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|               |  <p>IEEE PES ISGT-Asia Conference<br/>5-8 December 2021<br/>Brisbane Convention &amp; Exhibition Centre and Online</p> |
|               | <p><i>The program is accurate as at 5 December 2021 and is subject to change<br/>Please note that times are based on Australian Eastern Standard Time (AEST)</i></p>                                    |
|               | Sunday, 05 December 2021  |
|               | Virtual Only  |
|               | <i>Tutorial 1</i>   |
|               | <i>Chair: Dr Chandima Ekanayake</i>   |
| 09:30 - 12:30 | <p>Green hydrogen: integrated system modelling, operation and planning<br/><b>Prof Pierluigi Mancarella</b><br/><i>Chair of Electrical Power Systems,<br/>The University of Melbourne</i></p>           |
| 12:30 - 13:30 | Lunch Break   |
|               | <i>Tutorial 2</i>   |
|               | <i>Chair: Dr Rahul Sharma</i>   |
| 13:30 - 16:30 | <p>DNP3: SCADA, Clear and Simple<br/><b>Mr Andrew West</b><br/><i>Regional Technical Director<br/>SUBNET Solutions Pty. Ltd.</i></p>  |



**IEEE PES ISGT-Asia Conference**  
5-8 December 2021  
Brisbane Convention & Exhibition Centre and Online

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**Monday, 06 December 2021**

**Virtual Only**

|       | Session 1  | Session 2  | Session 3  | Session 4   |
|-------|--|--|--|---|
|       | <i>Data analytics and cyber security 1</i>   | <i>Smart Grids and Active Distribution Networks 1</i>  | <i>Intelligent Grid Planning, Operation and Management 1</i>   | <i>Renewable generation and distributed energy resources 1</i>  |
|       | <i>Chair: Prof. Kim Taesic</i>   | <i>Chair: Dr. Bin Liu</i>  | <i>Chair: Mr. Peter Kilby</i>  | <i>Chair: Dr. Nikhil Pathak</i>   |
| 09:00 | 35: Real-Time Short-Term Voltage Stability Assessment using Temporal Convolutional Neural Network<br><b>Mr Ananta Adhikari</b>         | 171: Load Balancing in Low-Voltage Distribution Networks via Optimizing Residential Phase Connections<br><b>Dr Bin Liu</b>   | 28: A Short-Term Load Forecasting Technique Using Extreme Gradient Boosting Algorithm<br><b>Mr Mohammad Mahruf Mahdi</b>   | 21: The Experimental Assessment of Different PV Cell Temperature Models Under The Actual Climatic Conditions for Cd-Te PV Modules<br><b>Mr Huseyin Akdemir</b>              |
| 09:12 | 98: The Impact of Inverter-based Generators on Machine Learning-based Transmission Line Fault Detector<br><b>Mr Khalfan Al Kharusi</b> | 69: Sustainable and decarbonized data-center facilities: A socio-techno-economic discussion<br><b>Mr Amin Ziaghham Ahwazi</b>  | 173: Installation of a synchronous condenser - Kiamal Solar Farm example<br><b>Mr Aleksandar Karisik</b>   | 25: Probabilistic Voltage Stability Assessment Considering Load and Wind Uncertainties<br><b>Mr Mohammed Alzubaidi</b>  |
| 09:24 | 259: Correlation Analysis of Wind Farms through Short-term Probabilistic Analysis<br><b>Mr Shichen Yang</b>                            | 130: Electric Vehicle User Behavior Prediction Using Gaussian Mixture Models and Soft Information<br><b>Dr Rebecca Adam</b>  | 199: Grid Automation Device Management in the Cloud<br><b>Mr Santitos Garcia</b>   | 36: Quantifying the resilience potential of standalone PV and solar-plus-storage for commercial buildings nationwide<br><b>Ms Lucy Groves</b>                               |
| 09:36 | 192: Cybersecurity for Power Grid SCADA: DNP3 Secure Authentication<br><b>Mr Andrew West</b>   | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |
| 09:45 | Grouped Q&A (12 minutes)   | 135: Modelbased Predictive Control System for Battery-Trolleybuses in a LVDC Traction Network<br><b>Mr Mahjar Wazifehdust</b>  | 53: ML-assisted Real Time Congestion Mitigation under Supply-side Uncertainties<br><b>Mr Praveen Verma</b>   | 65: V2G Contribution to Reduction of Renewable Energy Curtailment by Valley-filling Approach<br><b>Mr Shohei Kanai</b>  |
| 09:57 |  | 170: Reliability Improvement in Renewable-rich Power Systems with Optimal Placement of Auto-reclosers<br><b>Mr Mushfik Fahim Mir, Ms Sonal Dhole, Dr Kazi N. Hasan</b>   | 58: Determination Method of Optimal LFC Capacity for Massive PV Installation in Conditions of Ramp Down During a Sunny Day<br><b>Mr Ketto Nishida</b>                      | 80: MATLAB/Simulink Modelling of Multi-junction PV Cell for Conversion Efficiency Improvement using Maximum Power Point Tracking Method<br><b>Dr Narottam Das</b>           |
| 10:09 |  | Grouped Q&A (6 minutes)  | 76: An Online Estimation Method of Power System Inertia Using Phasor Measurement Unit Measurements After a Disturbance Considering Damping Effect<br><b>Mr Yukai Wang</b>  | 96: Block Coordinate Decent Robust Bidding Strategy of a Solar Photovoltaic coupled Energy Storage System operating in a Day-ahead Market<br><b>Mr Mehrdad Aghamohamadi</b> |
