



Earthing Conference

Including Surge & Lightning Protection

20th & 21st May 2026
Park Regis, Birmingham, UK

Silver Sponsors:



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Overview

Earthing Conference 2026

This year's conference program has been carefully developed to deliver practical, technically robust insight for professionals involved in earthing design, testing, compliance, and asset management. Across two focused days, the agenda combines real-world case studies, system design experience, maintenance strategies, standards compliance, and proven testing methodologies. Each session is designed to deliver clear, actionable takeaways you can apply directly in your workplace.

The schedule has been structured with delegate convenience in mind, with Day Two starting

and finishing earlier to accommodate travel commitments. Your standard ticket includes access to the Conference Soirée on Day One, offering a relaxed networking reception to continue technical discussions and strengthen industry connections. An optional Conference Dinner is also available.

With an enhanced room layout and high-quality screens, the venue provides a professional, engaging learning environment.

This program is designed to deliver focused technical value, practical insight, and meaningful industry engagement.

What You'll Gain From Attending:

You will learn how to independently verify that a large renewable site earthing system performs as designed, rather than relying solely on modelling software outputs.

Hear it here first: Learn from one of the industry leaders as they present the earthing design and implementation of a multi-level earthing system for the first in a new generation of British nuclear power stations.

Build your knowledge and understand how automated lightning risk assessment methods can simplify IEC/BS 62305-2 compliance, reduce calculation errors, and improve confidence in selecting the correct LPS classification and mitigation measures.

Learn key tips on how to manage the communication between key stakeholders, shared lessons from real-world earthing projects in highly regulated sectors, learn how to avoid common communication and scope failures, improve alignment between stakeholders, and deliver safer, compliant designs that are genuinely fit for purpose.

Strengthen your technical toolkit with a clear, field-focused understanding of the limitations of Fall-of-Potential testing, enabling you to confidently select appropriate verification methods and avoid false assurance when assessing EPR in complex, low-impedance earthing systems.

Improve fault management through clearer insight into the role of LV neutral couplers in protecting LV supplies and mitigating overvoltage risk. Build your compliance confidence by learning more about induced voltage risks, which support more informed interference assessment and mitigation decisions.

Find out the DNO's perspective on testing and maintenance of substation earthing assets.

Enhance your ability to manage induced and transferred potential risks in constrained substation environments.

You will meet Cem, one of Australia's leading experts on static electricity, who will walk through recent incidents and draw lessons applicable to risk assessment, regulatory interpretation, and control measures across the UK, Europe, and Ireland.



2026 Keynote Speakers



Keynote Speaker

Stuart McGirr

Principal Electrical Safety Engineer
B.E. (Hon), CEng, MIET | ElectroNet

Stuart is a Chartered Electrical Engineer with the IET, bringing over 15 years of industry experience. He began his career specialising in earth grid injection testing and design, building strong expertise in earthing systems and site safety.

He has since expanded his technical capability to include low-frequency induction studies, arc flash analysis, high-voltage primary design, and the delivery of new electrical connections across multiple sectors.

Stuart began his career with Mitton ElectroNet in New Zealand, where he designed, tested, and audited earthing systems. He has completed off-frequency injection earth grid testing at more than 120 sites, including transmission and distribution substations, generation facilities, and industrial assets.

He has also worked extensively in the UK with leading electrical consultancies and now works with ElectroNet UK, supporting the growth of its technical services and market presence.



Keynote Speaker

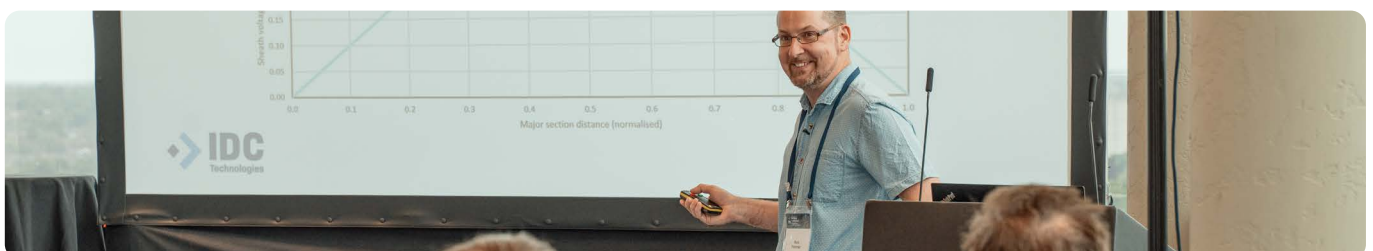
Matthew Taylor

B.Eng PhD C.Eng FIET | Managing Director
MJT Earthing and Lightning Protection
Consultants

