

## Shaping the Power Systems of the Future - General Conference Programme

### Day 1, Tuesday 2 September 2025

Plenary		Hall CD			
9am - 10.30	Opening panel	Opening and Keynote Speakers: Prof Konstantin Papailiou (President of CIGRE), Ms Nicola Falcon (AEMO) and A/Prof Tim Nelson (Chair, review of the NEM)			
10.30 - 11.00	Morning Tea				
	Stream 1	Room: Riverbank 7			
11.00 - 12.30	Tutorial 1	<b>Power System Dynamic Modelling and Analysis in Evolving Networks</b> <b>Babak Bazradah</b> This tutorial is based on the recent Green Book titled <i>Power System Dynamic Modelling and Analysis in Evolving Networks</i> . The session will explore how the dynamics of power systems are changing with the shift from synchronous machines to grids dominated by inverter-based resources. It will highlight the limitations of traditional modelling approaches and introduce updated techniques better suited to capturing the fast and complex behaviour of modern systems. The tutorial will also touch on the level of modelling detail required to represent inverter-based plants realistically, including when simplified phasor-domain models may suffice and when detailed EMT or hybrid simulations are necessary. Screening methods used to determine the appropriate modelling depth for different connection scenarios will be briefly introduced, along with key considerations for model validation, particularly the importance of aligning models with observed plant behaviour under real-world conditions. Drawing on international experience and real-world case studies, the session will cover new forms of stability, the use of advanced simulation tools, and the integration of distributed energy resources. It is intended to provide engineers and researchers with practical insights and tools to better understand and manage today's increasingly complex power systems.			
12.30 - 1.30	Lunch				
1.30 - 3.00	Tutorial 2	<b>A generic risk management framework</b> <b>Asif Bhangor</b> Working Group B2.77 has developed a generic risk management framework that can be customized to suit the specific needs of power line utilities. This framework considers both simplified and detailed interdependencies, allowing a wide range of stakeholders to assess operational risks for a given network in a relatively short timeframe compared to the complex frameworks available. Key criteria include: <div><div>1.</div><div>Network Importance: Evaluating the criticality by considering connected generation, demand and circuit utilisation including value of lost load.</div></div> <div><div>2.</div><div>Restoration Complexity: Assessing the challenges involved in restoring service after an event to include route accessibility, spares, supply chain and resources to restore the damage.</div></div> <div><div>3.</div><div>Historical Performance: Examining past performance and reliability including condition assessment of the components, design specifications undertaken, historical outage and recorded incidents.</div></div> <div><div>4.</div><div>Route Vulnerability: Identifying vulnerable sections of the network to the extreme events including fire, wind, ice, snow, vandalism, flooding and others.</div></div> The generic risk management framework includes a straightforward Excel-based application. Stakeholders can populate it without extensive data gathering or complex design calculations. The tool provides insights into proposed mitigations, residual risks, and the benefits of chosen risk reduction strategies. The tutorial includes case studies of extreme events from around the globe. These studies underscore the importance of informed decision-making using the suggested framework for all involved stakeholders.			
3.00 - 3.30	Afternoon tea				
Paper session: 1.1.4		ID	Paper title	Author/Presenter	Company
3.30 - 5.00	Power System Harmonics	1127	Harmonic impedance and source estimation using continuous monitoring and naturally occurring disturbances: theory and experiment	Cella, Umberto	DlgSILENT Pacific
		1149	PV Plant Harmonic Emissions: A Comparative Study Between Detailed Plant Model and Single Machine Aggregated Model	Mitrovic, Milos	Go2Power Consulting, Serbia
		1164	Use of harmonic angles for load model estimation and allocation	Lo, Victor	Transpower New Zealand, New Zealand
		1202	Harmonic Assessment - An Experience from Real Operation	Vu, Dao	Iberdrola Australia
		1250	Enhanced Tools for Calculation of Transmission Level Harmonic Planning Characteristics for New Renewable Connections	Higginbottom, Patrick James	DlgSILENT Pacific
	1254	Grid Connections and the Shifting Landscape of Network Harmonics	Morton, Anthony Bruce	Vysus Group	
Chair: David Pita					
Close of stream 1, Day 1, Tuesday 2 September 2025					