| 10:21 |  |  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |
| 10:30 | <b>Morning Break</b>   |  |  |   |
|       | <i>Control applications and energy storage 1</i>   | <i>Smart Grids and Active Distribution Networks 2</i>  | <i>Intelligent Grid Planning, Operation and Management 2</i>   | <i>Renewable generation and distributed energy resources 2</i>  |
|       | <i>Chair: Dr. Julio Braslavsky</i>   | <i>Chair: Prof. Chin Kim Gan</i>   | <i>Chair: Dr. Sudarshan Dahal</i>  | <i>Chair: Dr. Sohrab Nizami</i>   |
| 11:00 | 20: Robustness Evaluation of a WAMPAC Scheme Considering Problems with Communication Links<br><b>Prof Elizabeth L. Ratnam</b>          | 55: Field Trial for Evaluating the Benefits of Using Lateral Reclosing<br><b>Ms Roxanna Partow, Mr. Shrinjoy Bagchi</b>  | 103: Optimal Operation of Photovoltaic and Micro-grid Energy Storage System Considering Battery Health and Electric Vehicle Charge and Discharge<br><b>Mr Yongyi Huang</b> | 81: Mitigation of Power Quality Issues with Solar PV Penetration into LV/MV Distribution System<br><b>Dr Narottam Das</b>   |
| 11:12 | 83: Comparative Study of GFM-grid and GFL-grid in Islanded Operation<br><b>Mr Christian Sunjoh</b>                                     | 195: Effective Reactive Power Reduction of Low-Voltage PV Inverters by Applying Volt-var Control Method to High-Voltage PV Smart Inverters<br><b>Mr Yusuke Yamashita</b> | 116: Enhancement of Long-Term Peak Demand Forecast in Peninsular Malaysia<br><b>Ms Nazaitul Idya Hamzah</b>  | 109: Energy Storage Management System for Smart Home: an Economic Analysis<br><b>Dr Zahra Forozaandeh</b>   |
| 11:24 | 124: Performance Comparison Between GFM and GFL Inverters In 100% Inverter-Based Power Systems<br><b>Dr Xuan Hieu Nguyen</b>           | 224: Deterministic scheduling optimisation for Local Flexibility Markets in distribution networks<br><b>Mr Jokubas Ciurlionis, Prof Phuong Nguyen</b>                    | 167: A Low-voltage Distribution Network Configuration Planning by Interval Arithmetic<br><b>Mr Hiroki Yokota</b>   | 115: Assessing the flexibility of electricity-gas-hydrogen distribution systems with P2G units<br><b>Miss Antonella Maria De Corato</b>                                     |
| 11:36 | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |

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|-------|--|--|--|---|
| 11:45 | 129: Virtual Synchronous Generator based Control of PV with Reactive Current Control<br><b>Mr Abdul Wafi Misbah</b>                                      | 44: Detection of Falling Conductor in Distribution Overhead Lines<br><b>Mr Chirag Mistry</b>   | 29: Assessing the Risk of Blackout in a Low Inertia Power System and a Possible Countermeasure<br><b>Mr Md. Nahid Haque Shazon</b> | 139: Real-Time Hardware-in-the-Loop Distributed Energy Resources System Testbed using IEEE 2030.5 Standard<br><b>Mr Jinsan Kim</b>  |
| 11:57 | 101: Local Effects of Grid-Forming Converters Providing Frequency Regulation to Bulk Power Grids<br><b>Mr Francesco Gerini, Miss Yihui Zuo</b>           | 48: Testing System Integrity Protection Schemes<br><b>Mr Chirag Mistry</b>   | 51: Synthetic Grid Modeling for Real-Time Simulations<br><b>Mr Felipe Arrano-Vargas</b>  | 162: Droop-based Grid-forming Function by Type IV Wind Farm for Fast Frequency Control<br><b>Dr Xuan Hieu Nguyen</b>  |
| 12:09 | 228: An LQR-based Robust Voltage Controller for Grid Forming Inverters during Blackstart<br><b>Dr Deepak Ramasubramanian</b>                             | Grouped Q&A (6 minutes)  | 194: Optimization Model of Reserve Allocation in High Penetration Renewable Energy Power System<br><b>Miss Mengqi Li</b>           | 193: Compact model for estimating area-level photovoltaic power generation on facade surface using 3D city model and solar radiation simulation<br><b>Mr Ryo Nakazato</b> |
| 12:21 | Grouped Q&A (9 minutes)  |  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |
| 12:30 | <b>Lunch Break</b>   |  |  |   |
| 13:30 | <i>Control applications and energy storage 2</i>   | <i>Power quality and power electronic applications 1</i>   | <i>Intelligent Grid Planning, Operation and Management 3</i>   | <i>Condition monitoring and diagnostics of power assets 1</i>   |
|       | <i>Chair: Dr. Thi Huyen Phuong Nguyen</i>  | <i>Chair: Prof. Robert Ross</i>  | <i>Chair: A/Prof. Gregor Verbic</i>  | <i>Chair: Dr. Hui Ma</i>  |
| 13:30 | 131: Reinforcement Learning Based EV Charging Scheduling: A Novel Action Space Representation<br><b>Mr Kun Qian</b>                                      | 77: Reliability Study of a Smart Distribution System with Optimal Sizing and Placement of Capacitors<br><b>Mr Fernando Salinas-Herrera</b>             | 200: Dynamic Economic Load Dispatch Considering Incentive-based Demand Response<br><b>Mr Makoto Ueoka</b>                          | 54: Transformer Through Fault protection – challenges and improvements in asset monitoring for precise predictive maintenance<br><b>Mr Venkatesh Rokkam</b>               |
