

RAILWAY ELECTRIFICATION UPDATING THE NETWORK FOR THE 21ST CENTURY

Institution of
**MECHANICAL
ENGINEERS**

25 June 2015
London

www.imeche.org/events/S6227

Railway Division
Seminar



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RAILWAY ELECTRIFICATION UPDATING THE NETWORK FOR THE 21ST CENTURY

25 June 2015, London



THIS SEMINAR WILL PROVIDE ENGINEERS WITH THE MOST RELEVANT, CUTTING-EDGE THINKING AND PRACTICES REGARDING ELECTRIFICATION IN THE UK RAIL INDUSTRY TODAY.

Speakers from engineering and management will illustrate best practice processes and will answer the key questions: what can be done to reduce costs and what have we learnt about installation work?

Exchange ideas and learn about the latest developments in design and construction in order to generate genuine and meaningful debate on new initiatives to improve best practice for the industry.

ATTEND THIS SEMINAR TO:

- **Learn** the latest and novel techniques
- **Manage** electrification design, construction and commissioning
- **Highlight** skills needed by engineers, project managers and planners
- **Hear** about site and design office techniques
- **Understand** the human factors involved in electrification

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PROGRAMME

25 JUNE 2015

08:45 REGISTRATION AND REFRESHMENTS

09:15 CHAIR'S OPENING REMARKS
Peter Stanton, Independent Engineering Consultant and Member,
Institution of Mechanical Engineers

09:30 KEYNOTE: DELIVERING AND PROGRESSING A NATIONAL PROGRAMME OF RAILWAY ELECTRIFICATION
Peter Dearman, Engineering Director, Atkins

- How does the engineering community resolve the uncertainties that hold back progress?
- Address the issues regarding the speed of design and delivery of the electrification programme
- Understand what is being done to achieve better production and lower cost

09:45 THE CROSSRAIL TRACTION POWER SUPPLY SYSTEM
Ian Ross, Head of Bulk Power, Crossrail

- Understand the challenges with bulk power supplies
- Hear the latest developments with Crossrail sub-stations
- Gain insight into the overhead line equipment used at Crossrail

10:10 NORTH WEST RAILWAY ELECTRIFICATION
Steve Cox, Regional Engineering Delivery Manager North, Balfour Beatty Rail Projects

- Gain insight into Balfour Beatty's experience of electrification in the North West
- Understand the challenges of restarting electrification in the UK
- Hear the latest factors to consider when using conductor beam

10:35 QUESTION AND ANSWER SESSION

11:00 NETWORKING REFRESHMENT BREAK

NETWORK RAIL INSIGHT

11:30 ELECTRIFICATION CONSTRUCTION WITH HIGH-OUTPUT WIRING
Ian Alsop, Programme Manager (Overhead Contact Renewals), Network Rail

- Introduction to the organisation and each unit functioning on site
- Understanding methodologies with a comparison with road-rail vehicles
- Gain insight to the constraints reducing the ability to achieve high output

11:55 THE UK MASTER SERIES DEVELOPMENT
Philip Doughty, Principal Contact System Engineer, Network Rail Energy

- Background and drivers behind the development at Network Rail
- Understand the benefits to the industry throughout the roll-out
- Implementation of the design and future development opportunities

12:20 QUESTION AND ANSWER SESSION

12:45 NETWORKING LUNCH

PROCESSES AND STANDARDS

- 13:45 APPLICATION OF RAM TECHNIQUES TO OLE RELIABILITY PREDICTION ON GREAT WESTERN ELECTRIFICATION**
John Morris, Technical Director Rail, Parsons Brinckerhoff
Gerald Giddins, Principal RAM Consultant, Parsons Brinckerhoff
- Developing models that accurately describe the design and criteria
 - Impacting the design based on RAM data produced and performing analysis
 - Understand the importance of maintenance in the running of the railway

- 14:10 ASSESSMENT OF TSI COMPLIANCE ON PROJECTS**
Alan Powell, General Manager, Vertex Systems Engineering
- Understand the techniques used to assess TSI compliance for major projects
 - Explore what the analysis identified
 - Gain insight into benefits to projects and understanding compliance

- 14:35 QUESTION AND ANSWER SESSION**

- 15:00 NETWORKING REFRESHMENT BREAK**

POWER FOR ELECTRIC RAILWAYS

- 15:30 LONDON UNDERGROUND POWER ENGINEERS FOR POWER SUPPLY UPGRADES**
Graham Neil, Head of Rolling Stock, London Underground
- Understand how power supply upgrades have supported the line upgrades
 - Gain insight into the new fleets and signalling systems
 - Explore power supply sizing, optimisation and efficient use of regenerative braking

