



5th Annual Conference on

# RAILWAY ELECTRIFICATION

Targets & Achievements; Opportunities & Challenges

April 16-17, 2020, Le Meridien, New Delhi

Organisers:

**Indian  
Infrastructure**

**POWERLINE**

Lead sponsor\*:

**ABB**

\*Lead and Co-sponsorship slots are available

# RAILWAY ELECTRIFICATION

## Mission

- IR has set an ambitious target of achieving 100 per cent electrification of its network by 2022. The year 2018-19 recorded the commissioning of 5,275 rkm of electric traction, an all-time high. Over the next three years, the remaining 28,000 km is planned to be electrified - 7,000 km in 2019-20 and 10,500 km each in 2020-21 and 2021-22.
- It is estimated that at least Rs 350 billion will be required over the next three years for achieving this target. Besides, significant investments will be needed for manufacturing new electric locomotives. There will be a requirement of 2,173 new electric locomotives between 2019-20 and 2021-22.
- Over the past couple of years, the national transporter has been making consistent efforts to reduce its energy bills. More renewable energy projects are being taken up to reduce the dependence on conventional power. New energy-efficient rolling stock, such as 12,000 HP locomotives, Train 18, fuel cell-hybrid trains and 25 kV locomotives, is being manufactured. Conversion of diesel locomotives into electric locomotives is also being carried out. A more cost-efficient regenerative braking system is being deployed in locomotives. Besides, mechanised technologies are being deployed to expedite electrification works and reduce execution costs.
- Going forward, IR's electrification plans will create huge opportunities for technology providers, manufacturers of rolling stock, renewable energy developers, and transmission and distribution equipment providers.
- **The mission of this conference is to highlight opportunities in the development, design and construction of rail electrification projects. It will provide a platform to learn and share the experience of industry experts and leaders. The conference will also discuss upcoming electrification projects and opportunities and key challenges, as well as showcase the latest technologies, equipment and noteworthy projects.**

## Target Audience

The conference is targeted at:

- |   |                                  |                                  |
|---|----------------------------------|----------------------------------|
| - Indian Railways                       | - Fuel suppliers                 | - IR-related organisations       |
| - Solar rooftop developers              | - DG manufacturers               | - Independent power producers    |
| - HVAC and lighting providers           | - Contractors                    | - Solar energy service providers |
| - Energy management consultants         | - Renewable energy EPC companies | - Government agencies            |
| - Energy-efficient technology providers | - Technology providers           | - Equipment manufacturers        |
| - Cable manufacturers                   | - Financial Institutions         | - Consultants                    |
| - Steel manufacturing companies         | - Wind power developers          | - Etc.                           |

## 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 Indian Infrastructure, Power Line, Renewable Watch and tele.net magazines and a series of reports on the infrastructure sectors, including Railways in India, Urban Rail in India, Solar Power in India and Rooftop Solar in India. It also publishes the PowerLine Directory and Yearbook, Solar Power Directory and Yearbook and the Wind Power Directory and Yearbook.*

## AGENDA/STRUCTURE

### KEYNOTE SESSION: IR PERSPECTIVE

- ❖ What are IR's electrification targets? What has been the progress so far?
- ❖ What are the recent initiatives taken by IR to expedite the electrification work? What are the key outcomes achieved under Mission Electrification?
- ❖ What are the new targets and timelines pertaining to rail electrification? What are the investment requirements?

### IR'S ELECTRICITY REQUIREMENTS: CURRENT ENERGY MIX AND FUTURE SUPPLY OPTIONS

- ❖ What is IR's current energy mix? What are the emerging sources of energy?
- ❖ What are the electrical infrastructure requirements in light of these sources?
- ❖ What will be the role of renewable energy in meeting IR's future energy requirements?

### CONTRACTORS' VIEWPOINT

- ❖ What has been the experience of contractors?
- ❖ What have been the key challenges and lessons learnt?
- ❖ What are the upcoming opportunities? What are their expectations from the government and other stakeholders?

### ELECTRIC LOCOMOTIVE PRODUCTION TARGETS & FUTURE REQUIREMENTS

- ❖ What have been the trends in the production of electric locomotives? How has the production capacity expanded in recent years?
- ❖ What are the latest innovations in design?
- ❖ What are IR's future requirements and plans? What are the upcoming opportunities for technology and equipment suppliers?

### MECHANISATION IN RAILWAY ELECTRIFICATION

- ❖ What are the new and innovative methods available for railway electrification (cylindrical foundation casting, rail mounted, trolley mounted & tractor mounted augering, wiring of contact & catenary, self propelled wiring train, etc.)?
- ❖ What has been the experience so far in the adoption of these solutions?
- ❖ What has been the impact on cost and efficiency?

### NEW OPPORTUNITIES I: ELECTRIFICATION OF THE MUMBAI-AHMEDABAD HIGH-SPEED RAIL PROJECT

- ❖ What are the electrification requirements for high-speed rail systems?
- ❖ What are the technology options and enhancements offered by vendors?
- ❖ What are the upcoming tenders and opportunities?