| 13:42 | 132: Optimal Digital Controller for Power Factor Correction of the Switching Power Supplies<br><b>Mr Emad Roshandel</b>                                  | 146: Mitigating Harmonics from Residential Solar Photovoltaic Systems<br><b>Dr Ha Le</b>   | 206: Robust Unit Commitment Based on IGDT Approach for Microgrid System Operation<br><b>Mr Naoki Takahashi</b>                     | 97: SFRA based deterioration index for transformer condition monitoring<br><b>Mr Sreeram V</b>  |
| 13:54 | 134: Voltage Stability Studies for Distribution Networks: Assessing Load Dynamics<br><b>Ms Ruth Kravis</b>   | 157: Analysis of Harmonic Propagations in Albaha Power Network due to the Implementation of an MVDC Converter<br><b>Mr Thamer A. H. Alghamdi</b>       | 208: An Under Frequency Load Shedding Scheme Based on Zonal Voltage Stability<br><b>Mrs Arik Subhana</b>                           | 107: Physical asset management in the fourth industry revolution: mapping the literature for condition-based maintenance<br><b>Prof Behzad Samii</b>                      |
| 14:06 | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | 75: Further insights into I-V and P-V curves of underperforming photovoltaic modules<br><b>Mr Mahantheshaiah Gangenapura Chandrashekharaiah</b>                           |
| 14:12 |  |  |  |   |
| 14:15 | 138: Assessing the Operational Potential of Pumped-Storage Hydro Generators for Supporting the Grid Integration of Wind Farms<br><b>Ms Maiko Inagaki</b> | 185: Analytical Derivation of Three Phase Inverter Harmonic Model Parameters<br><b>Mrs Samadhi Korale Liyanage</b>                                     | 226: The Economic Value of Improving Forecasting Accuracy in High Wind Penetrated Power Systems<br><b>Miss Wenqian Yin</b>         | Grouped Q&A (12 minutes)  |
| 14:27 | 175: Robust Power Regulation for Doubly Fed Induction Generator Based Wind Turbines<br><b>Mr Mostafa Karimpour</b>                                       | 188: Power Quality Assessment of Electric Vehicles on the Distribution Networks<br><b>Dr Anurag Sharma</b>   | 231: An intelligent control technique for stability assessment of modern power systems<br><b>Dr Saheed Gbadamosi</b>               |   |
| 14:39 | 178: Modelling of Grid-forming Inverters for Power System Applications in DigSILENT PowerFactory<br><b>Mr Yifan Wu</b>                                   | 202: Comparison between Ideal and Frequency-dependent Norton Equivalent Model of Inverter-Based Resources for Harmonic Studies<br><b>Dr Zhida Deng</b> | 236: Transmission Development Projects Assessment Using Simulated Market Prices<br><b>Dr Jordan Orillaza</b>                       |   |
| 14:47 |  |  |  |   |
| 14:51 | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  |   |
| 15:00 | <b>Afternoon Break</b>   |  |  |   |

|               | <i>Control applications and energy storage 3</i>  | <i>Power quality and power electronic applications 2</i>   | <i>Intelligent grid planning, operation and management 4</i>   | <i>Energy management, economics and policies 1</i>  |
|---------------|---|--|--|---|
|               | <i>Chair: Dr. Lakshitha Naranpanawa</i>   | <i>Chair: Dr. Yi Cui</i>   | <i>Chair: Prof. Jordan Rel Orillaza</i>  | <i>Chair: Dr. Elizabeth Ratnam</i>  |
| 15:30         | 189: A Feedforward Neural Network Hydrogen Electrolyzer Output Regulator for Wind Power Control with Battery Storage<br><b>Mr Miswar Syed</b> | 225: Power Quality Analysis of Colombian Local Distribution Systems with Photovoltaic Systems as Distributed Generation. Study Case: IEEE 13 Nodes System<br><b>Mr Luis Felipe Gaitan Cubides, Mr Juan David Gomez Ariza, Dr Andrés Emiro Diez</b> | 239: Sizing Transformer Considering Transformer Thermal Limits and Wind Farm Wake Effect<br><b>Mr Zhongtian Li</b>   | 4: A Mining-Rewarding Mechanism for Peer-to-Peer Energy Trading Blockchain<br><b>Mr Jiawel Yang</b>                     |
| 15:42         | 196: Adaptive Model Predictive-Based Load Frequency Controller using Unscented Kalman Filter<br><b>Mr Wang Weichao</b>                        | 43: Impedance-based Stability Analysis of Current Controlled Alternate Arm Converter in dq Frame<br><b>Mr Shan Jiang</b>   | 242: Battery energy storage placement in a solar PV based distribution system<br><b>Ms Priya Nayyar</b>  | 78: Call-options in Peer-to-Peer Energy Markets<br><b>Dr Jaysson Guerrero</b>   |
| 15:54         | 217: Power Quality Control of Hybrid Wind/Electrolyzer/Fuel-Cell/BESS Microgrid<br><b>Mr Muhammad Maaruf</b>                                  | 215: Five-Level Inverter With A Combined DC Voltage Balancing and Fault-voltage Mitigation Technique for Grid-Connected PV Energy Systems<br><b>Mr Kajanan Kanathipan</b>  | 249: A Derivation Method for Outage Work Grid Configurations under Uncertainty of Power Sources<br><b>A/Prof Yoshifumi Zoka, Miss Sae Shigemitsu</b>         | 82: Network-Aware Distributed Electricity Markets: A Techno-Economic Comparative Study<br><b>Ms Carmen Bas Domenech</b> |