- 15:55 DISTRIBUTION OF THE TRACTION RETURN CURRENT IN AC AND DC ELECTRIC RAILWAY SYSTEMS**
Dr Stuart Hillmansen, Senior Lecturer - Electrical Energy Systems, University of Birmingham
- Understand how to achieve compatibility between differing electrification systems
 - Understand the impact of stray currents within the system
 - Protecting AC/DC railway electrification

- 16:20 QUESTION AND ANSWER SESSION**

- 16:45 CHAIR'S CLOSING REMARKS**
Peter Stanton, Independent Engineering Consultant and Member, Institution of Mechanical Engineers

- 17:00 END OF SEMINAR**

Find out more about our speakers at www.imeche.org/events/S6227

- This programme is subject to change.
- The Institution is not responsible for the views or opinions expressed by individual speakers.

Organising committee:

- Peter Stanton, Independent Engineering Consultant and Member, Institution of Mechanical Engineers (Chair)
- Peter Dearman, Engineering Director, Atkins
- Stuart Hillmansen, Senior Lecturer in Electrical Energy Systems, University of Birmingham
- Graham Neil, Head of Rolling Stock, London Underground

SPEAKERS AND CONTRIBUTORS

PETER DEARMAN KEYNOTE SPEAKER ENGINEERING DIRECTOR, ATKINS

Peter Dearman is a qualified Electrical and Mechanical Rail Engineer with a background in traction electrification. He began his career at British Rail in 1970 and now has over 40 years of experience in rail engineering and operations. Peter has held some senior and varied roles within British Rail, Railtrack and Network Rail, as well as positions in Atkins, Jarvis and Systra. In his last role at Network Rail, he was Head of Energy, responsible for defining the engineering content and strategic development of the network electrification programme.

PETER STANTON CHAIR INDEPENDENT ENGINEERING CONSULTANT AND MEMBER, INSTITUTION OF MECHANICAL ENGINEERS

Peter Stanton has had a long involvement in the railway industry, from an engineering apprenticeship leading to a degree in Electrical and Electronic Engineering, through to many levels of engineering and project management positions, which culminated in his retirement from a senior engineering role at Network Rail. Since then, he has utilised that experience as a consultant, working with Network Rail and major infrastructure consultants and contractors. Peter is very active within the professional institutions and will always ensure he is fully briefed on current standards and processes. He sits on technical committees at both IMechE and the IET.

STEVE COX REGIONAL ENGINEERING DELIVERY MANAGER NORTH, BALFOUR BEATTY RAIL PROJECTS

Steve Cox has worked for Balfour Beatty since 1994 and has led electrification engineering on a number of key projects both in the UK and overseas. These projects include the Northend Electrification Project in the USA, Airdrie to Bathgate Project, Rugby Station remodelling and Trent Valley Four Tracking Projects. Steve's current primary role is in the Management Team of Balfour Beatty Rail's Railway Electrification Design Group, which is based in Stephenson House, Liverpool.

IAN ALSOP PROGRAMME MANAGER (OVERHEAD CONTACT RENEWALS), NETWORK RAIL

Ian Alsop is accountable for 250+ directly employed staff (excluding contingent labour) specialising in OLE installation. He started working in the rail industry in the mid-1980s, with his field of expertise being design and delivery of rail projects.

PHILIP DOUGHTY PRINCIPAL CONTACT SYSTEM ENGINEER, NETWORK RAIL ENERGY

Philip Doughty has key experience in the development and delivery of railway electrification projects, working on major enhancement programmes such as the Great Western Main Line Electrification, North West Electrification, Crossrail and the West Coast Power Supply Upgrade. While working for Network Rail's Electrification and Plant Design Group, he was the lead design engineer for the Series 2 development. Currently, Philip is the Principal Contact System Engineer for Network Rail Energy Services, part of the Digital Railway Directorate. In this role he provides technical leadership to the UK Master Series development.

SPEAKERS AND CONTRIBUTORS

JOHN MORRIS

TECHNICAL DIRECTOR RAIL, PARSONS BRINCKERHOFF

John Morris is the Technical Director within the Rail and Transit business of Parsons Brinckerhoff (PB), where he is responsible for managing the provision and deployment of the technical capability necessary to deliver the Business Unit's rail projects. He is a Senior Project Manager within PB and also has responsibility for the assurance issues associated with working in the rail industry. John has extensive experience at PB and previously with British Rail, in rail infrastructure engineering, and has particular expertise in 25kV AC electrification systems.