Matthew Taylor has over 25 years of experience in earthing design, testing, and lightning protection. He began his career at Cardiff University, completing a PhD on soil resistivity measurement and analysis, then moved into consultancy roles at Strategy and Solutions and ERM before founding MJT Earthing and Lightning Consultants in 2022.

Matthew is widely recognised in the UK for his expertise, having delivered hundreds of technical reports covering 11kV to 400kV substations, power stations (including nuclear), rail electrification, overhead lines, renewables, industrial facilities, and pipeline interference studies.

A Chartered Engineer and Fellow of the IET, he has contributed to key industry standards including BS EN 50522, ENATS 41-24, ENA EREC G78, and EREC S41, and sits on the GEL/81 working group for BS EN 62305. Matthew is passionate about mentoring and training the next generation of engineers, delivering several courses every year to the industry.



Day 1 | Wednesday 20th May, 2026

8:00am **Registration Opens**

8:20am **Welcome Address**

8:30am **Session One | Keynote Presentation**

Off-frequency Injection Testing Techniques to Verify Earth Grid Designs and Assess Impacts on 3rd Party Infrastructure

Stuart McGirr | Principal Electrical Safety Engineer | ElectroNet



The adoption of large-scale renewable energy technologies has led to significantly larger site footprints, increasing the likelihood of interaction with nearby third-party infrastructure. Historically, these impacts have often been overlooked or assessed solely through specialist earthing software. However, once an earthing system has been installed, how can we be confident that it complies with the original design intent?

This presentation will offer an in-depth examination of off-frequency injection testing techniques. These techniques simulate real power-system earth faults and provide a reliable method for validating earthing design models under realistic and safe conditions. We will work through a real-world testing case study, including the determination of touch and step voltages, hot zone contours, overhead earth wire return currents, and induced voltages in telecommunications infrastructure.

9:30am **Session Two**

The Diary of a QA

Phillip Cottingham | Director | P&R Power Systems LTD

Ryan Smith | Design Director | P&R Power Systems LTD



This session draws on our experience as earthing designers in highly regulated industries such as nuclear, MOD and healthcare. Phillip and Ryan will explore how communication failures, a lack of clarity with a projects' scope, incomplete or misinterpreted soil data, assumptions around compliance, and inadequate risk assessments, can create safety issues, delays, costly redesigns and generally - a bad feeling!

Using real-world examples, we will illustrate some of the disconnects between the customer, engineer, design stages and engineered solutions and how small misunderstandings can escalate into significant project risks. Phillip and Ryan will consider practical, realistic ways to improve clarity, alignment and collaboration to ensure earthing designs are safe, compliant and genuinely fit for purpose.

10:15am **Morning Tea**

10:45am **Session Three**

Investigating Key Parameters in Lightning Risk Assessment (LRA) Using Automated Analysis

Ayesha Irfan | Power Systems Engineer | Enspeg Power Ltd



Lightning risk assessment (LRA) is a critical step in designing lightning protection systems (LPS); however, methodologies based on IEC/BS 62305-2 are complex, time-consuming, and prone to manual calculation errors. Comprehensive physical and electrical parametric analyses of assessment parameters are therefore difficult.

This presentation will cover an automated calculation approach which enables the systematic parametric evaluation of lightning risk assessment inputs. The study, on which it is based, investigated the influence of key parameters on risk levels and LPS classification. It revealed that project dimensions significantly affect the required LPS class and corresponding mitigation measures, even in regions with low lightning flash density.