| 16:06         | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |
| 16:15         | 250: A Comparative study on state of charge estimation techniques for Lithium-ion Batteries<br><b>Mr Amit Aryal</b>                           |  | 264: Solar Power Prediction Using Iterative Network Pruning Technique for Microgrid Operation<br><b>Mr Sho Enomoto</b>                                       |   |
| 16:18         |   |  |  |   |
| 16:27         | 258: Evaluation of controller autotuning in a wind energy conversion system<br><b>Mr Augustus Elton</b>                                       |  | 244: Communication Network Selection for Various Advanced Metering Infrastructure User Profiles in Indonesia<br><b>Ms Rizki Rahayani</b>                     |   |
| 16:30         |   |  |  |   |
| 16:39         | 273: Power Flow Control for Standalone Solar PV with Energy Storage System<br><b>Mr Yunxun Mo</b>   |  | 94: Intelligent Grid Business Transformation – how network businesses can navigate a journey of growing complexity and uncertainty<br><b>Ms Alrun Wigand</b> |   |
| 16:42         |   |  |  |   |
| 16:51         |   |  |  |   |
| 16:54         | Grouped Q&A (9 minutes)   |  | Grouped Q&A (9 minutes)  |   |
| 17:00         |   |  |  |   |
| 18:00 - 19:00 | Women in Power (WIP) and Student Networking Event - Virtual   |  |  |   |

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| Tuesday, 07 December 2021   |   |  |   |   |
| 09:00   | M3 (Live-streamed)  |  |   |   |
|   | <b>Opening Plenary &amp; Keynote Session 1</b><br>Chair: Prof Tapan Saha / Vote of thanks: Dr Nilesh Modi   |  |   |   |
|   | Conference Opening (sponsored by Siemens)<br><b>Dr Jessica Bian, IEEE PES President</b>   |  |   |   |
| 09:20   | Conference Welcome<br><b>Prof. Debbie Terry, Vice Chancellor, The University of Queensland</b>  |  |   |   |
| 09:30   | Keynote Speaker (sponsored by EPEC)<br><i>Affordable &amp; Reliable Decarbonization through Innovation</i><br><b>Dr. Arshad Mansoor, EPRI President</b> |  |   |   |
| 10:15   | Morning Tea Break   |  |   |   |
| 10:45   | M1 (audio & slides only)  | M2 (audio & slides only)   | M3 (audio & slides only)  | Virtual   |
|   | <i>Renewable Generation and distributed energy resources 3</i>  | <i>Power quality and power electronic applications 3</i>   | <i>Control applications and energy storage 4</i>  | <i>Demand response and grid visibility 1</i>  |
|   | Chair: Dr. Jalil Yaghoobi   | Chair: Prof. Junwei Lu   | Chair: Dr. Rahul Sharma   | Chair: Dr. Ha Le  |
| 10:57   | 23: Enabling More Solar in Distribution Network with an Automated Analysis Tool<br><b>Dr Lei Liu</b>  | 64: Harmonic Distortion Compliance Assessment and Renewable Generators: Issues and Proposed Update<br><b>Dr Umberto Cella</b>  | 203: Model Predictive Control for Wind Turbines to Enhance Low Voltage Ride Through capability<br><b>Dr Phuong Nguyen</b>                                     | 38: Development of Demand Response Model for Providing Grid Flexibility Under the Influence of Consumers Participation Rate<br><b>Mr Muhammad Zakwan Bin Mohd Zahid</b> |
| 11:09   | 39: Dynamic VAr Planning in Large-scale PV Enriched Power Grid<br><b>Mr Saeed Alzahrani</b>   | 85: Harmonic Balance Method and Its Application in Electrical Power and Renewable Energy Systems<br><b>Prof Junwei Lu</b>      | 187: Modular Multilevel Series Parallel Converter Prototype Design for Li-ion Battery Management Systems<br><b>Ms Dulmini Karunathilake</b>                   | 60: Application of Dynamic Quantizer to Load Control for Suppression of Power System Frequency Fluctuation<br><b>Mr Akimi Sato</b>                                      |
| 11:21   | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)   |
| 11:30   | 184: Modular High-Frequency High-Power Transformers for Offshore Wind Turbines<br><b>Mr Weichong Yao</b>  | 125: Detection of Point-on-wave for Voltage Sags by Hilbert Complex Plane<br><b>Mr Vinh Hao Le</b>                             | 120: Optimal bidding and scheduling strategies of grid-scale battery energy storage systems in day-ahead Australian electricity market<br><b>Mr Yunda Xu</b>  | 164: Analysis of Negative Electricity Price to Identify Demand Management Opportunity for Consumers in Renewable-rich Power Systems<br><b>Mr William Chen</b>           |
| 11:42   | 260: Emerging Frequency Control Mechanisms in IBR Dominated Power Systems<br><b>Mr Nicholas Maurer</b>  | 26: Extraction of Dynamic Frequency Response Characteristics and Modelling of Modern Air Conditioners<br><b>Dr Richard Yan</b> | 17: Combining Flexible Loads with Energy Storage Systems to provide Frequency Control<br><b>Prof Federico Milano</b>  | 37: Renewable Electricity Real-Time Pricing: Enhancing Grid's Stability Through Demand Side Management<br><b>Miss Kenza Meziati Sabour</b>                              |