GERALD GIDDINS

PRINCIPAL RAM CONSULTANT, PARSONS BRINCKERHOFF

Gerald Giddins is a Principal RAM Consultant within the Specialist Services Group of the Rail and Transit business of Parsons Brinckerhoff. He has undertaken detailed design of electronic systems, design of mechanical sub-sea systems, was the engineering manager of a defence systems manufacturing company, a director/consultant of a specialist RAM consultancy and most recently the MD of an offshore oil & gas company operating in Aberdeen. Gerald has held the role of Technical Consultant for over 20 years, operating across many industry sectors including transport, defence, aerospace, telecommunications and within the offshore environment.

ALAN POWELL

GENERAL MANAGER, VERTEX SYSTEMS ENGINEERING

Alan Powell started in the rail industry as a track engineer over 25 years ago and has since been involved in various roles covering maintenance, design, installation and assurance on numerous projects, acting as either Project Manager or Engineer. Notable achievements include leading fast-track delivery of projects, managing a number of projects or products through the safety assurance process and acting as Engineering Lead. Alan is currently the General Manager for Vertex Systems Engineering, a leading engineering consultancy in the rail sector, providing customers with independent consultancy services.

GRAHAM NEIL

HEAD OF ROLLING STOCK, LONDON UNDERGROUND

Graham Neil is Head of Engineering for all London Underground (LU) rolling stock engineers, custodian and owner of all rolling stock standards. He is accountable for the introduction of all new or modified rolling stock used on the London Underground network. Graham is also responsible to the LU Board for the engineering safety of all rolling stock used on the LU network and acts as the primary adviser to the LU Board on all matters related to rolling stock.

BOOKING FORM

EVENT CODE: S6227AB

EARLY BIRD ENDS 3 APRIL 2015

RAILWAY ELECTRIFICATION
UPDATING THE NETWORK FOR
THE 21ST CENTURY
25 June 2015
London

REGISTRATION Please complete in capitals.

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- ☐ Events and training opportunities
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Registration fees include entry to the sessions, refreshments, lunch and a copy of the event proceedings.

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| Member, Institution of Mechanical Engineers | £245.00+VAT | £290.00+VAT | £ |
| Member, supporting organisation | £245.00+VAT | £290.00+VAT | £ |
| Non-member | £330.00+VAT | £390.00+VAT | £ |
| Student/retired | £85.00+VAT | £100.00+VAT | £ |

PAYMENT DETAILS

Payment must accompany this registration form. Registration will be confirmed only on receipt of full payment.

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- 5 Fax:
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Please read the information listed below as each booking is subject to the Institution's standard terms and conditions.

CONDITIONS OF BOOKING

Completed application forms should be returned to the address above, along with the correct payment. Attendance at the event will be confirmed on receipt of the full balance. All participants are advised to bring a copy of their confirmation with them on the day, to ensure the fastest possible entry.

SPECIAL REQUIREMENTS

Please inform us of any special requirements, ie dietary or access, on the relevant section of this form.

CANCELLATION

For a refund (minus £25+VAT admin charge), cancellations must be received at least 14 days prior to the event. Replacement delegates are welcome at any time. The Institution reserves the right to cancel any event. In this case, the full fee will be refunded unless a mutually convenient transfer can be arranged. In the event that the Institution postpones an event for any reason and the delegate is unable or unwilling to attend on the rescheduled date, they will receive a full refund of the fee paid.

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VENUE

This seminar will take place in London. Please check the event website for specific venue information.

LIABILITY

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OTHER EVENTS TO LOOK FOR:



20 April 2015
London

AERODYNAMICS OF RAIL VEHICLES

This lecture will give an overview of the current concerns in aerodynamics for high-speed and tunnel railways, and describe the work being carried out both at a fundamental level and for a range of industrial clients by the Aerodynamics Team at the Birmingham Centre for Railway Research and Education.

www.imeche.org/events/L6194



21-23 April 2015
London

THE STEPHENSON CONFERENCE – RESEARCH FOR RAILWAYS

The Stephenson Conference will be an international event covering a full range of rolling stock and interface disciplines, from contact mechanics to pantograph and overhead line behaviour, bringing together academic researchers and industry experts to develop an improved understanding of their mutual interests.

www.imeche.org/Stephenson



8 June 2015
London

STEPHENSON AWARD COMPETITION EVENING

The Stephenson Award, in conjunction with the National Rail Awards, can be won through the creativity and contribution of an individual, as well as a company, to an engineering idea that solves a problem the industry faces. Hear the presentations, ask questions about their vision and vote for the winner.

www.imeche.org/events/L6232

INFORMATION AND BOOKINGS

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uk.sagepub.com/imeche_home.sp as well as through Scitopia, and other leading scholarly search services.

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GET INVOLVED

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See www.imeche.org/volunteering for more information or go to <http://nearyou.imeche.org>

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