| Two delegates   | 30,000                                   | 5,400     | 35,400    | 585       | 37,500  | 6,750     | 44,250    | 732       |
| Three delegates | 42,000                                   | 7,560     | 49,560    | 836       | 52,500  | 9,450     | 61,950    | 1,045     |
| Four delegates  | 54,000                                   | 9,720     | 63,720    | 1,087     | 67,500  | 12,150    | 79,650    | 1,359     |

- There is a 20 per cent "early bird" discount for those registering before February 5, 2019.
- There is a special low fee of Rs 6,000 per participant for state electricity boards and their successor units (state-owned gencos, transcos and discoms), regulatory authorities, research organisations and academic institutions. (GST @ 18% is applicable)
- Registration will be confirmed on receipt of the payment.
- To register online, please log on to <http://indiainfrastructure.com/conf.html>

#### Payment Policy:

- Full payment must be received prior to the conference.
- Conference fee includes lunch, tea/coffee and conference materials.
- Conference fees cannot be substituted for any other product or service being extended by India Infrastructure Publishing Pvt. Ltd.

### Organiser

The conference is being organised by **India Infrastructure Publishing**, the leading provider of information on the infrastructure sectors through magazines, newsletters, reports and conferences. The company publishes **PowerLine** (India's premier power magazine) and **Renewable Watch** (covers the entire spectrum of renewable energy), **Power News** (a weekly newsletter), and a series of research reports, including **Power Transmission In India**, **Competitive Bidding of Wind Projects**, **Open Access for Renewables**, **Solar Power in India**, **Power Distribution in India**, **Rooftop Solar Market In India**. It also publishes the **Powerline**, **Solar and Wind Power Directory** and **Yearbook**.

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