| 11:54   | 32: Excessive Tap Operation Evaluation Approach for Unbalanced Distribution Networks with High Solar PV Penetration<br><b>Dr Felfei Bai</b>             | Grouped Q&A (6 minutes)  | 41: Techno-Economic Impact of Partial String Failure in Multi-string Energy Storage Systems<br><b>Dr Sarmad Hanif</b>   | Grouped Q&A (6 minutes)   |
| 12:06   | Grouped Q&A (9 minutes)   |  | Grouped Q&A (9 minutes)   |   |
| 12:15   | Lunch Break   |  |   |   |
| 13:15   | <i>Renewable Generation and distributed energy resources 4</i>  | <i>Power quality and power electronic applications 4</i>   | <i>Demand Response and grid visibility 2</i>  | <i>Microgrids, Standalone Power Systems, and Virtual Power Plants 1</i>   |
|   | Chair: Dr. Richard Yan  | Chair: Prof. Peter Wolfs   | Chair: Dr. Lei Liu  | Chair: Dr. Rasoul Garmabdari  |
|   | 136: Investigating the Performance of Inverter Control Modes in High Solar PV Penetration Scenarios<br><b>Miss Neha Moturi</b>                          | 119: Integration Of Solid-State Transformer Of Off-Shore Wind Turbine Systems<br><b>Prof Junwei Lu</b>                         | 33: PMU-based condition monitoring of critical equipment in modern distribution networks<br><b>Dr Felfei Bai</b>  | 11: Resiliency-Aware Power Management of Microgrids using Agent-based Dynamic Programming and Q-learning<br><b>Ms Farshina Nazrul Shimim</b>                            |
| 13:27   | 156: Photovoltaic Output Nowcasting with Sky Images and its Applications<br><b>Dr Ruiyuan Zhang</b>   | 121: Suitable Power Transmission Topology for Future Australian Power Grids<br><b>Mr Hankun Cui</b>                            | 271: Higher renewable energy integration in the grid with improved visibility and control by Medium Voltage distribution PMU data<br><b>Dr Jalil Yaghoobi</b> | 66: Benchmarking Reinforcement Learning Algorithms on Island Microgrid Energy Management<br><b>Mr Srinivasan Nandakumar</b>   |
| 13:39   | 197: Impact of Active Current Ramping of Large-Scale PV Plant on the Dynamic Voltage Stability<br><b>Mr Abdulrman Alshareef</b>                         | 289: Practical and cost-effective voltage support of low-voltage distribution networks<br><b>Dr Mihai Ciobotaru</b>            | 209: On the Optimal Placement of Micro-PMU in Distribution Networks Considering Phase Strings<br><b>Mr Manoj Prabhakar Anguswamy</b>                          | 84: Optimal Power Sharing in DC Microgrid Under Load and Generation Uncertainties Based on GWO Algorithm<br><b>Mr Zaid Al-Tameemi</b>                                   |

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|-------|---|--|--|---|
| 13:51 | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |
| 14:00 | 227: Resilience Framework and Optimal Scheduling for DERs Factoring Uncertainties<br><b>Ms Lakshita Lakshita</b>  |  | 57: Distribution System State Estimation with Losses in Radial MV and LV Networks<br><b>Mr Shubhankar Kapoor</b>                                 | 149: Generalized Droop Control For Mixed Impedance Microgrid<br><b>Mr Fahad Alshammari</b>  |
| 14:12 | 254: Curtailment and network voltage analysis study<br><b>Dr Baran Yildiz</b>   |  | 213: An application of reinforcement learning to residential energy storage under real-time pricing<br><b>Mr Eli Brock</b>                       | 159: Optimization of a microgrid for the new post-covid-19 pandemic energy demand using PV-wind-biogas in Brazil<br><b>Miss Ana Paula Alves Amorim</b>                            |
| 14:24 | 257: Performance Analysis of Building Integrated Photovoltaic of High-rise Buildings in Urban Areas<br><b>Mr Anirudha Barman, Mr Muiz Mannan</b>                        |  | Grouped Q&A (6 minutes)  | 163: Unified Distributed Control of Grid-Forming and Grid-Feeding Converters in DC Microgrids with Average Voltage Regulation and Current Sharing<br><b>Mr Sheik M. Mohiuddin</b> |
| 14:36 | Grouped Q&A (9 minutes)   |  |  | Grouped Q&A (9 minutes)   |
| 14:45 | <b>Afternoon Tea Break</b>  |  |  |   |
|       | <i>Intelligent grid planning, operation and management 5</i>  | <i>Smart Grids and Active Distribution Networks 3</i>  | <i>Data analytics and cyber security 2</i>   | <i>Control applications and energy storage 5</i>  |
|       | <i>Chair: Dr. Feifei Bai</i>  | <i>Chair: Dr. Mollah Alam</i>  | <i>Chair: Dr. Hui Ma</i>   | <i>Chair: A/Prof. Geoff Walker</i>  |
| 15:15 | 40: How is occupancy related to energy use in healthcare buildings?<br><b>Dr Lei Liu</b>  | 47: Demand-Side-Centric Voltage Regulation in Remote Area Communities<br><b>Mr Jiakang Yang</b>  | 30: Source Authentication of Distribution Synchronphasors for Cybersecurity of Microgrids<br><b>Dr Yi Cui</b>                                    | 67: Distribution System Emergency Operation using a Mobile Vehicle-to-Grid Microgrid<br><b>Mr Yuki Sato</b>   |
