DRAFT Listing of Accepted Papers as at 1 January 2023

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Study Committee A3 – Transmission & Distribution Equipment

Devices for switching, interrupting, or limiting currents including circuit breakers, load switches, re-closers, ring-main units disconnectors, earthing switches and fault current limiters wherever installed. Surge arresters, capacitors, busbar and equipment insulators, instrument transformers, bushings, and all other equipment within the substation not specifically covered under another equipment study committee's scopes.

- CIGRE fourth reliability survey on transmission & distribution equipment
- Operation and Maintenance of High Voltage Disconnections, Importance of Thermography and Live Substation Methods to Mitigate Asset Risk
- Full-scale comparative testing of helical and concentric shed profiles on HV bushings
- The use of partial discharge monitoring and failure analysis of a 275 kV oil filled current transformer
- TSO experiences on SF6 issues, maintenance strategy and best practices.
- POWERGRID experience in proactive assets management strategy for enhancing reliability
- Effect of the DC Offset Current (Asymmetrical Current) on the Circuit breaker due to switching of the Mechanical Switched Reactor in STATCOM – Case Study
- Identification of capacitor divider parameters used in CVTs for condition evaluation and future power quality measurement applications
- Optical Current Transformers – Operational experiences, Technical Challenges faced in Powergrid Champa-Kurukshetra 6000MW DC link
- Development of stationary measuring equipment in circuit breaker and highly-developed maintenance
- Challenges in the Transition to Non-SF6 High Voltage Switchgear in Australia and New Zealand: A User's Perspective
- Specifying CT requirements for power transformer protection in the initial project stage - A Case Study
- Status, in service experience and outlook for F-gas-free high voltage products
- The digitalisation of the Electrical System: new opportunities for a smarter and more accurate measurement infrastructure

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Study Committee B1 – Insulated Cables

AC and DC insulated power cable systems for power transmission, distribution and generation connections on land and in submarine applications. Power cable systems associated with micro-grids and the integration of distributed resources.

- Improved Cable Ampacity Calculations by Combining the IEC Standard with the Finite Element Technique
- New pressure monitoring system for 132kV OF cables
- Rebounding and learning from an EHV Cable Mid-life Crisis
- Condition based maintenance and replacement of medium voltage XLPE cables in Singapore
- German Corridor Project SuedOstLink – Challenges in Technology, Planning and Logistics
- Low voltage cables – the end is near
- Field experience on PD measurement for MV cables using different voltage sources, DAC and sinusoidal VLF

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Study Committee B3 – Substations & Electrical Installations

The design, construction, maintenance and ongoing management of substations and electrical installation in power stations excluding generators. Serves a broad range of target groups in the Electric Power Industry including the technical, economic, environmental and social aspects of this study area.

- Case study to manage the rising dissolved gases trends in oil filled transformers

- Challenges in implementing comprehensive asset online monitoring solutions
- Using Automated Infrared Monitoring to Reduce Substation Maintenance Costs
- Long-Term Use of Substation Equipment considering Environmental Impacts
- BESS Integration to Substations – Electrical Design and Australian Standards Compliance
- Estimation of degradation curves for substation equipment using text mining
- Gas tightness technology for SF6 Gas Insulated Switchgear and application to synthetic air insulated switchgear
- A technical paper on system improvement carried out to enhance the useful life and operational reliability of converter transformers of Rihand-Dadri 500 KV HVDC Bipolar link.
- In Service 132kV Bus Zone Transfer Methodology
- Earthing System Testing Practices and Improvements
- An SF6 Switchgear Network Emissions Model to Inform Strategic Decisions
- Development of compact, low-pressure SF6-free RMU
- Converter Transformer Valve Side Bushings – Operational experiences, Technical Challenges faced at POWERGRID North East-Agra ±800 kV HVDC Station, 6000MW Multi-terminal HVDC link
- Air Cored Reactors Installations in Substations
- Analysis of the reactive power compensation in the Romanian transmission network
- Development and Implementation of an Asset Information Platform for Substations
- Transmission Substation Design Considerations – Past and Future
- New Zealand's new National Seismic Hazard Model (NSHM): implications for the design of substations and electrical equipment
- The First MVDC Station Project in Korea
- Mobile substations incorporating HV GIS

- Sustainable substation solutions
- Development of Seismically Strengthened 500kV Air Insulated Disconnector and Practice of Seismic Countermeasures Based on the Experience of a Huge Earthquake
- Application of 3D Technologies in Substation Engineering Works

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Study Committee B5 – Protection & Automation

Power system protection, substation control and automation, remote control systems and equipment, metering systems and equipment.

