# 2019 Australia PSS® User Group Meeting

Agenda at a glance | December 3-6, 2019

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*Click the links below to go directly to the page you are interested in!*

## PSS®E users

**Tuesday, December 3, 2019** (page 2)

- 9:00 AM – 5:00 PM | PSS® Plenary Opening Session and PSS®E Session (Day 1)
- 5:30 PM - 8:00 PM | Complimentary PSS® Welcome Reception

**Wednesday, December 4, 2019** (page 3)

- 9:00 AM - 12:30 PM | PSS® E Session (Day 2)
- 1:30 PM - 5:00 PM | *Free* Workshop: Integrated Network Model Management from PSS®E to PSS®ODMS

**Thursday, December 5, 2019** (page 4-5)

- 9:00 AM - 12:30 PM | PSS®E Session (Day 3)
- 1:30 PM - 5:00 PM | *Free* Workshop: PSS®E dynamic simulations: Recent Enhancements and Troubleshooting Cases

**Friday, December 6, 2019** (page 6)

- 9:00 AM – 5:00 PM | *New* Paid Course: PSS®E to PSCAD Benchmarking, Hybrid/Co-Simulation Studies and IEEE/DLL Modeling Standard Course

## Meet the speakers!

- Siemens PTI Speakers (page 10)
- Guest Presenters (page 11)

## PSS®SINCAL (PSS®NETOMAC) users

**Tuesday, December 3, 2019** (page 7)

- 9:00 AM – 5:00 PM | PSS® Plenary Opening Session and PSS®SINCAL Session (Day 1)
- 5:30 PM - 8:00 PM | Complimentary PSS® Welcome Reception

**Wednesday, December 4, 2019** (page 8)

- 9:00 AM - 12:30 PM | PSS®SINCAL Session (Day 2)
- 1:30 PM - 5:00 PM | *Free* Workshop: Integration of Renewables using PSS®SINCAL

**Thursday, December 5, 2019** (page 9)

- 9:00 AM - 12:30 PM | PSS®SINCAL Session (Day 3)
- 1:30 PM - 5:00 PM *Free* Workshop: Automation of PSS®SINCAL for Workflows

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## PSS® Plenary and PSS®E Sessions
Tuesday, December 3, 2019

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| PSS® Plenary Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 8:00 am | Registration, coffees, and pastries |
| 9:00 am | Welcome and introduction |
| 9:15 am | **What's new in the PSS® Portfolio**<br>Overview of new developments, features and news in PSS® suite. Including information about Interoperability in the PSS® Portfolio and beyond - application examples of data, models and simulation engines across the entire PSS® portfolio. Speaker(s): Amar Patel, PSS®E Product Manager |
| 10:00 am | **CIM Standard and how the Common Information Model enables the Network Model Management for TNSP and DNSP**<br>Learn about the IEC standardized Common Information Model for data exchange. Get an basic understanding how the electrical network is modeled in CIM and how such modelling enables network model management and data exchange between domains and utilities. Speaker(s): Martin Mangold, PSS®ODMS and PSS®MOD Product Manager |
| 10:30 am | Break – split into separate tracks |

| PSS®E Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 11:00 am | **PSS®E core product enhancements**<br>Learn about the latest features implemented in PSS®E and view live demonstrations, including demonstration of the New UI enhancements implement into PSS®E. Speaker(s): Amar Patel, PSS®E Product Manager and Jay Senthil, Senior Product Engineer |
| 12:30 pm | Lunch |
| 1:30 pm | **PSS®E core product enhancements – Continued** |
| 3:00 pm | Break |
| 3:30 pm | **PSS®E core product enhancements – Continued** |
| 4:00 pm | **Network Model Management**<br>Learn about the benefits and the different types of a network model management based on project and customer experiences. Speaker(s): Martin Mangold, PSS®ODMS and PSS®MOD Product Manager |
| 4:30 pm | **Scalable model management solutions for PSS®E**<br>Learn how you can utilize different solutions for PSS®E to achieve your various model management needs. During this presentation, you will hear about extending the capabilities of PSS®E with add-on modules, PSS®ODMS, and PSS®MOD. Speaker(s): Martin Mangold, PSS®ODMS and PSS®MOD Product Manager |
| 5:00 pm | Session end |

**PSS® Welcome Reception | 5:30 pm – 8:00 pm**
Network with peers and PSS® engineers. Enjoy complimentary beverages and hors d'oeuvres, and view informal demonstrations: PSS®E, PSS®SINCAL, PSS®ODMS, and PSS®NETOMAC Engine.

