



13th High Voltage Conference

21st & 22nd July 2026
Brisbane, Australia

Overview

13 Years of Bringing High Voltage Industry Together

The 13th High Voltage Conference brings together 14 industry experts, including international speakers from the UK and Norway, to address current challenges in high voltage systems across utilities, mining, and critical infrastructure. The technical program is designed to help the industry learn from equipment failures, improve asset reliability, and apply effective diagnostic and protection strategies in high-voltage environments. Through detailed case studies, testing methodologies, and lessons from operating assets, attendees will learn practical approaches to failure analysis, condition monitoring, and extending asset life. The program also includes a dedicated workshop that provides focused, hands-on learning to support better engineering decisions in high-voltage systems.

Key technical topics include:

- Transformer diagnostics and reliability, including oil analysis, dissolved gas analysis, and electrical testing techniques
- Integrated condition monitoring of high-voltage assets, combining online and offline diagnostic methods
- Protection coordination and modern digital protection systems
- Arc flash hazard assessment in complex HV/LV networks
- Risk modelling for transformer explosions and arc discharge events
- Designing condition monitoring into new high-voltage assets
- Mapping and inspection of buried high-voltage infrastructure
- Decarbonisation of networks through SF₆-free switchgear technologies
- The role of standards and regulatory frameworks in Australia's high-voltage sector

Throughout the conference, presenters will share practical case studies, diagnostic techniques, engineering methodologies, and lessons from current projects, helping delegates better understand how to manage risk, extend asset life, and improve the reliability of critical electrical infrastructure.



What You'll Gain From Attending:

Reduce risk and avoid costly failures

Learn how high voltage assets fail, what drives major incidents, and how to prevent them

Improve asset reliability and extend equipment life

Apply proven diagnostic techniques, testing methods, and condition monitoring strategies

Lower maintenance costs and less spending

Move from reactive repairs to targeted, condition-based maintenance and smarter investment decisions

Improve system performance and uptime

Strengthening protection, monitoring, and asset strategies to keep critical infrastructure operating

Make better engineering and operational decisions

Apply structured approaches to asset management, diagnostics, and system planning

Learn from international experience

Hear from experts from the UK and Norway, and see how other countries are addressing high voltage challenges

Stay ahead of evolving technologies

Understand how digital monitoring, advanced diagnostics, and new equipment are changing HV systems

Get focused, technical learning in a short timeframe – (CPD Accreditation)

Two days of concentrated knowledge designed for immediate application

Connect with engineers facing the same challenges

Exchange experiences, compare approaches, and build valuable industry relationships at the networking events



2026 Keynote Speaker



Carl Johnstone

Director and Technical Lead | i4am

International Keynote Speaker

With 38 years' experience in asset management and operations, predominantly at the UK's National Grid, Carl specialises in optimising asset management across 400kV and HVDC assets. He is a member of national and international standards working groups to progress best practice. Carl will be presenting a keynote session and running a hands-on workshop.

Featured Sessions:



Karl Haubner

Director and HV Test Applications Engineer
High Voltage Solutions Pty Ltd

Karl Haubner is the Director of High Voltage Solutions Pty Ltd (HVS) and a High Voltage Test Applications Engineer. He previously worked as an HV Applications Engineer with a service provider in Western Australia (HES) and with Doble Engineering, supporting clients across the Asia-Pacific region.

He specialises in advanced condition monitoring of distribution, transmission, and generation assets, providing training, testing, and consultancy services. Karl has authored technical papers on HV condition monitoring and cable fault location and has delivered courses at university and industry levels. He is a member of the Australian Panel of CIGRE D1.



Lars Rogstadkjerne

Global Technical Director Consulting &
Principal Engineer | GexCon

Lars holds a Master's degree in Process Safety from the University of Bergen and has a background in experimental testing of hydrogen explosions. He brings over 20 years of experience in safety assessments across the oil and gas, petrochemical, energy, and battery sectors. His work includes hazard and risk analyses related to toxic, flammable, and explosive substances, including lithium-ion battery systems and thermal runaway scenarios. Lars has supported major international projects through FEED, EPC, and operations, using advanced tools such as CFD. He has also lectured in explosion risk analysis and LNG safety and currently serves as Technical Director at Gexcon Consulting

Tuesday Day 1 - July 21, 2026

8:00am **Registration Opens**

8:30am **Welcome Address**

8:45am **Session One | International Keynote Presentation**

Beyond Maintenance: Driving Value at Every Stage

Carl Johnstone | Director and Technical Lead | i4am



Everyone Wants to Optimise Asset Management, But Few of Us Know Where to Begin.

Do you find it easier to access the emergency repair budget than to buy a reliable inspection tool? Where is the money and effort better invested: in understanding the asset while in service - through small, planned interventions - or in reactive responses with long lead times?

