10th Annual Conference on Power Transmission in India
Recent Trends, Future Plans & Emerging Opportunities

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Mission

- The Indian power transmission sector continues to grow at an unprecedented pace. In 2016-17, 26,300 ckt. km of lines and 81,800 MVA of substation capacity were added at the 220 kV and above levels, exceeding the yearly addition targets by almost 12.5 per cent and 81 per cent respectively.
- An estimated Rs 2.6 trillion investment in the transmission sector is required to meet the future peak load, which is expected to reach 234 GW by 2021-22. If all goes well, by the end of 2022, the country’s grid will witness an addition of 105,580 ckt. km of lines and 292,000 MVA of substation capacity at the 220 kV and above voltage levels.
- Grid expansion over the next few years will be mainly driven by the government’s ambitious plan to scale up renewable energy capacity to 175 GW by 2022. To develop the associated power evacuation infrastructure, Powergrid is implementing projects under the Green Energy Corridors I and II programmes to connect 55 GW of new solar and wind capacity.
- State utilities are expected to play a more active role going forward. The majority of the investment at the state level will be aimed at building infrastructure for evacuating renewable power and providing electricity access. Another area of focus will be the modernisation and replacement of existing assets as well as the adoption of new and smart technologies.
- Various government policies such as incentives for early commissioning and changes in compensation for right of way (RoW) have made electricity transmission an attractive space for private players. Participation in tariff-based competitive bidding (TBCB) projects has increased, leading to the discovery of low tariffs and early commissioning. Cumulatively, the investment opportunity for private developers works out to over Rs 120 billion in upcoming TBCB interstate projects.
- For optimising RoW, conventional towers are being replaced with narrow-based towers and multi-circuit towers. Gas-insulated switchgear substations as well as extra high voltage cross-linked polyethylene insulation (XLPE) cables are being installed due to increasing urbanisation and scarcity of land. High voltage direct current lines are being set up for bulk transfer of power over long distances. Utilities are also adopting various technology and analytics solutions to better manage their transmission assets.
- In order to meet the challenges of an evolving grid, new technologies in the design and construction of transmission lines and substations are being adopted. Utilities are procuring emergency restoration systems and mobile substations for the early restoration of power supply following natural disasters or other emergencies. Conventional substations are being replaced by digital substations to improve efficiency, safety and system visibility in the grid.
- There is also an increased focus on deploying dynamic compensation devices and phase shifting transformers for regulating the flow of power in the grid. The increasing complexity in grid operations is necessitating dynamic monitoring of the grid on a real-time basis, which is being achieved by deploying technologies like phasor measurement units and wide area measurement systems. These technologies are also helping in the creation of a “smart” grid.
- As more renewable energy is added to the grid, forecasting and scheduling would need to improve for managing intermittency and variability. Ancillary services, which were introduced in May 2016, have already resulted in the creation of a larger balancing area, improved frequency profile, better management of real-time congestion and enhanced grid resilience.
- Energy storage systems (ESSs) are also gaining importance. These systems will mitigate fluctuations, act as backup power, help in frequency regulation and maintain grid stability. Going forward, the government’s focus will be on introducing a policy and regulatory framework to facilitate the introduction of ESS in the country.
- Meanwhile, India is pushing for the creation of a unified South Asian power grid. The country recently became a net exporter of electricity. New interconnections with Nepal and Bangladesh were recently commissioned while several other cross-border interconnections with its neighbouring countries are under way to give a further boost to regional power trade.
- The mission of this conference is to discuss the trends, developments, plans and opportunities in the Indian power transmission sector. The conference will highlight new and emerging technologies, and showcase noteworthy projects and initiatives. There will also be an opportunity to discuss the key issues impacting the transmission sector.

Target Audience

The conference is targeted at officials and managers from:

- Transmission companies
- State electricity boards
- Interstate transmission operators
- Private developers
- Technology providers
- Equipment manufacturers
- Regulatory agencies
- Power generators (public/private)
- Distribution companies
- Private utilities
- Funding agencies
- Consulting organisations, etc.
AGENDA/STRUCTURE

KEY TRENDS AND OUTLOOK
- What are the recent trends and developments in the power transmission sector?
- What are the grid expansion targets set till 2022?
- What are the key issues and challenges?

POWERGRID’S PERSPECTIVE
- What are Powergrid’s investment plans for the next few years?
- What are its plans for the development of the interstate transmission network?
- What are the key focus areas?

GRID OPERATOR PERSPECTIVE
- What steps are being taken to meet the changing needs of the grid, such as the large-scale integration of renewable energy?
- What has been the experience with ancillary services so far?
- What new products are likely to be introduced to strengthen the sector?

STATE UTILITIES’ PERSPECTIVE
- What are the investment plans of various state utilities for the next few years?
- What are the key initiatives being taken by various state utilities?
- What are the key issues and challenges for the intra-state transmission system?