### NEW OPPORTUNITIES II: ELECTRIFICATION OF UPCOMING RAIL SYSTEMS

- ❖ What are the electrification requirements of upcoming projects like new DFC corridors, Delhi-Meerut RRTS, etc.?
- ❖ What are the targets and timelines for the implementation of these projects?
- ❖ What are the upcoming tenders and opportunities?

### IR'S TRANSMISSION NETWORK: EXISTING INFRASTRUCTURE AND FUTURE EXPANSION PLANS

- ❖ What are IR's plans for developing its own transmission network?
- ❖ What has been the progress so far? What are the targets and timelines?
- ❖ What are the upcoming opportunities and investment requirements?

### NEW ADVANCEMENTS: FOCUS ON ENERGY-EFFICIENT ROLLING STOCK

- ❖ What are IR's plans for deploying energy efficient rolling stock (such as 12000 HP locomotives, Train 18, fuel cell-based hybrid trains, 25 kV locomotives, etc.)?
- ❖ What are the recent developments in this regard? What is the cost economics?
- ❖ What are the investment requirements? What are the opportunities for technology and equipment suppliers?

### ROLE OF PMCS: BEST PRACTICES IN PLANNING, DESIGN AND ENGINEERING

- ❖ What is the role of PMCs in the planning, designing and engineering of electrification projects?
- ❖ What are some of the noteworthy projects and best practices in this space?
- ❖ What are the key challenges and lessons learnt?

### FOCUS ON HEAD ON GENERATION (HOG) TECHNOLOGY

- ❖ What are the key features and benefits of this technology?
- ❖ What has been the progress so far with regard to conversion of end-on-generation (EOG) LHB rakes into HOG systems? What are the associated cost savings?
- ❖ What are the future plans and targets for manufacturing HOG compliant trains?

### ENERGY STORAGE SYSTEMS: CURRENT DEPLOYMENT AND FUTURE REQUIREMENTS

- ❖ What are the available energy storage technologies and solutions for IR's application?
- ❖ What has been the experience so far in the adoption of energy storage systems?
- ❖ What are the current energy savings derived from the use of the regenerative braking system?

### CONVERSION OF DIESEL LOCOMOTIVES TO ELECTRIC LOCOMOTIVES: CURRENT STATUS, COSTS AND FUTURE PLANS

- ❖ What are IR's plans and targets for converting diesel locomotives to electric locomotives?
- ❖ What has been the progress so far? How has been the performance of existing converted prototype locomotives developed at Diesel Locomotive Works, Varanasi?
- ❖ What are the associated costs? What are the specific equipment and material requirements?

### EQUIPMENT SHOWCASE: NEW ADVANCEMENTS AND FUTURE REQUIREMENTS

- ❖ What are the various equipment requirements for rail electrification?
- ❖ What are the new trends and advancements (such as V-connected traction transformers, light weight modular cantilevers, etc.)?
- ❖ How is the industry gearing up to meet the emerging requirements of the railways sector?

### NOTEWORTHY PROJECTS: EXPERIENCE AND KEY LEARNINGS

- ❖ What are some of the noteworthy projects? Which are the technologies and equipment deployed to expedite project execution?
- ❖ What lessons can be learnt from the experience of these projects?
- ❖ What are the key issues and challenges?

