



3rd Annual Conference on

ENERGY NEEDS OF INDIAN RAILWAYS

Growing Focus on Electrification, Clean Power and Energy Efficiency

April 11-12, 2018, Shangri-La's Eros Hotel, New Delhi

Organisers:



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*Lead and Co-sponsorship slots are available

ENERGY NEEDS OF INDIAN RAILWAYS

Mission

- In the midst of the nationwide drive to promote energy efficiency practices and the use of renewable sources of power is Indian Railways (IR), the country's largest consumer of energy.
- In 2016-17 alone, IR consumed over 18 BUs of electrical energy, which is about 2 per cent of the total electrical energy generated in the country. The cost of consuming this electricity was over Rs 110 billion. It is important to note that IR's expenditure on diesel-based traction, which accounts for only about one-third of the traffic, is much higher (about Rs 180 billion) than that on electric traction.
- IR has, therefore, been implementing a number of measures and devising strategies to optimise its energy generation and utilisation, and minimise its energy bill. These include procuring cheaper power, implementing energy efficiency practices, stepping up its renewable energy capacity and engaging in power trade.
- In a move to expedite the complete electrification of the rail network, IR has recently advanced the deadline for 100 per cent electrification of the broad gauge network by two years to 2020-21. It has prepared a Rs 350 billion plan to electrify its entire network, a move that will help it save Rs 105 billion a year in its fuel bill.
- While the process of electrification is under way, IR is also engaged in diversifying its energy mix in favour of renewables. IR aims to source at least 10 per cent of its energy requirement from renewables by 2020-21. It plans to set up about 1,000 MW of solar and 200 MW of wind power projects by 2020-21. Already, sizeable progress has been made in this space, creating significant opportunities for renewable energy players.
- Innovative energy efficient solutions and techniques are also being deployed. On the traction side, it has been deploying energy efficient rolling stock with three-phase technology, regenerative braking systems, capacitor banks for improving the power factor, microprocessor-based energy meters, high HP locomotives (9,000-12,000 HP), etc.
- On the non-traction front, the organisation has been conducting extensive energy audits, besides promoting the adoption of LED lights and fans, efficient air conditioners, etc. Its target is to provide all railway stations with 100 per cent LED lights by March 2018. The majority of the work in this area is being done under the ESCO model, which does not require any investment from IR and will help reduce energy consumption by 25 per cent.
- A key achievement of IR has been leveraging open access to reduce its energy bill. So far, of the total energy requirement of about 2,000 MW for electric traction, more than 1,000 MW is being procured under open access. This has helped IR bring down its average cost of power from Rs 7 per kWh to about Rs 5 per kWh in states where power is procured through open access.
- Going forward, IR's electricity requirements will continue to grow as it pursues greater electrification. To support its increasing requirements, IR is upgrading its electrical infrastructure by setting up dedicated transmission lines, implementing SCADA and using better quality transformers. It has formulated plans to lay over 8,500 km of transmission lines in the coming few years through the PPP route. IR's growing energy requirements and its plans present significant opportunities for power producers, renewable energy developers, technology providers, and manufacturers of rolling stock and electrical equipment.
- **The mission of this conference is to provide a platform to learn and share the experiences of industry experts and leaders on railway electrification, renewable energy technologies and emerging solutions and best practices. The conference will offer insights and in-depth discussions on the commercial aspects of emerging energy efficient technologies, identification of new business opportunities and the related risk mitigation options, evaluate existing policies and risk factors, and suggest improvements and explore future opportunities. It will also showcase case studies on successful pilot projects.**

Target Audience

The conference is targeted at:

- | | | | |
|-------------------------------|----------------------------------|---|-------------------------------|
| - Indian Railways | - Wind power developers | - Contractors | - Financial Institutions |
| - IR-related organisations | - Renewable energy EPC companies | - Energy-efficient technology providers | - Cable manufacturers |
| - Independent power producers | - Solar energy service providers | - Energy management consultants | - HVAC and lighting providers |
| - Government agencies | - Equipment manufacturers | - Fuel suppliers | - Steel companies |
| - Rooftop solar developers | - Technology providers | - DG manufacturers | - Consultants, 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, Solar Power in India and Wind Power in India. It also publishes the PowerLine Directory and Yearbook, Solar Power Directory and Yearbook and the Wind Power Directory and Yearbook.

AGENDA/STRUCTURE

IR'S PERSPECTIVE

- ❖ What are IR's energy requirements? What is its strategy to meet them?
- ❖ What are the key features of mission electrification? What is the likely impact?
- ❖ What are the new targets and timelines pertaining to energy efficiency and renewable energy?

ENERGY SOURCING STRATEGIES AND PLANS

- ❖ What is IR's current energy mix? What is the quantity of power procured through the open tendering system?
- ❖ What is the current cost of energy consumed by IR?
- ❖ What are its plans regarding power procurement from generators and traders? What are the emerging sources?

HIGH SPEED RAIL: ENERGY REQUIREMENTS

- ❖ What are the energy requirements for high speed rail projects?
- ❖ What are the key issues and challenges?
- ❖ What are the technology options and choices?

RENEWABLE ENERGY STRATEGY AND PLANS

- ❖ What are IR's plans with respect to solar and wind power development?
- ❖ What is the progress? How are these plans being funded?
- ❖ What are the upcoming projects and opportunities?

RENEWABLE INITIATIVES AND SHOWCASE: TRACTION AND NON-TRACTION

- ❖ What are the key commissioned or under-construction projects on the traction and non-traction sides?
- ❖ What are the key features of these projects (scope, size, technology, status, etc.)?
- ❖ What are IR's plans to use its land bank for developing solar parks and wind plants? What are the key issues?