PRIVATE PLAYERS’ VIEWPOINT
- What has been the experience with competitive bidding?
- What needs to be done to enhance private sector participation in the sector?
- What are the issues and challenges faced by private players in the sector?

EPC CONTRACTORS’ PERSPECTIVE
- What has been the experience of EPC contractors? What opportunities are expected for them over the next few years?
- What are the issues and challenges faced by EPC contractors in the sector?

TRANSMISSION NETWORK PLANS AND REQUIREMENTS FOR RAILWAYS
- What are Indian Railways’ plans for developing its transmission network for meeting its energy needs?
- What are the challenges faced?
- What is the status of the proposed projects?

FOCUS ON TECHNOLOGY: TRANSMISSION TOWERS, CONDUCTORS AND CABLES
- What are the latest technological developments in transmission towers, conductors and cables?
- How can utilities benefit from these technologies?
- What are the challenges in the adoption of these technologies?

FOCUS ON HIGH VOLTAGE EQUIPMENT: SWITCHGEAR, TRANSFORMERS, ETC.
- What are the latest technological developments in high voltage equipment?
- How can utilities benefit from these technologies?
- What are the challenges in the adoption of these technologies?

PLANNING AND GRID OPERATION TECHNOLOGIES: FACTS, FAULT CURRENT LIMITERS, PHASE SHIFTERS, ETC.
- What are the new technologies in grid planning and operation?
- How are utilities expected to benefit from these technologies?
- What are the challenges in the adoption of these technologies?

GRID MONITORING TECHNOLOGIES: PMU AND WAM
- What are the new technologies for monitoring the grid?
- How are utilities expected to benefit from these technologies?
- What are the challenges in the adoption of these technologies?

FOCUS ON HVDC
- What is the expected role of HVDC installations in the power system?
- What are the benefits offered by HVDC technology?
- What are the key HVDC projects being implemented?

TECHNOLOGIES AND BEST PRACTICES IN ASSET MANAGEMENT
- What are the technology and analytics solutions available to help utilities better manage their transmission assets?
- What are the best practices in the management of transmission assets?
- What benefits can utilities expect from these solutions to improve asset utilisation?

RENEWABLE ENERGY INTEGRATION/GREEN ENERGY CORRIDORS
- What are the key challenges in grid integration of renewable energy?
- What are the best solutions for generation forecasting, optimisation and balancing?
- What is the update on Green Energy Corridors?

ENERGY STORAGE AND E-MOBILITY
- What is the role and relevance of energy storage and e-mobility in the sector?
- What are the new and emerging technologies with respect to these?
- What needs to be done for their wider deployment?

CROSS-BORDER INTERCONNECTIONS
- What is the current level of cross-border power flow between India and its neighbouring countries?
- What is the progress on cross-border transmission interconnections between India and its neighbouring countries?
- What are the benefits that are expected from cross-border interconnections in the coming years?
POWER TRANSMISSION IN INDIA

Previous speakers:

- I.S. Jha, Chairman and Managing Director, Power Grid Corporation of India
- S.K. Soonee, Then Chief Executive Officer, Power System Operation Corporation
- R.P. Sasmal, Director (Operations), Power Grid Corporation of India
- Surinder Kumar Negi, Managing Director, Gujarat Energy Transmission Corporation
- Alok K. Roy, Chief Executive Officer, Reliance Power Transmission
- Oommen Chandy, Executive Director, Engineering, Power Grid Corporation of India
- T. Amarendra Nath Reddy, Vice-President, Corporate Affairs and BD, Sterlite Grid
- L.N. Agrawal, President and Business Head, Essel Infra Projects
- Vishal J. Dewan, Vice-President, ABB
- S. Sumanth, Director, Transmission, Karnataka Power Transmission Corporation
- P. Dinesh, Director, Finance, Transmission Corporation of Andhra Pradesh
- Asit Karmakar, Additional Chief Engineer, West Bengal State Transco

Participating utilities in 2016:

Other major organisations included:


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SNAPSHOTS FROM PREVIOUS YEAR

Organisers
The conference is being organised by India Infrastructure Publishing, the leading provider of information on the infrastructure sectors through magazines, newsletters, reports and conferences. It publishes Power Line (the premier magazine for the Indian power sector), Indian Infrastructure and Renewable Watch magazines. It also publishes a series of reports on the energy sector including Power Transmission in India, Electricity Market in India and Power Equipment Market in India. The company also publishes Power News (a weekly newsletter) and the Power Line Directory and Yearbook.

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Registration Fee

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- There is a special low fee of Rs 6,000 per participant for state-owned transmission utilities, regulatory authorities, academic institutions and government agencies (not public sector corporates). GST @ 18 per cent is applicable on the registration fee.
- Registration will be confirmed on receipt of the payment. To register online, please log on to http://indiainfrastructure.com/conf.html

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