## SOME OF OUR PREVIOUS PARTICIPANTS

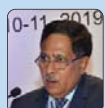
Aarvee Associates	Elmex Electric	Kanohar Electricals	RS Infraprojects
ABB	Emergent Ventures	KEC	Rail Coach Factory
Adani Power	Encito Advisors	KEI Industries	Rail Vikas Nigam
Aditya Birla Insulators	Energy Efficiency Services	Kirloskar Electric	Railway Board
Arihant Electricals	ERDA	Kolkata Metro Railway	Railway Energy Management Company
Austrade	Essar Oil	KPMG Advisory Services	Rajasthan Electronics & Instruments
Azure Power	Essel Infra	Krypton Lighting	Ratnagiri Gas & Power
BASF	Exide Industries	Landis + Gyr	Recons
Bharat Heavy Electricals	Fichtner Consulting	Lara Global	Reliance Industries
Bhartiya Rail Bijlee Co.	Fortum India	Larsen & Toubro	ReNew Power
Bikaner Ceramics	GAIL	LPS Bossard	Research Design & Standards Organisation
Canadian Solar	GE Transportation	Lumino Industries	RITES
Central Electronics	Gemscab	M&I Materials	Royal Energies
Central Railway	Genus Power	Maharishi Solar	SAS
Centre for Railway Information Systems	Global Power Source	Mahindra Susten	Secure Meters
Chittaranjan Locomotive Works	Good Luck Steel	MAN Structural	Siemens
Climate Policy Initiative	GP Tronics	Mars Entrepreneurs	South Central Railway
CLP Power	Greenmint Power	National Contracting Company	Southern Railway
CLW	Grundfos Pumps	National High Speed Rail Corporation	Steel Industries
Consul Neowatt	HBL Power Systems	Nexant	Sterling & Wilson
Continuum Wind Energy	Hero Future Energies	NF Railway	Sterlite Power
COPPRROD Industries	Hind Aluminium	NHPC	Sun Clean Renewable Power
Coslight	Hind Rectifiers	North Central Railway	Sun Group Enterprises
CSIR - Indian Institute of Petroleum	Hindalco Industries	North Western Railway	TAG
Customized Energy Solutions	Hitachi	Northern Railway	Tata Consulting Engineers
Deloitte	HT Systems	NTPC	Tata Power
Delta Electronics	India Infrastructure Finance Company	Okaya Power	TERI
Delta Power Solutions	India Power Corporation	Panasonic	The Aluminium Industries
DFCCIL	Indian Energy Exchange	Performance Specialty Products	Tvostar Engineering
Diesel Locomotive Works	Indian Railways Organization for Alternate Fuels	Philips Lighting	UNDP
Eastern Railway	Indian Railways	Plasser	USAID PACE-D Technical Assistance Program
Econtrols	Inox Wind	Powerica	Waaree Energies
EDS Global	IREDA	Pragati Electrocom	Welspun Energy
Elara Capital	JIC	Precicast	YES Bank
Elecrama	JSK Industries	Premier Solar Systems	
Electrotherm	JSW Steel	PTC India Financial Services	
	Kalpataru Power Transmission		



# SNAPSHOTS FROM PREVIOUS YEARS



## PREVIOUS SPEAKERS IN LAST FEW YEARS



**Rajesh Agrawal**  
Member, Rolling Stock,  
Railway Board



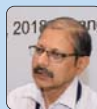
**Dinesh Kumar**  
ED, Power Supply & EMU, Research  
Design & Standards Organisation



**J.C.S. Bora**  
Chief Electrical Engineer, Central  
Organisation for Railway Electrification



**Ghanshyam Singh**  
then Member, Traction,  
Railway Board



**R.K. Mishra**  
ED, Energy Management, Research  
Design & Standards Organisation



**A.K. Jain**  
Director, Railway Electrification,  
Railway Board



**S.K. Saxena**  
Chief Executive Officer, Railway Energy  
Management Company



**Ram Prakash**  
Principal Chief Electrical Engineer,  
Chittaranjan Locomotive Works



**Anubhav Agrawal**  
Deputy Chief Electrical Engineer,  
North Central Railway



**Shalabh Goel**  
then ED, Electric Energy Management,  
Railway Board



**K.V. Satyanarayana**  
Principal Chief Electrical Engineer,  
Southern Railway



**Sanjay Waghmare**  
Chief Electrical Service Engineer,  
Central Railway

5th Annual Conference on

# RAILWAY ELECTRIFICATION

## Targets & Achievements; Opportunities & Challenges

April 16-17, 2020, Le Meridien, New Delhi

### 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.

#### Please send wire transfer payments to:

Beneficiary India Infrastructure Publishing Private Limited  
Bank Name The Hongkong and Shanghai Banking Corporation Ltd  
Bank Address R-47, Greater Kailash-1, New Delhi-110048, India

Bank Account No. 094179587002  
Swift Code HSBCINBB  
IFSC Code HSBC0110006  
GSTIN 07AAACI5880R1ZV

**Sponsorship  
opportunities are  
available**

Name(s)/Designation (IN BLOCK LETTERS) \_\_\_\_\_

Company \_\_\_\_\_

Mailing Address \_\_\_\_\_

Phone \_\_\_\_\_

Mobile \_\_\_\_\_

Fax \_\_\_\_\_

E-mail \_\_\_\_\_

### Registration Fee

Delegates	Fee			
	INR	GST @ 18%	Total INR	Total USD
One delegate	22,500	4,050	26,550	418
Two delegates	37,500	6,750	44,250	732
Three delegates	52,500	9,450	61,950	1,046
Four delegates	67,500	12,150	79,650	1,360

- GST @ 18 per cent is applicable on the registration fee.
- Registration will be confirmed on the receipt of payment. To register online, please log on to <http://indiainfrastructure.com/conf.html>

#### Payment Policy:

- Full payment must be received prior to the conference.
- Payments for "early bird" registrations should come in before the last date of discount.
- Conference fees cannot be substituted for any other product or service being extended by India Infrastructure Publishing Pvt. Ltd.
- Conference fee includes lunch, tea/coffee and conference material.

Contact: Malika Piya, Conference Cell, India Infrastructure Publishing Pvt. Ltd.

B-17, Qutab Institutional Area, New Delhi 110016

Tel: +91-11-41688860, 41034615 | Mob: +91-8937980597 | Fax: +91-11-26531196, 46038149

Email: [malika.piya@indiainfrastructure.com](mailto:malika.piya@indiainfrastructure.com)