11:30am

Session Four

How Am I Going to Test That? Independent Verification of Earthing Systems: Learn appropriate methods to independently verify EPR

Rowan McMurray | Engineering Director | Safearth



Earthing systems are safety-critical, yet verification of their performance is often treated as a box-ticking exercise. In practice, the most common validation tool—the Fall-of-Potential Method—is used in several different forms, frequently without a clear understanding of the limits or underlying assumptions specific to those forms. This can lead to results that appear precise, but are quietly compromised by interference, induction, or the complexity of the very system they are meant to assess.

With consideration of relevant standards, this presentation steps back from the mathematics to focus on what matters to practitioners: when a given test method can be trusted, when it cannot, and why. Using practical examples from real earthing systems, the presentation explains how soil conditions, electrode separation, interconnections, and low system impedance fundamentally change what a Fall-of-Potential test actually measures. It also highlights why techniques that work well for small or higher-resistance installations can fail badly as systems scale up, become more interconnected, and lower their impedance.

The outcome is a clear, field-focused framework for selecting appropriate methods to independently verify EPR, helping engineers and industry avoid false confidence when assessing critical systems.

12:15pm

Lunch

1:15pm

Session Five

LV Neutral Couplers for Auxiliary/Earthing Transformers

Ross Falconer | Principal Consultant | Aurora Power Consulting

Dylan Charles | Senior Power System Studies Engineer | Aurora Power Consulting

LV neutral couplers are important devices for controlling LV earth-fault current on earthing transformers used for auxiliary supplies. They provide a path for earth current to flow and limit over-voltages occurring on LV supplies. However, they are often overlooked, and many auxiliary/earthing transformers have been installed in the UK without LV neutral couplers.

In this presentation we will show how LV neutral couplers provide a controlled path for earth fault currents, how they limit over-voltages. We will also provide some real-world case studies of how LV neutral couplers can be retrofitted to existing auxiliary/earthing transformers.



2:00pm

Session Six

Induced Effects from Transmission Lines on Pipelines During Fault Conditions

Dr. Niamat Ullah | Principal Power System Engineer | Jacobs Consulting UK

This paper investigates the inductive and conductive effects of high-voltage transmission lines on buried UK gas pipelines using modelling techniques. Earth faults and phase-to-earth faults are analysed for two configurations: pipelines running parallel to the line and crossing at 90°. The effects of separation distance, coating resistivity, and soil resistivity on ground potential rise, coating potential, and metal potential are evaluated using CDEGS with an L6 National Grid UK tower model.

Results show that an earth fault induces modest potentials in both configurations, while phase-to-earth faults produce significantly higher values, particularly for the crossing case where metal potentials are greatest. Overall, fault type and geometry strongly influence induced voltages, providing quantitative insight for interference assessment and mitigation design in UK transmission systems.



2:45pm

Afternoon Tea

3:15pm

Session Seven

Testing and Maintaining HV Substation Earthing Assets - A DNO Perspective

Ken Atkinson | Senior Earthing Specialist | ESB Networks

ESB Networks is the Distribution Network Operator (DNO) in the Republic of Ireland. DNO has over 1,000 HV substations (38 kV to 400 kV) in its asset base, in a wide range of urban and rural settings.

This presentation will discuss the practical and logistical challenges faced by this DNO in assessing and maintaining the condition of existing substation earthing systems. The context for the presentation is the large capital expenditure planned in relation to a five-year regulatory programme (PR6), and the need for DNO to manage new substation earthing maintenance programmes targeted at identifying and addressing existing earthing safety issues.



4:00pm

Session Eight

When The Earth Grid Is No More

Rowan McMurray | Engineering Director | Safearth

This presentation presents a practical case study from a high-voltage transmission site where a localised degradation within the earthing system was suspected based on routine test results and site observations. As earthing performance is critical to personnel safety and system resilience, particularly in transmission environments, a structured and proportionate investigation was required.

The case study follows the step-by-step process used to identify the degraded component, starting with a review of historical data and progressing through targeted on-site testing. Techniques included selective resistance and continuity measurements, supplemented by focused excavation to confirm the physical condition of the earthing conductor. Particular attention is given to the challenges of testing within a live transmission environment and to interpreting results in line with the intent of the applicable standards, rather than treating compliance as a purely numerical exercise.