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10.30 - 11.00	Morning Tea				
Stream 2		Room: Hall L			
Paper session: 1.2.2		ID	Paper title	Author/Presenter	Company
11.00 - 11.45	Disturbances and Transition Issues Chair: Alex Cruickshank	5001	Disturbance in Portugal & Spain	Greg Thorpe	Oakley Greenwood
		1283	Power system security measures to support the energy transition	Korte, Rainer	Australian Energy Markets Commission
			Questions and discussion		
11.45 - 12.30	DER developments	1228	Technical and Operational Insights: Integrating CER into the NEM Scheduling and Dispatch Processes	Mohsen Khorasany	AEMO
		1123	Project Edith	Alan Luc, Ikumi Nakanishi	Ausgrid
	Chair: Alex Cruickshank	1307	DSO developments - SC C6 WG report	Daniel Egbahl	
			Questions and discussion	Chair TBA	
12.30 - 1.30	Lunch				
Paper session: 1.2.3		ID	Paper title	Author/Presenter	Company
1.30 - 3.00	Storage, Storage modelling and development	1138	Use of Battery Energy Storage to Support Power System Restoration Under High DER Penetration	Jalali, Ahvand	Australian Energy Market Operator
		1161	275 kV transmission connection for Bungama BESS and solar PV plant in South Australia	David, Bernardo Cilindro	ElectraNet Pty Ltd
	Chair: Mark Parker	1218	DNSP Energy Storage, the new multitool of the Electricity network	Richardson, Stephen John	Ergon Energy Network and Energex
		1256	Investigating Hybrid Grid Following Solar Farms with optimal capacity of Grid Forming BESS for low system strength performance	Perez, Franco	DNV Australia Pty Ltd
		1274	Reduced Switch Count Based Multilevel Inverter Topolgies: A review	Seyedmahmoudian, Mehdi	Swinburne University of Technology
		1280	Bridging the gap: Analysing differences between investment business case modelling and real-time operation for BESS	Yang, Yuqing	EY
3.00 - 3.30	Afternoon tea				
Paper session: 1.2.4		ID	Paper title	Author/Presenter	Company
4.00 - 5.30	Integration of large scale renewables	1137	Comparative Analysis of Lightning Protection Methods	Penroz, Joaquin	ElectraNet
		1160	Controlled Switching for the Seamless Connection of Grid-Scale Inverter Based Resources	Yates, Nick	Flexity Pty Ltd
		1185	Detailed Comparison of Type 3 and Type 4 Wind Turbines under Different Grid Conditions	Karimpour, Mostafa	AEMO
	Chair: Asif Bhangor	1291	Optimizing High-Voltage Circuit Breaker Management: Integrating CIGRE TB 953 into Utility Practice	Orozco Perez	Western Power
		1199	A Methodology for Developing New Zealand's Grid Blueprint	Sykes, Andrew	Transpower
		1188	The Cost of Delay: Assessing AEMO's Integrated System Plan and Identifying the Burden Bearers in Australia's Energy Transition	Zahra Rahimpour	EY
Close of stream 2, Day 1, Tuesday 2 September 2025					

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9am - 10.30 Opening panel Opening and Keynote Speakers: Prof Konstantin Papailiou (President of CIGRE), Ms Nicola Falcon (AEMO) and A/Prof Tim Nelson (Chair, review of the NEM)

10.30 - 11.00 Morning Tea

### Stream 3

Room: City 1/2

Paper session: 1.3.2	ID	Paper title	Author/Presenter	Company
11.00 - 12.30 <b>Power system operations</b>  Chair: Tjaart van der Walt	1110	Integration of Condition Monitoring in Power System Operation and the Challenges in Implementation	Davidson, Devine	AECOM Australia Pty Ltd
	1111	Online Grid Inertia Assessment - A Key to Enhancing Stability and Flexibility in IBR-dominated Power Systems	Tran, Thai Anh	AusRE Solutions Pty Ltd
	1143	Operations-in-Designs in Energy Transition Aera	Tian, Hao	Powerlink Queensland
	1168	Reserve Requirement Considerations for Interconnected Power Systems	Chua, Joanne	DNV
	1238	Assessment of Grid-Stabilizing Capability of System Strength Mitigating Technologies via Impedance-Based Analysis	Karisik, Aleksandar	DlgSILENT Pacific
	1255	High impact abnormal events from inverter-based resources (IBRs) and potential solutions	Abeywardena, Hele	Transgrid

12.30 - 1.30 Lunch

Paper session: 1.3.3	ID	Paper title	Author/Presenter	Company
1.30 - 3.00 <b>Power system oscillation assessment and monitoring</b>  Chair: Angela Klepac	1128	NEM Inter-area Modes Dependencies	Delac, Marina	Australian Energy Market Operator
	1176	Application of Phasor Measurement Unit (PMU) Data for Oscillation Source Location	Binet, Madeline	Australian Energy Market Operator
	1186	Analysis of voltage oscillations in power systems using impedance scanning tools	Mesbah, Jaleel	Monash University
	1253	Benchmarking Exercise of Five Different Impedance Scan Tools and Lessons Learned	Ramachandran, Jayaraman	National Energy System Operator, UK
	1261	Grid-Scale Sub-Synchronous Oscillation Detection in Renewable Generators: Compliance, Event Analysis, and Future Directions	Denagama Vitharanage, Gihan	Transgrid