- Practical experience of maximising Safety, Reliability and Efficiency of rural distribution networks
- Line Protective Relays Suitable for Systems With a High Penetration of Unconventional Sources – Operating Principles and Field Experience
- Line Distance Protection Near Unconventional Energy Sources
- Directional Overcurrent Protection of Grid-Tied Legacy Inverter-Based Resources
- Functions implemented in fully digital protection automation and control system R#SPACE supporting end-to-end applications
- Interoperability test of IEC 61850 process bus system and establishment of design policy for process bus application system
- Use of ML and AI for automated outage prediction and risk management for improved system resilience
- Establishing Reliable Time Synchronization for Digital Substations
- Line Current Differential Protection in Systems With Inverter-Based Resources— Challenges and Solutions
- The Need for Simplicity in Arc-Flash Protection Design
- Detection of Open-Circuit Downed Conductor Faults – Problems and Solutions
- Definition of communication function specifications for interoperability and interoperability test results on IEC 61850 station bus system
- Fault Analysis of Large-Scale Renewable Energy Only Fed System
- Powerlink's Journey to a Wide-Area Monitoring, Protection, and Control System
- Development of Multi-vendor Protection Relay System Employing PTP with IEC 61850 and Evaluation of Time Synchronization Accuracy for Current Differential Calculation
- Impact of Instrument Transformer secondary connections on Performance of Protection System– Experiences from Indian POWERGRID
- Mal-operation of Differential Protection relays in EHV shunt Reactors due to asymmetrical CT Saturation and its prevention using Controlled Switching –Experiences of Indian POWERGRID
- Experiences with implementing IP based Metering Solution
- On-line Equipment Status Monitoring for Reliability Improvement of New 6kV Solid Insulated Switchgear (Smart SIS)
- Success deployment of 6 digital substations in Vietnam 2020-21 – Return of experience
- Harvesting Intelligent Device Data to Improve Asset Management and Operational Outcomes
- Protection Automation and Control Systems Top-down Engineering Process – From SSD File to Device Configuration

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- The Implementation and Design Decisions of Process Bus Technology for Distribution Substations at Endeavour Energy
- DSO-driven implementation of OT integration platforms for data driven operation and maintenance
- Adaptive Transmission Line Autoreclosing and The Effects on System Stability
- Modelling and Challenges of Power Quality in the context of Full Digital Substations
- Frequency Measurement in protective relays and impact by Renewable Energy Sources
- Using System-based approach for testing Protection relays in power systems with varying penetration of renewable energy recourses
- The shape of the IED settings tool to come: an essay focused on configuration and standardization
- The overwhelming task to design a GGIO-less Protection & Control System
- Standardizing the protection calculation process of Renewable Plant Protection system to ensure the coordination and consistency of Vietnamese Protection system
- Novel algorithm for actual boundaries of distance protection in case of fault current contribution from power electronic systems
- Digital substation switchyard structures
- Post-fault analysis for the end-to-end power system
- Experiences and Learning about Digital Substation Monitoriing

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Study Committee C1 – Power System Development and Economics

Economics and system analysis methods for the development of power systems: including the areas of System Planning, Asset Management, Business Management and Interconnections.