Once degradation was confirmed, a repair strategy was developed that balanced safety, constructability, outage constraints, and long-term durability. The presentation discusses why full replacement was selected over localised repair, and how interfaces with the existing earthing network were managed.

Finally, the case study describes post-works testing of the wider earthing system to verify that performance had been restored and that the intervention had not introduced new risks. The presentation concludes with practical lessons learned that can be directly applied by engineers responsible for ageing transmission earthing systems



5:00pm

Networking Soirée and Conference Dinner



Day 2 | Thursday 21st May, 2026

8:30am Session Nine | Keynote Presentation

Earthing Design to Safeguard Workers from Voltage Difference during Construction of Hinkley Point C Nuclear Power Station

Matthew Taylor | Managing Director | MJT Earthing and Lightning Consultants Limited



Hinkley Point C is the first in a new generation of nuclear power stations being constructed in Britain. The site is being developed adjacent to existing National Grid 275kV and 400kV infrastructure and will connect to the transmission system via the new 'Shurton' 400kV Substation. Construction of such a massive site, adjacent to existing transmission substations has brought interesting and unusual challenges in the safeguarding of workers from touch and transfer voltage hazards.

This presentation describes the design of a multi-level earthing system, value engineering, earthing design for 11kV construction supplies, part-build safety analysis with actions taken to accommodate Shurton 400kV Substation energisation prior to completion of the power station earthing system installation, and ALARP safety enhancements through non-conventional application of touch voltage limits.

9:30am Session Ten

Parametric Evaluation of Induced and Earth Return Current Values in Power Cable Systems Under Steady-State and Fault Conditions

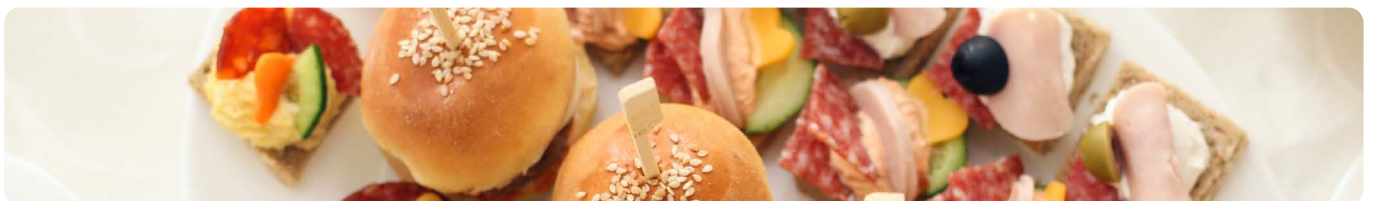
Awais Khawaja | Graduate Electrical Engineer | Enspeg Power Ltd



Induced and earth return currents occur in three-phase power systems with parallel conductors and metallic shields. They are critical for cable ampacity assessment and touch voltage safety. These currents are typically evaluated using nodal analysis, based on system impedance matrices; however, constructing these matrices is time-consuming when multiple operating and fault scenarios must be considered.

This presentation will cover parametric computational results using a proven approach which efficiently calculates induced and earth return currents under steady-state and fault conditions. The results show excellent agreement with reference cases in IEC 60287 and ENA S34, demonstrating practical applicability for complex power system studies.

10:15am Morning Tea



10:45am Session Eleven

Earthing for a Substation in Constrained Environments

Isacco Fara | Electrical Engineer - Earthing Specialist | SINT srl



Low-Carbon transition demands enhanced interconnections and increased transmission network robustness, resulting in the need for new transmission lines and substations. These infrastructures are often developed in constrained environments, which may experience induced or transferred potentials, creating hazardous conditions that may be non-intuitive even to experienced professionals.

This presentation explores a 132 kV substation built where previously was a portion of existing greenhouses. The part of greenhouses that remain still operational required an in-depth and unconventional earthing assessment, focusing on ground potential rise, touch and step voltages, transferred potentials, mitigation strategies, and adherence to international earthing standards.

11:30am

Session Twelve

Strategic Management of Substation Earthing

Carl Johnstone | Director and Technical Lead | i4am



As power grids evolve to integrate higher levels of urban encroachment, renewable energy, and digital infrastructure, the strategic management of substation earthing has become more complex and critical for operational safety.

