



2nd Annual Conference on

ENERGY NEEDS OF INDIAN RAILWAYS

Emerging Requirements, Strategies and Solutions

April 6-7, 2017, The Lalit, New Delhi

Organisers:



Lead sponsor:



Co-sponsor:



Partner Exchange:



*Lead and Co-sponsor slots available

ENERGY NEEDS OF INDIAN RAILWAYS

Mission

- Indian Railways (IR) is the country's biggest energy consumer, utilising about 20 billion units of power and 2.8 million kilolitres of diesel per year. Energy is the second biggest expenditure item for the organisation, accounting for about 24 per cent of its ordinary working expenses. In 2015-16, IR spent almost Rs 270 billion on energy.
- To better manage its energy costs, IR is undertaking a number of initiatives such as procuring cheaper power, improving the efficiency of power utilisation, stepping up its renewable energy capacity and engaging in power trade. Instead of relying on state discoms, IR has operationalised its deemed licensee status. The organisation has started sourcing some of its requirements through a competitive tender/auction directly from the producers. It has also contracted about 550 MW power directly from Ratnagiri Gas Power Private Limited. With these efforts, the average rate of procuring power has reduced by around 35 per cent. Overall, IR's electricity expenses declined by Rs 13 billion in 2015-16.
- Further, IR is developing its own captive capacity, including a 1,000 MW power plant at Nabinagar, Bihar, in collaboration with NTPC. The first 250 MW unit was commissioned in March 2016. Three more units will be ready by March 2018.
- Innovative energy-efficient solutions and techniques are also being deployed for reducing the annual energy consumption and expenditure in both traction and non-traction areas. IR has managed to reduce the specific energy consumption in traction by deploying energy-efficient rolling stock with three-phase technology, regenerative braking systems, capacitor banks for improving the power factor, microprocessor-based energy meters, high horse power (HP) locomotives (9,000-12,000 HP), etc.
- In the non-traction area, IR has been able to reduce its consumption even as its load has increased. This has been achieved through extensive energy audits and the use of LED lighting and five star-rated equipment, building of management systems, energy-efficient water coolers and pump installations and variable-voltage variable-frequency control for cranes, lifts and escalators, etc.
- On the renewable energy front, IR is aiming to develop 1,200 MW of capacity to meet its energy needs. About 80 per cent of capacity will be added by projects in the solar segment. IR has mandated the Railway Energy Management Company to carry out these plans. The development of solar power units aggregating about 400 MW has already been tendered. This includes 160 MW of rooftop and 240 MW of land-based solar power capacity.
- Going forward, the electricity requirements of IR will continue to grow as it pursues greater electrification. Its power requirements, even after efficiency measures, will triple by 2030 to 49 billion units. To support its increasing requirements, IR is upgrading its electrical infrastructure. This includes dedicated transmission lines, implementation of SCADA and the use of better quality transformers. IR has already formulated plans to lay over 6,700 km of transmission lines in the coming three to four years.
- The energy requirements and plans of IR 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 highlight IR's energy requirements for more competitively priced and cleaner power and more energy-efficient equipment and technologies. The conference will provide a forum for interaction between IR and the industry on these important topics. It will also showcase the most promising technologies and noteworthy initiatives.**

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

MINISTRY OF RAILWAYS' VISION

- ❖ What is the Ministry of Railways' (MoR) vision with respect to IR's energy management?
- ❖ What are the broad goals and objectives being set for Indian Railways?
- ❖ What is the strategy for meeting these goals?
- ❖ What does the government plan to do to involve the private sector/industry?

IR RENEWABLE STRATEGY AND PLANS

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

POWER SOURCING PLANS AND STRATEGIES

- ❖ What are the current sources for supplying power to IR?
- ❖ What is the quantity of power procured through the open tendering system? What is the current cost?
- ❖ What are its plans with respect to procurement from power producers and traders?
- ❖ What are the emerging sources?