| 15:27 | 52: Exploring options for new frequency control ancillary service markets in the Australian National Electricity Market<br><b>Mr Tim George</b>                         | 86: Optimal d-STATCOM Placement using OpenDSS/Matlab<br><b>Prof. Peter Wolfs</b>   | 137: Broken Neutral Classification through Anomaly Detection using Features based on Voltage and Current Observations<br><b>Mr Wei Jian Chan</b> | 128: Characterization and Modelling Lithium Titanate Oxide Battery Cell by Equivalent Circuit Modelling Technique<br><b>Mr Chethan Parthasarathy</b>                              |
| 15:39 | 179: Understanding the Impact of Minimum System Demand on Future System Stability - Queensland Case Study<br><b>Mr Jianing Chen</b>                                     | 108: Examination of Frequency Control of Large Active Distribution Network using Utility-Scale PV Unit<br><b>Ms Nimisha Upadhayay</b>                          | 277: Forecasting Transmission Forced Outages<br><b>Dr Ebby Thomas</b>  | 198: A Comparative Analysis of Centralised vs. Distributed Battery Energy Storage System in Providing Frequency Regulation<br><b>Mr Hassan Alsharif</b>                           |
| 15:51 | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |
| 16:00 | 218: User-centred design of a grid health virtual reality tabletop for energy networks<br><b>Mr Jason Weigel</b>  | 117: A Real-time Control Approach to Maximise the Utilisation of Rooftop PV Using Dynamic Export Limits<br><b>Mr Gayan Lankeshwara</b>                         | 247: Convergence of SCADA Gateway and Industrial Access Manager for DER Customer Benefit<br><b>Mr Marcus Steel</b>                               | 222: Impact of Battery Energy Storage System Fed Super Grid Transformer on Distance Protection<br><b>Mr Eko Prasetyo</b>  |
| 16:12 | 114: Wide Area Monitoring Protection and Control for enhancing security of emerging power systems<br><b>Dr Sudarshan Dahal</b>  | 276: From passive distributed solar PV connections to active DER enablement<br><b>Mr Peter Kilby</b>   | 253: Plan2Defend: AI Planning for Cybersecurity in Smart Grids<br><b>Mr Taejun Choi</b>  | 230: Energy Storage Systems in Residential Applications for Optimised Economic Operation: Design and Experimental Validation<br><b>Mr Lampros Zyglakis</b>                        |
| 16:24 | 61: Artificial intelligence based power grid planning<br><b>Mr Manjunath D C, Miss Niveditha S</b>  | 172: Managing DER in Distribution Networks Using State Estimation & Dynamic Operating Envelopes<br><b>Dr Terese Milford, Dr Olav Krause</b>                    | 88: Cybersecurity for Electricity Utilities: Where to begin?<br><b>Mr Martin Van Der Linde</b>   | 246: Frequency Stability Supports from Battery Storage with Virtual Synchronous Machine Control<br><b>Mr Mehdi Ghazavi Dozein</b>   |
| 16:36 | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)  | Grouped Q&A (9 minutes)   |
| 16:45 | 279: An Optimization Framework for Power Infrastructure Planning<br><b>Ms Nina Wiedemann</b>  | 238: An Active Distribution Network Planning Model For Distributed Energy Resources and Distribution Network<br><b>Mr Adnan Al-Bukhaytan, Dr Ali Ala-Awami</b> | 63: Representative Load Profile Extraction and Baseline Estimation of Residential Consumers<br><b>Mr Zhong Xia</b>                               | 262: Impact of high renewable penetration on storage requirements for Australia<br><b>Mr Raheel Shalkh</b>  |
| 16:57 | 272: Operational challenges faced and mitigation measures taken for Renewable Energy integration in India with the planned transmission system<br><b>Mr Aman Gautam</b> | 245: Dual-Objective MPC of Community Energy Storage in LV Distribution Feeders with Rooftop Solar PV<br><b>Mr Obaidur Rahman</b>                               | 27: Ultra-short term wholesale electricity price prediction through deep learning<br><b>Mrs Ana Alvarez</b>                                      | 73: Efficiency of batteries<br><b>Mr Mansur Sulaiman</b>  |
| 17:09 | Grouped Q&A (6 minutes)   | 278: Dynamic closed-loop voltage control under limited network visibility in a South Australian distribution network<br><b>Dr Julio Braslavsky</b>             | Grouped Q&A (6 minutes)  | 22: Effects of Non-stationary Forced Oscillation on Electromechanical Modes<br><b>Mr Tossaporn Surinkaew</b>  |
| 17:21 |   | Grouped Q&A (9 minutes)  |  | Grouped Q&A (9 minutes)   |
| 19:00 | <b>Conference Dinner &amp; Awards Presentation</b><br><i>Plaza Gallery, BCEC</i>  |  |  |   |

|  <b>IEEE PES ISGT-Asia Conference</b><br>5-8 December 2021<br>Brisbane Convention & Exhibition Centre and Online |   |   |   |   |
|---|---|---|---|---|