- Probabilistic medium-term forecasts of half-hourly electricity demand
- ENTSO-E Vision for a power system for a carbon neutral Europe
- Hybrid Renewable Microgrid – a Techno Economical Study
- Conventional and pumped hydro storage value
- Effort of the Framework development of Non-Firm Type Connection for large integration of Renewable Energy Sources targeting Carbon Neutral Societies
- Energy System 2050 – toward a decarbonized Europe
- The Approach to Aggregate Risks Quantification of Transmission Facilities in Japan
- Opportunities for the Use of Embedded HVDC to Support the Energy Transition in Australia
- Countermeasures in a micro grid area based on the impact of a renewable energy
- Network measures for Utilization and Introduction of Storage Batteries in Japan
- An examples of grid planning aimed at improving facility efficiency under the revenue cap system
- Application of Predictive Asset Management on Grid Operation
- Long-term Transmission Network Expansion Plan for Achieving Carbon Neutrality Goals towards 2050
- Methodology for grid allocation of renewable based on objective merits
- "The Transmission Question" – How to connect Offshore Wind Generation in Australia?
- New interconnection corridors for exchanging Renewable Energies from Europe to Australia
- Planning tools and methods for systems facing high levels of distributed energy resources
- Proactive environmental authorization process enabling faster and flexible transmission grid expansion in South Africa
- Incorporating resilience in market modelling for a power system with high levels of variable renewable generation and limited storage
- Developing Queensland Renewable Energy Zones and the Designated Planning Body Function
- Integrating FACTS-based modular power flow control equipment in the Australian network to economically improve renewable generation dispatch capacity
- Optimising Transmission Investments for the Energy Transformation
- Planning of long distance transmission line for interconnection of remote industrial power systems and renewable resources to NEM grid
- Benefits of increased interconnection between South Australia and New South Wales
- Development of Renewable Energy Zones – the Australian experience
- System Strength planning in an uncertain environment

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- Forecasting demand in a transitioning energy system: A South African Case study
- Flexible planning of low-carbon power systems under deep uncertainty

- Enabling GW scale renewable energy to the Middle Arm Sustainable Development Precinct
- Optimal power-gas sector coupling via medium voltage direct current

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Study Committee C2 – Power System Development and Economics

Developments and changes in the business of System Operators to meet the evolving environment. WAMS, WAMPS and WAMPACS and their integration within the control centre environment. Development and use of power system analysis and security assessment functionalities within operational planning and real-time supervision, supporting system operators.

- Dynamic Spinning Reserve as an Enabler for Renewable Energy Variability in a Tropical Climate Power System
- Establish Real-time Pre-commissioning Platform for Integrating Distributed Photovoltaic Energy Resource
- Calculation of Dispatchable Region for Renewables with Advanced Computational Techniques
- Advanced initializing and coordination technique for simulation of large scale off-grid network using composite load model, grid forming and grid following inverters
- Use of Advanced System Strength Metrics to Identify Critical Regions of a Power Network during Day-to-Day Operations
- Management of frequency during non-credible events leading to islanding of network regions with Queensland islanding from NEM as a case study
- AEP's practice in Utility Big Data Management Concerning Real-time System Model Upgrades
- Utilisation of a Real Time Frequency Stability tool to support operating decisions in a reduced inertia power system.
- Frequency Operating Standards to maintain a secure and resilient power system across the energy transition
- Coordinated design of Master Power Plant Controllers in Hybrid Plants and Wind Farms with different OEM controls
- Synchrophasor Analysis of Grid Events (SAGE): PMU based tool for the Real time Control Room Security desk
- Development of an Application for Rescheduling Unit Commitment Considering Operational Constraints
- Decoupling Approach for A Unit Commitment Problem with Thermal- and Hydro-Generator Units
- Development of the adaptive emergency control system in transient modes of operation of a modern power system
- Development of applications based on synchrophasor technology. The achieved level and prospects
- Management of network constraints due to low system strength during network outages using Special Protection Scheme
- Determining Inertia contribution from grid-forming battery energy storage systems
- Resilience test of Indian power system during extremely severe cyclone 'Tauktae'