MISSION ELECTRIFICATION: PLANS & INFRASTRUCTURE REQUIREMENTS

- ❖ What are the key features of mission electrification? What is the likely impact?
- ❖ What are the most important targets and timelines?
- ❖ What are IR's plans for developing its own transmission network? What are its requirements from the industry?
- ❖ What are the key challenges?

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?

FOCUS ON CAPTIVE POWER

- ❖ What are IR's plans with respect to captive capacity development?
- ❖ What is the status of IR's Nabinagar captive power plant? What is the progress and timelines?
- ❖ What are the future plans?

SOLAR FINANCING

- ❖ How will IR's solar initiatives be financed?
- ❖ What are the sources, options and strategies?
- ❖ What are the key issues and challenges?

RENEWABLE INITIATIVES AND SHOWCASE

- ❖ What are the key projects that have been commissioned or are under construction?
- ❖ What are the key features of these projects (scope, size, cost, technology, status, etc.)?
- ❖ What are IR's plans and initiatives with respect to solar parks and solar plants at railway stations?
- ❖ What are the key issues and challenges?

FOCUS ON DIESEL REQUIREMENTS

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

BACKUP POWER REQUIREMENTS

- ❖ What are IR's requirements with respect to backup power (signaling power, DG sets, batteries, etc.)?
- ❖ How will rooftop solar installations affect these plans?
- ❖ Is IR considering cleaner, hybrid or gas-fired gensets?
- ❖ How have the specifications and standards evolved over the years?

ENERGY EFFICIENCY IN TRACTION

- ❖ What are the trends in specific energy consumption?
- ❖ What are the different initiatives undertaken by IR 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 IR to reduce this consumption?
- ❖ What are the initial learnings from energy audits?
- ❖ What are the key features of Net Zero Energy Program of the railways?
- ❖ What are IR's initiatives and plans with respect to improving energy efficiency at 400 railway stations?

FOCUS ON LIGHTING

- ❖ What is IR's spend on lighting (including electricity consumption)?
- ❖ What will be IR's requirements in this area in the coming years?
- ❖ What is the status of the light-emitting diode/compact fluorescent lamp (LED/CFL) programmes? What have been the results?
- ❖ What are the most promising industry offerings and technologies?

Previous participants

Some of the companies that participated in our previous conference on "Energy Needs of Indian Railways" include: ABB, Adani Power, Austrade, Bhartiya Rail Bijlee Co., Central Electronics, Centre for Railway Information Systems (CRIS), Climate Policy Initiative, CLP Power, Consul Neowatt, Continuum Wind Energy, Coslight, CRIS, Deloitte, Diesel Locomotive Works, Encito Advisors, Energy Efficiency Services, ERDA, Genus Power, Global Power Source, Good Luck Steel, GP Tronics, Greenmint Power, Hind Rectifiers, Hindalco Industries, Hitachi Indi, India Power, Indian Energy Exchange, Inox Wind, KEI Industries, Kirloskar Electric, Krypton Lighting, L&T, Landis+Gyr, Lara Global, Maharishi Solar, Mahindra Susten, Mars Entrepreneurs, NHPC, Northern Railway, NTPC, Okaya Power, Rail Coach Factory, Rail Vikas Nigam, Railway Board, Railway Energy Management Company, Ratnagiri Gas & Power, Research Design & Standards Organisation, RITES, Royal Energies, SAS, Secure Meters, Siemens, Sterling & Wilson, Sun Clean Renewable Power, Sun Group Enterprises, Tvastar Engineering, USAID PACE-D Technical Assistance Program, Nexant, YES Bank, etc.

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Registration Fee

Delegates	Price			
	INR	Service tax @ 15%	Total INR	Total USD
One delegate	22,500	3,375	25,875	470
Two delegates	37,500	5,625	43,125	780
Three delegates	52,500	7,875	60,375	1,090
Four delegates	67,500	10,125	77,625	1,400

- 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>

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- Full payment must be received prior to the conference.
- Conference fee includes lunch, tea/coffee and conference materials.
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