FINANCING IR'S ENERGY EFFICIENCY, ELECTRIFICATION AND RENEWABLE ENERGY PLANS

- ❖ How will IR's electrification, energy efficiency and renewable energy plans be financed?
- ❖ What are the sources, options and strategies?
- ❖ What are the key issues and challenges?

FOCUS ON LIGHTING

- ❖ What are the key trends in energy efficiency related to lighting in India?
- ❖ What are the initiatives undertaken by EESL in this area?
- ❖ What are the strategies and solutions that should be pursued by IR?

DIESEL CONSUMPTION: CURRENT REQUIREMENTS AND OUTLOOK

- ❖ What are the trends in specific fuel consumption? What initiatives are being taken to reduce diesel consumption?
- ❖ What are the alternative fuels being used (bio-diesel, CNG, LNG, etc.)? What has been the experience?
- ❖ What are the future plans?

GAS-FUELLED LOCOMOTIVES

- ❖ What is the current adoption status of CNG and LNG-based locomotives at IR?
- ❖ How does the energy cost compare with existing and emerging fuel options?
- ❖ What is the outlook for these fuels at IR in light of the growing adoption of renewables?

IR'S TRANSMISSION NETWORK: PLANS AND REQUIREMENTS

- ❖ What are IR's plans for developing its own transmission network?
- ❖ What are its requirements from the industry?
- ❖ What are the key challenges?

ENERGY EFFICIENCY IN TRACTION

- ❖ What are the trends in specific energy consumption?
- ❖ What are the different initiatives undertaken by the railways to reduce this consumption?
- ❖ What are the most promising and relevant technologies under consideration?
- ❖ What are the future goals? What is the progress so far in achieving them?

ENERGY EFFICIENCY IN NON-TRACTION AREAS

- ❖ What are the trends in non-traction energy consumption?
- ❖ What are the different initiatives taken by the railways to reduce this consumption?
- ❖ What are the initial learnings from energy audits?
- ❖ What are the key features of Net Zero Energy Buildings for the railways?

FUTURE TECHNOLOGIES: ENERGY STORAGE AND HYBRIDS

- ❖ What is the business case for energy storage and hybrid systems of energy for IR?
- ❖ What are the best suited technologies in this case? What are the associated costs?
- ❖ What are the key issues and challenges?

GLOBAL BEST PRACTICES

- ❖ What are the global best practices to improve efficiency in energy use on the traction and non-traction fronts?
- ❖ What are the associated costs?
- ❖ What are the emerging technology trends to improve IR's energy efficiency?

Previous participants

Some of the companies that participated in our previous conference on "Energy Needs of Indian Railways" include: ABB, Adani Power, Aditya Birla Insulators, Arihant Electricals, Austrade, BASF, Bhartiya Rail Bijlee Co., Central Electronics, Central Railway, Centre for Railway Information Systems, Climate Policy Initiative, CLP Power, Consul Neowatt, Continuum Wind Energy, Coslight, CSIR - Indian Institute of Petroleum, Customized Energy Solutions, Deloitte, DFCCIL, Diesel Locomotive Works, Eastern Railway, EDS Global, Elara Capital, Emergent Ventures India, Encito Advisors, Energy Efficiency Services, ERDA, Essar Oil, Exide Industries, Fichtner Consulting, Fortum India, GE Transportation, Genus Power, Global Power Source, Good Luck Steel, GP Tronics, Greenmint Power, Grundfos Pumps, HBL Power Systems, Hind Rectifiers, Hindalco Industries, Hitachi India, India Infrastructure Finance Company, India Power Corporation, Indian Energy Exchange, Indian Railway Organisation for Alternate Fuels, Indian Railways, Inox Wind, IREDA, IROAF, JIC, JSK Industries, Kanohar Electricals, KEI Industries, Kirloskar Electric, Kolkata Metro Railway, KPMG Advisory Services, Krypton Lighting, L&T, Landis+Gyr, Lara Global, LPS Bossard, Lumino Industries, Maharishi Solar, Mahindra Susten, MAN Structurals, Mars Entrepreneurs, Metro Railway, Kolkata, National High Speed Rail Corporation, NF Railway, NHPC, North Western Railway, Northern Railway, NTPC, Okaya Power, Powerica, Premier Solar Systems, PTC India Financial Services, R S Infra Projects, Rail Coach Factory, Rail Vikas Nigam, Railway Energy Management Company, Rajasthan Electronics & Instruments, Ratnagiri Gas & Power, Recons India, Reliance Industries, ReNew Power, Research Design & Standards Organisation, RITES, Royal Energies, SAS, Secure Meters, Siemens, Sterling & Wilson, Sterlite Power, Sun Clean Renewable Power, Sun Group Enterprises, Tata Power, TERI, Tvastar Engineering, UNDP, USAID PACE-D Technical Assistance Program, Nexant, Waaree Energies, Welspun Energy, YES Bank, etc.

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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 _____ in favour of **India Infrastructure Publishing Pvt. Ltd.** payable at New Delhi.

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Registration Fee

Delegates	Fee			
	INR	GST @ 18%	Total INR	Total USD
One delegate	22,500	4,050	26,550	443
Two delegates	37,500	6,750	44,250	738
Three delegates	52,500	9,450	61,950	1,033
Four delegates	67,500	12,150	79,650	1,328

- There is a special low fee of Rs 5,000 per person from Indian Railways.
- 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.

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