3.00 - 3.30 Afternoon tea

Paper session: 1.3.4	ID	Paper title	Author/Presenter	Company
3.30 - 5.00 <b>System Strength</b>  Chair: Sorrell Grogan	1120	The role of flexible thermal generation in enabling the transition	Robinson, Luke	Australian Energy Market Operator
	1115	A Case Study on the Early Detection and Mitigation of Surface Tracking on Critical Gas Turbine Generators Through Partial Discharg	Meehan, Michael	Monitra Pty Ltd
	1159	System Strength Support: A Quantitative Comparison between Grid-Forming Technology and Synchronous Condensers	Farahani, Ehsan	Australian Energy Market Operator
	1198	Using STATCOMs, Synchronous Condensers & Other Grid-Supporting Technologies to Facilitate Seamless Grid Connection of Hype Abbasi, Abbas		Ausnet
	1212	Practical Engineering Solutions for Embedded Facility's Connection to Weak Transmission Networks	Gowing, Hugh	APD Global
	1231	An Impact Assessment of Synchronous Condenser Location, Size, Parameters and Excitation Technology on System Angle Stability	Fonseka, Jagath	Powerlink Queensland

Close of stream 3, Day 1, Tuesday 2 September 2025

## Day 2, Wednesday 3 September 2025

Paper session: 2.1.1 Room Hall L		ID	Paper title	Author/Presenter	Company	
9.00 - 10.30	Market design and development	1155	Australian NEM Complexity v Simplicity. A contrarian view for discussion	Thorpe, Gregory	AU C5 Convenor/Oakley Greenwood	
		1219	Practical, flexible, and innovative security frameworks to support the mid-transition	Wiech, Amy	Australian Energy Market Commission	
		1166	Electricity Markets for Decarbonised Power Systems: How to Determine Redesign Preferences	Thai, Cau	Oakley Greenwood	
		Chair: Rainer Korte	1173	The Impact of a Delayed Transition on Consumer Electricity Bills	Nidras, Paul	Jacobs
		1204	Impact of Carbon Credit units on maximizing economic benefits in commercial and industrial microgrids	Puradbhat, Sumedh	Eaton, India	
	1156	The market for the future	Cruickshank, Alex	Alex Cruickshank Consulting		
10.30 - 11.00 Morning tea						
Paper session: 2.1.2 Room Hall L		ID	Paper title	Author/Presenter	Company	
11.00- 12.30	Connection of large inverter based resources and loads	1126	Grid Connection of Large-Scale Hydrogen Electrolysis Plants: Key Operational and Control Characteristics	Ghazavi Dozein, Mehdi	Monash University	
		1141	Converting datacentre enquiries to connections	Myers, Alexander James	CutlerMerz	
		Chair Julian Eggleston	1142	Seeking step-change improvements to connections framework in the Australian National Electricity Market	Crisp, Jennifer	DlgSILENT Pacific
		1208	Generator Performance Standards and Monitoring Compliance for Generating Facilities Connected to the South West Interconnected	Farooq, Fahad	APD Global	
		1227	From RMS to EMT: Validating Inverter-Based Resources for First-Time Solar Asset Owners	Gowing, Hugh	APD Global	
	1287	Modelling Considerations for Large Inverter-Based Loads Focusing on Data Centres and Electrolysers	Badrzadeh, Babak	Etik Energy		
12.30 - 1.30 Lunch						
Paper session: 2.1.3 Room Hall L		ID	Paper title	Author/Presenter	Company	
1.30 - 3.00	Modelling and performance of grid forming inverters	1108	Improving Grid-Forming Inverter Performance under Varying Grid Conditions	Meegahapola, Lasantha Gunaru	RMIT University	
		1171	Dynamic Performance Assessment of Large-Scale Grid Forming Inverters as per Australian NER Access Standards	Pathak, Nikhil	GSMT Consulting Pty Ltd	
		Chair: Alex Cruickshank	1177	Australia's First Grid-Forming Wind Turbine at Moorabool Wind Farm	Rahman, A M Mahfuz Ur	GoldWind Australia
		1263	Inertial Response of Type 4 Grid Forming Wind Turbines for Weak Grid Stability	John, Blessy	Goldwind Australia	
		1272	Optimizing Grid-Forming Inverter Penetration for Stability in Low-Inertia Grids	Zoghi, Ali	GridWise Energy Solutions	
	1288	Grid-Forming Inverter Capabilities for System Restoration in 100% IBR Power Systems	Badrzadeh, Babak	Etik Energy		
3.00 - 3.30 Afternoon tea						
Paper session: 2.1.4 Room Hall L		ID	Paper title	Author/Presenter	Company	
3.30 - 5.00	Enabling REZ success	5003	Operation of REZ in Australia	Andrew Kingsmill	Energy Corporation of NSW	
	Regulatory frameworks, Market access and investment signals	1174	Consideration of Resilience for Renewable Energy Zone Network Planning in New South Wales	Eggleston, Julian Frazer	DlgSILENT Pacific	
		1183	High-Voltage Meshed Networks in REZs: Planning Challenges and Technical Considerations	Zhang, Diwei	Energy Corporation of NSW	
	Chair: Rabindra Nath Shaw	1268	Voltage Control Strategy Investigations for a Renewable Energy Zone	Shao, Lulu	Energy Corporation of NSW	
			Panel discussion on REZ in Australia	Chair: Rabindra Nash		
Close of Day 2, Wednesday 3 September 2025						