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- Impact of Grid-Forming Inverters on Frequency Control of a Grid with High Share of Inverter-Based Resources
- Insertion in operation of Renewable Energies Curtailment automatons
- Managing Operational Risk of Special Protection schemes (SPS)
- Grid-forming Inverter Control Design to Enhance Small Signal Stability of Multi-machine Systems
- Enhancing System Situational Awareness by PMU-based State Estimation in Active Distribution Power Networks
- Hybrid solution for local voltage control using STATCOM device and automatic voltage control of the tap changer
- Coordination and performance of a hybrid solar farm with DC-coupled BESS
- Proper Utilization of HVDC Ballia-Bhiwadi Link – Studies for testing of reverse power flow and authentication of the same through Simulation and On load tests.
- Using smart meters for low voltage network control and demand management
- Widespread PMU Installation: Australian Experience
- Application of Wide Area Monitoring Protection and Control in Queensland, Australia
- Proposed Practical WAMPAC Control Schemes to Improve the Hosting Capacity of the Renewable Super Grid
- Optimisation of the harvesting of renewable energy
- Navigating network operation during the energy transformation
- Application of a Power Oscillation Damping Controller on a Modular Static Synchronous Series Compensator
- Optimization of Fault-Ride Through parameters for renewable plants to improve the Vietnamese power system stability
- Sub-Synchronous Resonance (SSR) analysis in real-time thanks to the data exchange between the SCADA/EMS system and the offline study tool
- Applying AGC system creatively to automatically control multiple power plants resolving grid congestion and maximizing absorption of renewable energy
- Estimation of transmission line positive sequence parameter using data of WAMs in Vietnam
- Optimal Utilization of HVDC Links in Indian Power System for Transmission Flexibility in a High Renewable Regime
- Pumped storage scenario and its utilization for renewable energy integration in India
- Suggestions for strengthening of Technical Regulations for Renewable Interconnection (Connection Code) in Indian Power System

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Study Committee C4 – Power System Technical Performance

Advanced methods and tools for analysis related to power systems. Including Power Quality Performance, EMC, Power System Dynamics, Lightning and insulation co-ordination.

- Assessment to Quantify the Impacts of Omitting the Frequency Dependent Modelling of Existing IBR Plants on Grid Harmonic Impedance Computation for New Connections
- Advanced Coordination Between Controller and Protection Settings of Inverter-Based Resources in Response to TOVs After Ground Faults Clearance
- Commissioning of major power system upgrades
- Resilience Estimation of Electrical Power Systems
- Commissioning experiences with Inverter Based Renewable plants: Observed plant behaviours and issues
- Revision and Validation of IBR Harmonic Models Using Field Measurements Across Multiple Sites
- Certainty in power quality compliance, from desktop to evolving reality
- Optimal allocation of harmonic emission limits applied to a real transmission grid
- Impact of System Strength and Control Parameters on the Small-Signal Stability of Grid Following and Grid Forming Inverters
- Comprehensive performance and stability analysis based on accurate small-signal modelling of Virtual Synchronous Machine under vast range of grid conditions
- Analysing Impact of Renewable Energy Penetration on Power System Inertia of Indian Grid Using Synchrophasors
- Application of frequency scan based stability techniques to assess new generator connections in the Australian NEM
- Combined zonal and local control using grid-forming inverters in a complex medium- and low-voltage island grid: a study case in a realistic German network.
- BESS with SME to relieve network constraints – a practical solution
- Challenges of Harmonic Assessment for Inverter-based Generators
- Tuning of Inverter-Based Renewable Generation in Australian NEM: Opportunities, Issues and Challenges
- System-Level Benefits and Challenges in Providing Dynamic Support from Battery Storage Systems
- Challenges in connection of renewable energy sources to Australia's electricity grid
- Reliable Protection of Wind Farm Assets from Lightning Strikes and TOVs Considering Surge Arrester Failure Probability
- Benefits of reactive current injection in the Australian power system
- Negative sequence control of six-pulse inverters for improved performance during network faults
- Transient Stability Investigation of Grid-forming Inverters in the Presence of Various Types of Current Limiters
- Root-Mean Square Model of EV Charging Inverter for balanced Fault