In an existing business, improvement isn't about launching another initiative; it's about understanding where you are today, defining what success really looks like, and making deliberate choices about where to invest time, money, and effort. Where is the low-hanging fruit? What should be strategic and long-term? Are you heading in the right direction, and are you bringing your people with you?

This presentation explores the practical journey of asset management transformation. It will examine the key building blocks needed to shift from reactive decision-making to structured, cross-team processes that reduce reliance on individual judgment and deliver a sustainable performance.

Whether you're in operations, finance, engineering or leadership, you'll leave with clarity on the key building blocks for progress.

9:45am **Morning Tea**

10:15am **Session Two**

Chemically Dissecting Transformer Oil Testing

Antony Giacomini | General Manager | TJH2b Analytical Services Pty Ltd



When it comes to transformers and tap changers, the insulating oil is an extremely powerful diagnostic tool as it essentially contains a record of all the events that have occurred in the system.

This presentation will provide insights into key testing aspects, including Dissolved Gas Analysis (DGA), and explain how various faults lead to gas formation, which can be used to assess failure risk. Processes that cause degradation of both oil and paper will be detailed, along with the impact each degradation process has on equipment reliability and lifespan. Measures to address the variety of issues that can arise will be explained, with specific details on the impact these measures have on reducing the risk of failure and extending equipment life.

Several Case Studies will be presented in which diagnostic testing of insulating fluids has successfully identified all the above.



11:00am **Session Three**

Understanding Transformer Testing

Gordon Noble | Managing Director | Doble Engineering



The condition of transformers and on-load tap changers (OLTCs) needs assessing after maintenance, abnormal operation, or fault events. This presentation will cover this process using an electrically focused approach.

The emphasis will be on electrical diagnostic techniques—including power factor and capacitance testing, insulation resistance and polarisation index measurements, excitation current analysis, sweep frequency response analysis (SFRA), turns ratio testing, and static and dynamic resistance testing of OLTCs. These methods provide direct insight into insulation condition, winding integrity, core health, and contact performance.

The presentation will describe how Dissolved Gas Analysis, oil quality testing, and furan analysis are useful supporting tools to contextualise electrical findings, and generally, it will demonstrate that an integrated, electrically led assessment improves reliability, reduces unplanned outages, and extends asset life.

11:45am **Session Four**

Transformer Oil in Service: Key Field Characteristics and Practical Handling

Philippe Reboul | Senior Business Manager | Molekulis - Redox



While new transformer oil must meet stringent specifications and laboratory tests, its true behavior and impact are defined in service. This presentation focuses on the key characteristics that matter in the field, including moisture, ageing, contamination, dissolved gas analysis, and dielectric performance, and how these evolve under real operating conditions.

It will reference the latest edition of IEC 60422 (2024) and help bridge the gap between test results and practical decisions, highlighting key challenges and limitations. Emphasis will also be placed on handling practices, including storage, sampling, oil treatment, and regeneration, and how these can influence asset reliability.

12:30pm **Lunch**

1:15pm **Session Five**

Why Traditional Approaches to High Voltage Asset Management Must Change

Vignesh Srinivasan | High Voltage Technical Engineer | Schneider Electric



Critical industries—from transmission and distribution networks to data centers and gigafactories—must adopt sustainable ways to manage power infrastructure. With switchgear and transformer maintenance failures causing over half (52%) of outages, a shift to proactive asset management is essential. Using IoT sensors and AI analytics enables remote monitoring without large workforce expansion. This approach improves the resilience of high-voltage operations, cutting downtime costs by up to 40%, reducing electrical failure risk by as much as 75%, and lowering waste by up to 90%.



2:00pm

Session Six

Designing for Insight at the Outset

Clayton Ross | Engineer | EA Technology

Modern engineering demands that robust asset management begins during the acquisition phase. Decisions made early determine long-term performance and reliability.

This presentation will argue that embedding condition monitoring capabilities into the design and commissioning of assets enables a critical shift from reactive maintenance (lagging indicators) to proactive strategies based on real-time leading indicators.

Using high-voltage cables as a key case study, the session will demonstrate how foresight is decisive. It will specifically explore challenges in testing long cable circuits and accessing earth screens for monitoring, showing how design-stage considerations transform high-risk, opaque assets into manageable ones, ensuring safer, more cost-effective, and resilient networks.



2:45pm

Session Seven

Novel Methods Of Mapping and Inspecting Buried HV Assets

Mark Spinks | Managing Director | Gridvision

While overhead power line inspection is well-established, buried services and conduits often remain comparatively opaque within high-voltage asset management programmes.

This presentation will examine practical, non-intrusive approaches to improving underground asset visibility through buried services mapping and internal conduit inspection. Drawing on recent field examples, it will show how subsurface spatial data and imagery can be integrated with existing overhead inspection datasets.