## Day 3, Thursday 4 September 2025

Paper session: 3.1.1 Room Hall L		ID	Paper title	Author/Presenter	Company
9.00 - 10.30	<b>Modelling and performance considerations for future power systems</b>	1170	Transient Stability Analysis - An Online Method for Reliable Operation of Highly Dynamic Power Grids	Vu, Hau Ba	AusRE Solutions Pty. Ltd.
		1191	Enabling smart and flexible grids - case studies: Grid Interties	Gnap, Stan	Hitachi Energy Ltd, Switzerland
		1239	Frequency Control- From Requirements and Design to Real-World Plant Performance	Nguyen, Dinh Duc	Vestas
		1267	Optimisation-based assessment of a network's capability to integrate renewables	Liu, Brian	Transgrid
		1276	Closing the Loop - Non-local effects on IBR stability	Faradjizadeh, Farzad	Vysus Group
	1289	System Services in an Inverter-Dominated Grid: Insights from EMT Modelling of the NEM through to 2034	Badrzadeh, Babak	Etik Energy	
10.30 - 11.00	<b>Morning Tea</b>				
Paper session: 3.1.2 Room Hall L		ID	Paper title	Author/Presenter	Company
11.00 - 12.30	<b>Impact of renewable integration on power system equipment</b>	1101	Optimising Submarine Power Cable Ampacity for Offshore Wind Farm Integration: A Comprehensive Thermal Analysis	Patrick, Jayson	ELEK
		1102	A Seasonal Approach to Soil Resistivity Analysis for Earthing System Design of Renewable Energy Systems	Patrick, Jayson	ELEK
		1150	Solar Farm DC Arc Incident Energy and Risk Assessment	Sen, Vikram	APA
		1285	Using 66kV for onshore wind farm arrays	Harkness, Sam	Tilt
		1299	Specifying circuit breakers for renewable energy grid connections	Chen, Nicholas	Jacobs
12.30 - 1.30	<b>Lunch</b>				
Paper session: 3.1.3 Room Hall L		ID	Paper title	Author/Presenter	Company
1.30 - 3.00	<b>New and emerging modelling tools and techniques</b>	1122	Synthetic Inertia Quantification: Existing Methodologies and Industry Practices	Farzanehrafat, Ali	Australian Energy Market Operator
		1246	Generic and specific inverter-based models for modelling of future power systems for system-wide power system studies	Farzanehrafat, Ali	Australian Energy Market Operator
		1129	Automated Circuit Breaker Mode Selection in Single-Breaker Schemes: Enhancing Network Operation through Simplified Control	Cui, Wei	ElectraNet
		1139	Open NEM model: Shaping the future of power system information management and access in the Australian National Electricity Mar	Crisp, Jennifer	DlgSILENT Pacific
		1162	Transpower's New Zealand's Intelligent Conductor Life Extension Defect Model	Stevens, Kevin John	Transpower New Zealand Ltd, New Zealand
	1266	Determination of the Maximum LV Grid Hosting Capacity for a Rapid Integration of Photovoltaics, Electric Vehicles and Heat Pumps	Moreira, Jose	Siemens	
3.00 - 3.30	<b>Afternoon Tea</b>				
Paper session: 3.1.4 Room Hall L		ID	Paper title	Author/Presenter	Company
3.30 - 4.40	<b>Digitalisation, Digital Twins</b>	1104	Update on Power Transformer Reliability Statistics and the Latest Task Force	Martin, Daniel	Essential Energy
		1118	Digitalizing Dissolved Gas Analysis: Sharing Experience with Data Analysis from Online Monitors	Das, Bhaba Priyo	Dynamic Ratings, New Zealand
		1237	Use of Digital Twin models to implement dynamic transformer ratings in a real-time environment	Sivasane, Manojkumar Kashinat	Western Power
	1264	Strengthening Power Grid Cybersecurity: Field Insights from IDS Deployments in PAC Systems	Guo, Wenyu	OMICRON electronics	
4.40 - 5.00	<b>Close and invitation to the next Conferences</b>			Peter McIntyre	CIGRE Australia
<b>Close of Day 3, Wednesday 3 September 2025 and of the CIGRE Australia conference</b>					

Note: Program subject to change. Final program will be published in conference app prior to the conference commencement