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- Efficient Tuning of Control Systems in Inverter-based Renewable Generators by Accounting for Communication Delays: A Case Study
- Dynamic modelling and simulation of grid-forming and grid-following inverter-based resources for system restoration studies
- State of the art Grid Forming Converter Control for Goldwind's Full Power Converter Fed Wind Turbines
- Assessing the response of electric vehicles during network fault conditions
- Recommended Proactive and Innovative Approach to Manage Harmonics for the Renewable Energy Zone
- Wind Power Integration in Weak Grids
- Lightning Risk Assessment in Real-Time in the Vicinity of Power Systems
- Cost-efficient method to increase the 400 kV transmission capacity by utilizing 20 kV shunt capacitor banks connected to transformer tertiary winding
- Impact of massive increase in wind power on system dynamics in the Finnish power system
- Practical Aspects of Designing Wind Farms for Optimal Grid Support and Iq Injection in Weak Grids
- Small signal model development and testing of inverter-based renewable plants
- Replicating Australian Network Low-Frequency Oscillation Events
- Monitoring Primary Frequency Response using high resolution data from Wide Area Measurement Systems
- Impact of Distributed Photovoltaic System on System Strength
- Oscillations investigation and analysis based on combined information from low speed data and high speed monitoring devices
- Theoretical analysis of corona-induced high-frequency interference caused by 315 kV substations and transmission lines located in the vicinity of airport
- Impact of external conditions on the development of frequency domain models of Inverter Based Resources
- Optimal Placement and Sizing of Synchronous Condensers in Weak Power Systems
- Real-time oscillatory instability monitor – development and field test results
- Harmonic assessment and emission allocation for future grid
- Voluntary grid-forming specifications to support the transition to low-carbon power system
- Management of power system frequency excursions with the integration of large HVDC interconnection
- Oscillation source identification for multi-converter systems using relative voltage and power phase
- Determining Optimised Harmonic Filter Locations in a Meshed Power System – A Case Study from Denmark
- Challenges of connecting a grid-forming BESS in Australia
- Impact of a large synchronous unit on the oscillatory stability of the changing power system
- Harmonic impact of Modular Static Synchronous Series Compensator technology
- Accounting for capabilities and limitations of new and emerging generation technologies

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- The importance of communications networks and measurement systems on control system stability in large scale renewable projects
- Reactive power support for large wind farms
- Dynamic challenges of a hybrid plant with a grid forming technology in a remote area.
- Nature of propagation of subsynchronous oscillation
- Challenges of Modelling Complex Industrial Loads for System Studies
- Impact of the DC design and integration of the PV array and inverter on the performance of the solar farm
- The role of transmission network augmentations in transitioning towards net zero
- Investigation of reactive current injection of grid-following and grid-forming inverter-based resources during fault conditions
- Impact of Component Tolerances on Frequency Domain Representation of Inverter Based Resources
- Stability of Virtual Synchronous Generators: Investigation of the Effects of Grid Types, Operating Point Variations, and Control Parameters
- The influence of the traction power supply system for the metro on the grid substations with corresponding suppression
- Influence Analysis of the Frequent Overvoltage Impulses on the Terrestrial Traction Substations for High-speed Railway
- Evaluation of the System Technical Performance due to the Increasing Share of Long EHV Cable Circuits: A Study Case in the Dutch 380 kV Transmission Grid

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Study Committee C5 – Power System Development and Economics

Analysis of the impacts on the planning and operation of electric power systems of different market approaches
and solutions. Market Structures, techniques and tools used in price forecasting and financial risk management/
regulation and legislation, Evolution of and the co-ordination and regulation of markets.

- Creating a JUST energy transition for embedded generation via customer empowerment in South Africa
- Market design for active participation of commercial and industrial customers in demand response programs
- A Roadmap for the evolution of the electricity market in the GCC region
- Singapore Energy Transition Plans
- Queensland Energy and Jobs Plan - Power for Generations
- The role of technical standards in the energy transition
- Long-term decarbonized power Auction
- Electricity markets during a period with extreme prices - Experiences from the NordPool market.
- Innovative network tariffs to better integrate DER with the grid
- Frequency performance payments in the NEM
- How efficient network tariffs can drive more deployment and efficient use of grid-side batteries
- Impact of Hydrogen demand side participation on industry financial in National Electricity Market
- Commerciality of green hydrogen for electricity generation: balancing supply costs with customer expectations
- DER-integrated geospatial load forecasting
- Regulating Service provision for intermittent inverter-based sources in tropical environments
- Suspension of the Australian NEM: The events and lessons
- Non-network solutions: how effective are the current rules in Australia?
- Ensuring energy security and reliability in Singapore's Wholesale Electricity Market with a future of high-capacity renewable imports
- How are regulators and network operators addressing the challenges of massive DER integration?
- Are NEM reforms solving the NEM's problem?
- Adapting to coal retirement in Australia's National Electricity Market
- Delivering the transmission system required for transformational change in the Australian National Electricity Market
- Model Predictive Control for Value Stacking Virtual Power Plants – An Australian Case Study

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- Alignment of Retail Demand Response with Wholesale Markets through Functional Standards for Flexible Demand Appliances

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Study Committee C6 – Power System Development and Economics

Integration of DER, storage technologies, electric vehicles, multi-energy systems, smart cities, rural electrification, microgrids, virtual power plants, customer integration and empowerment, demand response, advanced metering systems and MV/LV DC systems.