This presentation will demonstrate how using the core components of asset management and a structured approach can optimise the management of earthing over the whole life of the substation. It will reveal the importance of considering the whole life management at the design stage to ensure long term cost and operational benefits while minimising risks. It will also clarify why the technology, process complexity, and maintenance should be appropriate to the level of risks and performance required by the business.

12:15pm

Lunch

1:15pm

Session Thirteen

ESQCR: Meeting Your Duty of Care – A Pathway to Compliance

Gordon McMurray | Specialist Engineer | Safeearth



The primary role of any earthing system is public safety. While LV networks reach every home, the hazards they present are tightly controlled by BS 7671. HV systems, by contrast, involve far greater hazards, but these are normally kept at a safe distance.

The greatest risk arises at the interface between HV and LV systems, where HV earth-fault hazards can be transferred directly into the public domain. ESQCR places a clear duty on Network Owners to prevent danger on LV networks arising from HV faults, yet the pathways by which this risk is transferred are often poorly understood.

This presentation challenges common assumptions about HV-LV interaction, showing how earth faults can propagate risk well beyond their point of origin. By examining design risk targets, common and separate earthing arrangements, and the role of two-layer soil models, it outlines a practical path for network operators, earthing designers and earthing installers to demonstrate that their duty of care is genuinely being met.

2:00pm

Session Fourteen

Static Electricity Incidents - An Australian Perspective

Carmello (Cem) Novella | Managing Director | Novella Group Pty Ltd TA Static Electricity Control



In 2024, Australian regulators met in Melbourne to discuss concerns relating to static electricity in the aftermath of 3 serious fires and 2 fatalities. Facilities that store and or mix/blend dangerous goods material (Class 3) were identified as workplaces where static electricity was considered a “significant” ignition risk requiring the site to identify, understand and demonstrate the control of static electricity.

This presentation will consider two recent case studies with a view to better understanding “causality” whilst evaluating “in situ controls”. It will cover other static electricity controls that could have been introduced to minimise risk profiles. We will also discuss what international committees can learn from these events.

3:00pm

Close of Conference

General Information

Conference Venue & Accommodation

Park Regis, Birmingham, UK

Address:

160 Broad St, Birmingham B15 1DT, United Kingdom

Phone:

+44 121 369 5555

Website:

www.parkregisbirmingham.co.uk



Delegate Accommodation Offer:

We are pleased to offer a limited allocation of 30 guest rooms exclusively for conference delegates at a preferential group rate. The agreed rate is: £149.00 per room, per night (Bed & Breakfast included) | CODE: IDV200526

To simplify booking, delegates will receive a dedicated booking code to reserve rooms directly on the hotel's website. Rooms are held on allocation until 8 April 2026 (six weeks prior to the event). After this date, any unreserved rooms will be released back to the hotel, so we encourage delegates to book early to secure the group rate.

Delegate Package Includes:

Catering: Arrival tea & coffee, morning tea, afternoon tea, and a full lunch service each day

Access All Areas: Entry to all conference sessions, presentations, case studies, panels

Access Conference Soirée: The ticket includes access to the conference soirée held at the Park Regis Hotel

Conference Materials: Printed and electronic access to all papers and presentations from the two-day program.

IDC Technologies: All delegates receive a Certificate of Attendance

Conference Dinner: Extra optional dinners with speakers, sponsors and delegates

Cancellation Policy

A 20% cancellation fee will apply for cancellations received 7–14 days prior to the start date of the conference. Cancellations received less than 7 days prior to the start date of the conference are not refundable, however substitutes are welcome.

Tickets & Registration

Early Booking* – Secure Your Place & Save

Conference Ticket Only:

£810

Conference Ticket & Dinner:

£850

Conference dinner includes a two-course meal.

*Early booking fees apply until 23rd March 2026.

Standard Booking*

Conference Ticket Only:

£885

Conference Ticket & Dinner:

£925

Conference dinner includes a two-course meal.

*Standard booking rates apply after 23rd March 2026.

**Group Bookings,
for more than
two delegates**

Email:

conferences@idc-online.com