| <i>The program is accurate as at 5 December 2021 and is subject to change</i><br><i>Please note that times are based on Australian Eastern Standard Time (AEST)</i>                               |   |   |   |   |
| Wednesday, 08 December 2021   |   |   |   |   |
| M3 (Live-streamed)  |   |   |   |   |
| Keynote Session 2   |   |   |   |   |
| Chair: <i>Dr Daniel Eghbal</i>  |   |   |   |   |
| 08:30   | Keynote Speaker (Sponsored by Noja Power)<br><i>Energy Storage – Essential Technology on the Road to Decarbonization</i><br><b>Dr Imre Gyuk, US Department of Energy</b>  |   |   |   |
| 09:15   | Role of battery storage in QLD's future energy landscape (Sponsored by Energy Queensland)<br><b>Mr Peter Price, Energy Queensland</b>   |   |   |   |
| 09:45   | Morning Break   |   |   |   |
| 10:15   | Leadership Forum<br><b>Prof Paul Simshauser, AM, CEO Powerlink, Dr Alex Wonhas, Chief System Design Officer, Australian Energy Market Operator (AEMO), Mr John Cole, CEO Edify Energy</b><br><b>Moderator: Mr Mark Paterson, Chief Strategic Officer, Strategen-Australia Pacific</b> |   |   |   |
| 12:00   | Lunch Break   |   |   |   |
|   | M1<br>(audio & slides only)   | M2<br>(audio & slides only)   | M3<br>(audio & slides only)   | Virtual   |
|   | <i>Condition monitoring and diagnostics of power assets 2</i>   | <i>Energy management, economics and policies 2</i>  | <i>Renewable generation and distributed energy resources 5</i>  | <i>Data analytics and cyber security 3</i>  |
|   | <i>Chair: Dr. Chandima Ekanayake</i>  | <i>Chair: Dr. Wayes Tushar</i>  | <i>Chair: Prof. Mithulan Nadarajah</i>  | <i>Chair: Ms. Alrun Wigand</i>  |
| 12:45   | 133: Assessment of Effect of Winding Geometry on Thermal Performance of Retrofilled Transformers<br><b>Mr Anupam Dixit</b>  | 45: Model Predictive Energy Management System in presence of Dynamic Pricing<br><b>Dr Rasoul Garmabdari</b>   | 219: The Magic Pudding: Delivery model innovation for hybrid systems<br><b>Mr Bart Sedgwick</b>   | 148: Weighted Linear Regression based Data Analytics for Decision Making after Early Failures<br><b>Prof Robert Ross</b>                                |
| 12:57   | 151: Study on Down-sizing Inverter Transformers in Solar Farms<br><b>Mr Xin Zhong</b>   | 153: P2P Negawatt Trading: A Potential Alternative to Demand-side Management<br><b>Mr Imran Azim</b>  | 232: From Green to Amber: is Australia's National Electricity Market signalling a financial warning for wind and solar power?<br><b>Mr Nesanthan Sriandarajah</b> | 155: A Regional Integrated Energy System Load Prediction Method Based on Bayesian Optimized Long-Short Term Memory Neural Network<br><b>Mr Ang Xuan</b> |
| 13:09   | 251: XLPE Insulation Degradation Under High Frequency Stresses<br><b>Mr Thanuja Gawasingha Arachchige</b>   | 240: On-Demand Batteries as a Peer-to-Peer Service<br><b>Mr Alexander Balson</b>  | 287: Minimum demand in the Australian National Electricity Market: Challenges and Potential Solutions<br><b>Dr Nadali Mahmoudi</b>                                | 205: Impact on Estimation Accuracy of Training Data used in CNN-based Solar Irradiance Estimation Method<br><b>Mr Kento Iida</b>                        |
| 13:21   | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)   |
| 13:30   | 297: Vibration profile comparison of grid connected and battery connected transformers<br><b>Mr Jakob Pallot</b>  | 50: A Joint Chance Constrained Economic Dispatch Model Considering Wind Generation and Dynamic Line Rating<br><b>Mr Lei You</b>                                     | 263: Development of A New LSF-based Algorithm for Optimal Placement and Sizing of Distributed VRE<br><b>Mr Nafis Salman Brahmantino</b>                           | 255: Application of Neural Network to Locate Non-Technical Losses in Optical Satellite Images<br><b>Mr Matheus Mello Jacques</b>                        |
| 13:42   | 168: Condition Monitoring of Overhead Conductors in the Australian Electricity Distribution Network<br><b>Dr Lakshitha Naranpanawe</b>  | 100: An investigation into alternate Causer Pays methodologies for the recovery of Regulation FCAS costs in the National Electricity Market<br><b>Mr Joel Bulow</b> | 212: Probabilistic intraday forecasting of solar power using Monte Carlo dropout and deep neural networks<br><b>Mr Oliver Doelle</b>                              | 106: Light-weight and Robust Network Intrusion Detection for Cyber-attacks in Digital Substations<br><b>Mr Mohamed Elrawy</b>                           |
| 13:54   | 174: Predictive End of Life Modelling for Wooden Utility Poles<br><b>Ms Caitlin Nicholas</b>  | 282: Integration costs of variable renewables in the Australian National Electricity Market (NEM): A full system modelling approach<br><b>Mr Gabriel Riosoco</b>    | Grouped Q&A (6 minutes)   | 169: Time Delay Attack Detection using Recurrent Variational Autoencoder and K-means Clustering<br><b>Mr Shahram Ghahremani</b>                         |