- Balance in contracting flexibility in different grid planning phases
- Active Network Management to support increased grid utilisation – ANM4L project results
- Basic Methodology for Calculating Dynamic Operating Envelopes
- An end to end electricity system, but where does the customer fit? How can customers help us build the right distribution networks
- Vehicle to what? Making bidirectional charging work for people
- Control Scheme of Battery Energy Storage System for Black Start of Gas Turbine
- Fault Analysis and Protection Configuration of DC System in Battery Storage Power Station
- How to manage the network to maximise the value proposition of increasing customer owned DER?
- Measuring and communicating distributed energy resources export services performance
- Demonstration of Multiple Voltage Source Control and Ground Fault Detection Using LVDC Distribution Facilities
- Building Network Visibility Architecture to gain and use insights for the low carbon transition.
- Eliminating overload in distribution systems by utilizing DER
- Energy Balance Tool for the Operational Planning of Hybrid Mobile Generators – Islanded Grid Operation with the Infeed of Distributed Generation Systems
- Cybersecure Coordinated Set Point Modulation in Microgrids
- ADMS Success through Road Mapping of Existing Grid Modernization Programs
- Importance of Automating Distribution Resiliency Analysis for Climate Hazards
- Future-proofing Power System Planning, Operational and Stability Analysis through DER and Load Bench-Testing and Modelling
- Voltage Regulation and Load Relief in Medium Voltage Feeder Supported by Battery Energy Storage System
- Scaling LV analytics to meet the hosting capacity and safety demands of decarbonised distribution networks.
- Model Free Dynamic Hosting Capacity and Operating Envelopes
- Active Management of Voltage and Frequency Stability in Emerging Distributed Grids with High DER Penetration
- Decentralised Calculation of Dynamic Operating Envelopes for Distributed Energy Resource Management in Distribution Grids
- Techno-Economic Optimization of EV Charging Profiles and Charging Locations using Reduced-Order Model for Grid-Scale Network Studies
- Hybridization in the Balbina Hydroelectric Plant Reservoir

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- Implications of managing distribution network assets with a very high level of solar generation: New Zealand experience
- A Case Study of Protection of an LV Microgrid

- Microgrid Frequency Control
- Combined Voltage Control and Congestion Management Algorithm for Active Distribution Networks
- Impact of Renewable Energy on Power Quality in Distribution Systems
- Introduction of DC grids within an AC distribution environment: international and national standardization activities, state-of-art and projects ongoing.
- Loss-of-Mains Protection for DER in Australia
- Reverberating disturbances: towards a secure decentralised power system
- Operational Resilience Enhance in the Distribution Network Based-on Online Risk analysis and interruption cost: Utilizing Adaptive System Restoration and Demand Response Management
- Integrating DER for operational management
- Potential Stability Risk of Emergency Shedding of Legacy Distributed PV Generation through Substation Voltage Management
- From Model-Driven to Model-Free: Comparisons using Real Smart Meter Data and Real Distribution Network from Australia
- Community Battery Trial – Control and Optimisation of Power Capacity
- Procuring a Distributed Energy Resources Management System
- Dynamic pricing for network capacity management in two-sided markets
- Using System-based approach for testing Protection relays in power systems with varying penetration of renewable energy recourses
- Three-phase voltage balancing using active power transfer between phases
- Optimal coordination of a pool of different EV charging stations
- Increasing the resilience of distribution systems with probabilistic planning
- ata-driven Local Estimation of Power System Inertia
- DC rechargig stations predicted consequences on the MV electrical power distribution grid
- Stochastic Model Predictive Control for Efficient Dispatch of Distributed Energy Resources – An Australian Case Study
- The Effects of Net Load Forecast Accuracy on Solar Home BESS Control
- Smart Control of a Public Building Nanogrid: The Italian pilot of the BERLIN project
- Optimal flexible operation of an Energy Hub with uncertain models
- Pole-mounted community energy storage system to capture the full value stack

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Study Committee D1 – Power System Development and Economics

Monitoring and evaluation of new and existing materials in electrotechnology applications, along with diagnostic and test techniques where knowledge rules and requirements of the new techniques are being developed.

