

CALL FOR PAPERS



Are you an electrical professional working with electrical systems in the mining, manufacturing industrial plants, oil and gas or utilities industries? We are looking for a number of presenters to submit a topic idea and present their technical topic at this upcoming conference which has been developed to promote best practice in the area of power system protection and design.

A **Power System Protection System** has three main functions or duties:

- Safety - Ensure safety of personnel.
- Reliability - Safeguard the entire system to maintain continuity of supply.
- Maintenance - Minimise damage and repair costs where it senses a fault.

These requirements are necessary, firstly for early detection and localisation of faults and secondly, prompt removal of faulty equipment from service. In order to carry out the above duties, protection must have the following qualities: *Selectivity, Stability, Sensitivity and Speed*. To meet all of these requirements, protection must be reliable which means it must be dependable and secure.

For this event we are seeking industry experts who can cover design, installation, testing and inspection procedures for industrial and commercial power systems in detail. Power system protection will be the focus of this event but other areas of focus to consider also include:

Earthing - Poor earthing practices can be the cause of continual and intermittent difficult-to-diagnose problems in a facility. Earthing and how it relates to power system protection should be explored at this event to help remedy the gaps in technical knowledge and improve practices in the industry.

Smart Grids - A smart grid is an electrical grid which includes operation and energy measures such as smart meters/appliances, energy efficient elements, communication protocols and renewable energy resources. Smart grids support electricity usage, generation, transmission, substations and distribution to achieve a system that is safe, protected, secure, reliable, sustainable and competent. Power system protection must be considered in the design process in order to protect electrical systems and prevent network problems.

Renewable Energy - The Australian renewable energy market is growing at a fast rate and the integration of renewable energy to the grid has caused some disruption. Industrial installations are on the rise with many large organisations opting for solar/energy storage, wind, hybrid and off grid options in their industrial plants and settings. Applicable power system protection practice must be considered here.

Electrical Safety & Arc Flash - The other topic of interest related to power system protection is electrical safety. The dangers and risks from electrocution, shock, explosions and arc blast can never be entirely eliminated, yet with proper procedures and relevant knowledge businesses can take definite steps to protect workers. Safety should be naturally inherent in the design of electrical equipment and must be followed up with proper installation, operation, maintenance and periodic inspection.

This event will explore these electrical issues from a fresh yet practical perspective to help delegates reduce expensive downtime in their plant and/or equipment by identifying the correct application of these principles.

Join your peers in a vigorous and positive exchange of views, building your career and public profile and contributing to Australian electrical engineering practice in this vital area!

NOTE: IDC Events do not allow vendors to “sell” their products but rather focus on practical applications and solutions – probably the best way to showcase your technologies and engineering skills. In particular we are seeking practical case studies, applications and the newest developments in this critical subject.

SUGGESTED TOPICS:

Power System Protection:

- Protection relays and settings
- Fault calculations and analysis
- Network protection schemes (incl. substation specifics such as transformer, area and directional protection)
- HV and LV overcurrent and earth leakage issues
- Applications of Protection
- Fault types and their effects
- Relays
- Co-ordination issues
- Unit/feeder/transformer/switchgear/motor/generator/overhead line protection case studies
- System earthing
- Protection system components
- Instrument transformers
- Switchgear
- Batteries

System Security:

- Data analytics in PSP
- Event/anomaly detection
- Role of AI and IoT in PSP
- Resilient power system operation, control and protection

Renewable Energy:

- Energy and grid integration
- Electric vehicles and batteries
- Solar energy
- Onshore and offshore wind power
- Hydropower
- Energy storage
- Power conversion
- Power electronics in renewable energy
- Hybrid applications
- Renewable hydrogen and fuel cells
- Biomass and biofuel energy
- Wave, tidal and geothermal energy
- Power system stability and protection of renewable integration
- Renewable power forecasting
- Lifecycles of renewable energy devices
- Economic aspects of renewable energy
- Demand response or management
- Microgrid and distributed renewable energy
- Smart grids
- Energy efficiency
- Sustainability
- Machine learning applications in renewable energy
- Virtual power plants
- Other emerging renewable technologies

Smart Grids and IEC 61850:

- IEC 61850 communication protocols
- Substation automation systems
- Fault analysis, fuses, circuit breakers
- Fault-tolerance strategies for power converters
- Instrument transformers
- Relay technology
- Transmission lines protection settings
- Energy efficiency and environmental impact
- Improving grid reliability while dealing with an aging infrastructure
- Safety issues
- Connection to renewable energy and impact on distribution networks
- Energy efficiency challenges in rural and remote environments
- Maximum penetration or contribution levels for PV solar power into regional/local/diesel grids

Electrical Systems & Earthing:

- System earthing
- Equipment grounding & earthing of structures
- Electrical safety earthing
- Static earthing
- Solid, impedance, touch potentials
- Electric shock
- Earth leakage protection
- Design
- Protection
- Earthing electrodes
- Measurement
- Neutral earthing

- Corrosion problems in earthing
- Earthing of surge protection devices

Arc Flash:

- Electrical hazards
- Effects on humans
- Codes and standards – overview, review & critique – NFPA 70E/IEEE 1584 /ESAA NENS 09-2004/ CSA-Z462
- Flash protection approach boundaries
- Hazard risk category
- Arc flash studies
- Data collection and system modeling
- Working distances and flash boundaries
- Calculations
- Practical solutions for reducing arc-flash hazards
- Personal Protective Equipment (PPE) and system guidelines

Maintenance of Electrical Assets for Safety:

- Maintenance of HV switchgear
- Strategies with dealing with aging equipment
- Electrical plant failure modes
- General electrical maintenance
- Standards and codes of practice
- Condition assessment
- Transformer maintenance – types of tests
- Best practice maintenance strategies
- HV and LV circuit breaker maintenance
- Protection relay maintenance
- Earth system inspection checks
- Advanced electrical motor maintenance techniques

What is required from you?

- A **100 word abstract**, which outlines the topic you would like to present. This needs to be submitted electronically as soon as possible, to secure your place.
- Once your topic is approved, your **technical paper and PowerPoint slides** will be due six weeks prior to the event.
- Speaking slots are allocated on topic suitability and on a first come first served basis, so please register your interest today by emailing emma.cameron@idc-online.com

For further information on this event or to discuss sponsorship opportunities contact:

Emma Cameron
Conference Manager

IDC Events

www.events.idc-online.com