The focus will be on condition awareness, obstruction identification, constructability constraints, and risk-informed decision-making. It will highlight how underground inspections can complement established overhead line inspection workflows.



3:30pm

Afternoon Tea

3:45pm

Session Eight | Presentation & Workshop

Integrated Condition Monitoring of High-Voltage Assets: Lessons from Field Case Studies

Karl Haubner | Director and HV Test Applications Engineer | High Voltage Solutions Pty Ltd

Condition monitoring of High-Voltage assets has become a fundamental element of modern asset management strategies, allowing utilities and industrial operators to transition from time-based maintenance practices to risk- and condition-based maintenance approaches.

This presentation demonstrates the practical value of condition monitoring through several real-world case studies derived from commissioning, routine, and investigative testing of High Voltage cables, Rotating Machines (Generators and Motors), Switchgear, and Transformers.

Using practical examples, the presentation demonstrates how a combination of online and offline diagnostic techniques can be applied to identify insulation defects, distinguish between different discharge mechanisms, assess defect severity, and monitor deterioration trends over time. It will also explore the extent to which artificial intelligence (AI) can assist in the evaluation and interpretation of these diagnostic results.

Several case studies will highlight the benefits of integrated condition monitoring approaches, particularly the combination of off-line and on-line testing methods. Special emphasis will be placed on partial discharge (PD) diagnostics for high-voltage assets. In addition, the presentation will address the role of non-electrical diagnostic techniques as complementary investigations to verify insulation ageing and to better understand the degradation mechanisms affecting cable insulation systems.



4:45pm

Networking Soirée

Wednesday Day 2 - July 22, 2026

8:30am

Session Nine | International Speaker

Risk Analysis for Transformer Explosion and Arc Discharge Modelling

Lars Rogstadkjernet | Global Technical Director Consulting / Principal Engineer | GexCon



Faults in high-voltage systems can lead to the abrupt release of large amounts of energy, posing significant hazards to surrounding equipment and personnel. One such hazard is the rapid discharge of electrical energy through arc formation in air, which can generate a physical explosion of moderate strength. Arcs may also occur inside oil-insulated equipment, such as transformers. In these cases, the arc can cause pyrolysis of the insulating oil and potentially trigger strong secondary explosions.

Accident investigations have shown that such events may produce overpressures of several bars, with the hazard potential largely determined by the arc energy and the degree of confinement. These hazards were the focus of the Norwegian SEBK research project in the early 2000s, which eventually led to the development of a well-established methodology for assessing the risk associated with large transformer failures in confined environments.

Related, though simplified, approaches have also been developed to support requirements for pressure-resistant design of smaller transformers in distribution networks, such as those located in malls, apartment buildings, and similar facilities.

This presentation will highlight the main risk factors associated with these hazards and demonstrate how modelling tools can be used to analyse such events. The use of these tools to determine design requirements for explosion-resistant structures and to support emergency planning for explosions and fires will be discussed. A case example will also be presented showing modelling of arc in air and how modelling tools can be used to assure worker safety or design verification overpressure venting for electrical cabinets.

9:30am

Session Ten

A Case Study: How to Correctly Assess Arc Flash Hazards in a Complex HV/LV Distribution Network

Jason Mayer | Director / Specialist High Voltage Engineer | inPower Consultants

Andrew Senini | Director | inPower Consultants



Arc flash studies in HV/LV distribution networks are not always simply a case of building a model, hitting a button, getting an output and ordering some stickers. Often, much deeper thought is needed to properly assess the magnitude of a hazard and how it will present itself to an operator on a particular switchboard. Incorrect assessments can expose operators to much higher risk than expected, or, alternatively, overestimates can create unnecessary and costly operating restrictions.

InPower recently completed a complex arc-flash study to replace a previous one that had incorrectly assessed several HV and LV switchboards. The presentation - based on this real study- will walk delegates through each part of the network, briefly highlighting the complexities and considerations required to accurately assess each location, on each switchboard.,



The presentation is not about "how to do an arc flash study". It will instead focus on how to set up software models, interpret results, make manual corrections where required, and relate the theoretical results to real operator locations on site.

10:15am

Morning Tea



10:45am

Session Eleven

Protection Coordination in Modern Power Systems: More Than Just Curves

Steve King | Director | SPRK Consultants

Protection coordination has traditionally relied on time-current grading between overcurrent and earth fault protection devices. While these principles remain fundamental, modern power systems increasingly incorporate advanced protection functions, numerical relays, and communication-assisted schemes that significantly expand the coordination strategies available to engineers.



This presentation provides a practical overview of modern protection coordination, beginning with a brief refresher on traditional grading approaches, then exploring how contemporary systems integrate functions such as breaker-failure protection, differential protection schemes, and IEC 61850-based logic and peer-to-peer communications.