- A validated practice for transformer retrofilling
- Performance evaluation of sugar graze paper for transformer solid insulation application
- Relating Dissolved Methanol in Transformer Oil to Cellulose Insulation Degree of Polymerisation and Residual Transformer Life
- Accuracy testing of a high-voltage transformer under rated fundamental voltage and superimposed harmonics
- Dissolved gas analysis (DGA) monitor performance testing and evaluation methods
- Lifetime cost evaluation of continuous online dissolved gas analysis (DGA) monitoring
- A reference measurement system for calibration of high-voltage ratio and phase displacement at frequencies up to 10 kHz
- Verification of a Current Transformer's Accuracy on Distorted Current Waveforms
- Applicability of nanofluids as alternative insulation liquids in HV applications
- Dielectric properties of polypropylene/UHMWPE nanocomposites for power cables
- Leveraging Home Automation Principles for OLCM Integration at Utilities
- Application of On-Site Frequency Domain Spectroscopy Measurement on Medium Voltage Cross-Linked Polyethylene Power Cables
- Investigation of Solid By-product formation in Pressurised C3F7CN Gas Mixtures under Representative Operational Conditions
- Transformer Fault Classification using Image Processing of Phase Resolved Partial Discharge Pattern of Insulating Oil
- Aspects of Standardization of RCR Dividers for Measurement of Composite Voltage on DC Cables and DC GIS/GIL
- Required Improvement of UHF PD Detection for gas-insulated Systems

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Study Committee D2 – Power System Development and Economics

ICT equipment, architectures, security and governance including consideration of fundamental principles, design, specification, testing engineering, commissioning, performance, operation and maintenance aspects. ICT applied to digital networks, communication solutions, interoperability and data exchange, IT systems in Asset Management.

- Verification and Validation of Packet based (MPLS-TP) Technology for Transporting Tele-protection (Current Differential) services with existing TDM based Network through Lab testing and Field Trial
- Practical Approach to Generation Site Using Digital Transformation Technology for Data Driven Monitoring: Case of Origin Energy
- Prospect of Research on Communication Network Architecture and Key Technologies for Virtual Power Plant
- Development of a Radio Tower Inspection Method using Automatic Drone Photography and AI-based Image Judgment
- Automated creation of Distribution Network models from GIS and other data
- Innovative approach for Automatic identification of defects from photos captured through various transmission line patrolling modes using Artificial Intelligence and Machine learning
- Vulnerability estimation of Transmission lines for enhancing operational efficiency and Operation cost reduction
- Private LTE Reshaping FAN for Grid Distribution Automation
- Security Risk and Protection Analysis for 5G Power Virtual Private Network
- Construction of an IP network for wider bandwidth and enhanced resilience
- Case Study on Advancement of Electric Power System Maintenance Work Using ICT
- Improving Maintenance and Operational Efficiency of a Telecommunications Network Infrastructure to Transmit IoT Information
- Use Cases for Remote Maintenance Management of Telecommunication Facilities Using 3D Data in Japan
- Detecting abnormalities in power facilities by edge computing technology
- Challenges and contrivances in application of in-house AI algorithm to inspect various electric power equipment
- Detection and Mitigation of Cyber-Attacks on Volt-Var Control Distribution Grid
- Strategic approach to cybersecurity resilience in electricity distribution company
- Anomaly detection of wind turbine bearings failures through vibration signal processing and deep learning
- Implementing IP/MPLS network based synchronization for line differential protection and control
- Enabling distance protection between fully digital IEC61850 and contact based legacy substations
- Diagnosis of misalignment and unbalance in hydrogenerators using machine learning (deep learning)

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DRAFT Listing of Accepted Papers as at 1 January 2023

Note: this is a draft based on the currently accepted Synopses, whilst it is expected that these will be finalised as papers, due to several reasons some Synopses may not be able to progress to paper/presentation at the Symposium.

- Asset Data Management as part of the Strategy to Operate and Maintain End-to-End Electricity Systems
- Data-Driven Technique to Enhance Power System Cyber Resilience
- CIM for Network Planning and Power System Development
- Overheating anomaly detection in wind turbines using machine learning and statistical methods.
- Building a threat led Security Operations Capability (SOC)