| 14:06   | Grouped Q&A (9 minutes)   | Grouped Q&A (9 minutes)   |   | Grouped Q&A (9 minutes)   |
| 14:15   | 95: A Similarity Measures Based Generic Detection Method for Waveform Abnormality Identification of Distribution Network<br><b>Mr Junya Luo</b>   | 165: Reward Structures for Prosumers Participating in Virtual Power Plants<br><b>Mr Zizheng Ren</b>   |   | 204: Vulnerability Assessment of False Data Injection Attacks on Optimal Power Flow<br><b>Mr. Justin Albrethsen</b>                                     |
| 14:27   | 89: Using Machine Learning to Predict and Avoid Malfunctions- A Revolutionary Concept for Condition-Based Asset Performance Management (APM)<br><b>Dr Naser Hashemnia</b>   | 31: Iterative Double Auction for Local Energy Trading in Microgrids: The Monash Microgrid Case Study<br><b>Dr Mohsen Khorasany</b>                                  |   | 243: Impact analysis of false data injection attacks in transactive energy market-based micro-grid systems<br><b>Mrs Rumpa Dasgupta</b>                 |
| 14:39   | 183: Intelligent Digital Assistants, the future of maintenance for renewable energy<br><b>Mr George Mathew</b>  | Grouped Q&A (6 minutes)   |   | Grouped Q&A (6 minutes)   |
| 14:51   | Grouped Q&A (9 minutes)   |   |   |   |
| 15:00   | Afternoon Break   |   |   |   |

|       | <i>Microgrids, standalone power systems, and virtual power plants 2</i>  | <i>Electric Transportation and Impacts on Grid</i>   | <i>Demand response and grid visibility 3</i>  | <i>Intelligent grid planning, operation and management 6</i>  |
|-------|--|--|---|---|
|       | <i>Chair: Dr. Daniel Eghbal</i>  | <i>Chair: Dr. Dia Adhikari Smith</i>   | <i>Chair: A/Prof. Dezso Sera</i>  | <i>Chair: Prof. Hironori Saitoh</i>   |
| 15:30 | 49: Modeling of diesel engines including start-up process in renewable integrated microgrid<br><b>Mr Aobo Zhou</b>   | 223: A Feasibility Assessment of Transitioning to Zero Emission Buses in Queensland, Australia<br><b>Dr Dia Adhikari Smith</b>             | 145: An Intelligent Event Detection Framework To Improve Situational Awareness In PMU Power Distribution Networks.<br><b>Mr David Amoateng</b>                                | 280: Real-Life Fast Frequency Response Provision from Grid-Scale Solar Farms and Batteries: Australian Experience<br><b>Mr Ian Commerford</b> |
| 15:42 | 181: Practical experience with addressing minimum demand and distributed energy resource intermittency in isolated networks through dynamic DER integration<br><b>Mr Vitali Belokoskov</b> | 12: Impact Analysis About Introducing CCS for CO2 Emissions Reduction<br><b>Dr Dr Yicheng Zhou, Prof Yosuke Nakanishi</b>                  | 241: A New Distribution System State Estimation Technique Based on Direct Approach in Networks with Limited Measurements<br><b>Mr Phuoc Sang Nguyen</b>                       | 283: SCR and Inertia based Optimization for SynCons Utilization in Weak Grids with Renewable Integration<br><b>Mr Sajjad Hadavi</b>           |
| 15:54 | 207: A Model Predictive Control Volt/VAr Management System for the Froan network<br><b>Dr Johannes Maree</b>   | 70: EV Aggregator's Potential to Play a Role in Providing Flexible Source in Japan<br><b>Mr Tomo Takahashi</b>                             | 266: Comparative Investigation for Robust and Efficient Distribution System State Estimation Algorithm: Case Study Considering Large Network<br><b>Mr Md Naz Niamul Islam</b> | 284: SmartGridToolbox: A Library for Simulating Modern and Future Electricity Networks<br><b>Dr Dan Gordon</b>                                |
| 16:06 | 265: Techno-Economic Analysis of On-grid Transition: A Case Study of Remote Villages in Sarawak<br><b>A/Prof Chin Kim Gan</b>  | Grouped Q&A (9 minutes)  | 275: Novel Bespoke Hardware for Single Board Computer based Phasor Measurement Unit implementation<br><b>Mr Marcus Steel</b>  | 288: Intelligence is not enough, smart grids need to conquer value alignment to benefit society<br><b>Mr Joe Wyndham</b>                      |
| 16:15 | Grouped Q&A (12 minutes)   | 102: Study of Unbalance Reduction in 25kV AC Traction System by Different Transformer Configurations<br><b>Ms Varsha Singh</b>             | Grouped Q&A (12 minutes)  | Grouped Q&A (12 minutes)  |
| 16:27 |  | 144: Transactive Energy for Smart Charge: Coordination of Renewable Generation and EVs Smart Charging<br><b>Mr Sebastian Montes De Oca</b> |   |   |
| 16:39 |  | 211: An Overview and Prospects of EVs in Pakistan: A Proposal of RE Based EV Charging Station at Jamshoro<br><b>Miss Maha Ansari</b>       |   |   |
| 16:51 |  | 191: Modular Approach Towards Battery Swapping: Time and Technical Parameter Quality Trade-Off<br><b>Dr Ijaz Haider Naqvi</b>              |   |   |
| 17:03 |  | Grouped Q&A (12 minutes)   |   |   |