The session will also examine how coordination philosophies vary across key equipment types, including generators, transformers, motors, and transmission systems, highlighting where traditional grading remains effective and where alternative protection approaches are typically applied.

Drawing on practical project experience, the presentation will discuss common coordination challenges in modern industrial and utility systems, including balancing speed and selectivity, integrating multiple protection functions within digital relays, and coordinating protection across multiple voltage levels.

11:30am

Session Twelve

Decarbonising the MV Network: Engineering Best Practice for SF₆-Free Switchgear

Jonathan Lam | Offer Manager, Power Systems Division, Energy Management Business | Schneider Electric

The progressive elimination of sulfur hexafluoride (SF₆) from medium-voltage (MV) switchgear represents a significant engineering challenge with implications for both grid decarbonisation and long-term asset management.



This presentation will provide a technology-agnostic technical analysis of emerging SF₆-free MV switchgear designs, emphasising underlying dielectric principles, interruption mechanisms, and system-level insulation coordination.

The focus will be on operational behaviour under normal and fault conditions, the inspection criteria, and potential failure modes. Maintenance requirements for sealed-for-life and partially serviceable architectures will be compared, along with diagnostic methodologies for condition assessment and risk mitigation.

Using actual case studies (from utility and industrial installations), commissioning considerations will be examined, as will reliability trends, and integration constraints.

The session will aim to provide a structured engineering framework for evaluating, operating, and maintaining SF₆-free MV switchgear in support of future low-carbon grid architectures.

12:15pm

Lunch

1:15pm

Session Thirteen

Supporting High Voltage Systems

Harry Chauvel | Engagement Officer | Standards Australia

This presentation will give a practical overview of the domestic standards framework that supports Australia's high-voltage sector, including transformers, switchgear, protection systems, and transmission and distribution networks. Harry will outline the key standards currently in use, how they guide industry practice, and the active technical committees shaping their development.



The session will highlight emerging projects, international alignment initiatives, and opportunities for broader industry involvement. With a focus on real, accountable processes rather than technology promotion, this presentation explores how standards evolve and how stakeholders can contribute.

1:45pm

Session Fourteen

API Australian Power Institute

2:15pm

Afternoon Tea

2:45pm

Workshop | Keynote Speaker Carl Johnstone

Thermal Surveying: A systematic Approach to Asset Reliability

Carl Johnstone | Director and Technical Lead | i4am



Advances in technology is providing increasingly detailed analysis into asset health; however, the benefits depend on the skill of the surveyor and the processes used to guide intervention. While modern software has made complex condition monitoring tools more accessible, it can create the misconception that technology replaces expertise or automatically identifies faults.

This workshop will demonstrates common issues arising from poor understanding of these tools, including false positives and missed defects that can lead to serious failures. Using thermal surveys due to its visual nature, and widely applicable example, it highlights typical surveying approaches, associated pitfalls, and misconceptions. You will hear about international case studies demonstrating how a structured approach, supported by complementary technologies, can reduce downtime and deliver significant cost savings for your organisations. This session is ideal for HV professionals in mining, oil & gas, utilities, industrial sites, transmission & distribution networks.

4:00pm

Panel Discussion

4:30pm

Conference Close

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General Information

Conference Venue

Podium Room 1, Rydges South Bank, Brisbane

Address:

9 Glenelg Street, South Bank, QLD 4101

Phone:

Hotel: +61 7 3364 0800

Direct: +61 7 3364 0899

Accommodation:

We have pre-arranged discounted accommodation for our delegates.

Please book accommodation directly with the hotel via This Link Here: [Rydges.com](https://www.rydges.com). Please note that rooms are not being held for your guests, rates are subject to availability at the time of booking, and the discount may not be used in conjunction with any other offer. All reservations have a 24-hour cancellation policy. Bookings cancelled after 14:00 the day before will incur a charge equivalent to one night's accommodation.

Your Conference Experience:

- Arrival tea & coffee, morning tea, afternoon tea, and a lunch service on both days.
- Entry to all conference sessions, presentations, panel discussions, and exclusive access to the Conference Soiree.
- Printed and electronic access to all papers, presentations, and case studies, and an invitation to any conference-related webinars. (Updated materials will be sent after the conference).
- Certificate of Attendance.
- CPD | The two-day program delivers structured, skills-based training hours that participants are suitable to record as CPD with relevant professional or licensing bodies.

Cancellation Policy

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

Tickets & Registration

Short-term offer:

Buy 2 tickets and
get the **3rd**
ticket free.

(Offer expires April 10, 2026)

Early Bird Offer - Save **100AUD**

Single ticket
Early Price **\$1665**
per person

**when you book on or before May 13, 2026*

Standard Pricing

Single ticket
\$1765 per person

Group Bookings

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