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## PSS® Plenary and PSS®E Sessions
Wednesday, December 4, 2019

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| PSS®E Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 9:00 am | **Electrical Digital Twin (EDT)**<br>Learn about the EDT for increased efficiency in data management and advanced analysis. Speaker(s): Martin Mangold, PSS®ODMS and PSS®MOD Product Manager |
| 9:30 am | **Understanding Network Fault Level Impacts**<br>The short circuit fault level of an electricity network plays an important role in understanding the strength of the network and forms a key component of studies involving the connection on new generators into the National Electricity Market (NEM). Factors that impact this fault level (both positively and negatively) are important to understand when creating network base cases and analysing the impact of key network elements. It is not always clear what level of impact an element may have on the fault level and how best to analyse this impact in PSS®E.<br><br>The presentation will draw on key learning outcomes from renewable generator connections in the NEM, noteworthy problems that were faced, and how PSS®E tools and functions can be used to overcome these issues. The discussion will include an analysis of synchronous generator placement and their impact on the fault level, as well as a look at PSS®E fault levels tools (ASCC) and how these parameters can impact the outcome of fault level studies. Speaker(s): Bradley Diverall, Senior Power Systems Engineer at APD Engineering |
| 10:00 am | **Modeling Renewable Resources in PSS®E**<br>In this session we will look into various aspects of modeling renewable resources in PSS®E and discuss some of the recent models that have been added into PSS®E. We will also address some of the key issues in modeling renewable resources as it applies to stability simulations and discuss the mitigating measures and/or modeling enhancements that are being discussed in key industry task forces. Speaker(s): Jay Senthil, Senior PSS® Engineer |
| 10:30 am | Break |
| 11:00 am | **Renewables modeling using PSS®E - continued** |
| 12:30 pm | Lunch |

| Time | Activity | Workshop: Integrated Network Model Management from PSS®E to PSS®ODMS<br>[Meeting room name] |
|---|---|---|
| 1:30 pm | Workshop start | Interactive workshop with live demonstration of existing and in-development Siemens PTI products supporting the full grid project lifecycle including: Initial data entry in PSS®E using the Model Management module, Integrated project data submittal to a remote-hosted PSS®MOD system, Project data migration to PSS®ODMS, Model enrichment in PSS®ODMS including substation detail, Building, validating and exporting the detailed base case to PSS®E, Potential integration with other in-house systems (e.g. EMS, Asset Management) via PSS®ODMS-enabled CIM/XML data exchange.<br><br>**Software requirements:** PSS®E 34.7 or higher installed with the model management module.<br><br>**Workshop leader:** Martin Mangold, PSS®ODMS and PSS®MOD Product Manager<br>Duration: 0.5 day<br><br>**Cost:** Complimentary |
| 3:00 pm | Break | |
| 5:00 pm | Workshop end | |

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## PSS® Plenary and PSS®E Sessions
Thursday, December 5, 2019

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| PSS®E Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 8:00 am | Coffee & pastries |
| 9:00 am | **Overview and Advantages of E-TRAN Power System Translation Software**<br>The E-TRAN software provides users convenient methods for producing highly accurate EMT simulations in PSCAD, based on PSS®E loadflow data. The E-TRAN plus for PSS®E add-on module allows users to perform co-simulation with PSS®E dynamic simulations. This presentation will provide an overview of the features, advantages, and theory of both of these tools, as well as brief demonstrations of capabilities. Speaker: Lukas Unruh, System Studies Engineer at Electranix Corporation |
| 10:00 am | **Evolution of the Power System Planning Process**<br>Mark's presentation will provide insight into the current challenges for planning and development of projects from the perspective of developers and owners.<br><br>Practical examples of issues faced during planning and commissioning, due to the maturity of network and generator models and limitations in the regulatory roles and processes will be addressed. Insights and opportunities for improvement will be proposed.<br><br>The need for multiple modelling platforms (PSS®E, PSCAD and Powerfactory) for planning studies will be discussed as well as each platforms strengths, weaknesses and opportunities for improvement. Speaker: Mark Parker - Director Engineering - EPEC Group. |
| 10:30 am | Break |
| 11:00 am | **Sophisticated protection and control system design and performance assessment -PSS®CAPE-TS Link**<br>The major system outages that have been experienced internationally have not resulted solely from a protection mal – operation or failure. Rather, large-scale outages have generally developed from a cascade of unanticipated adverse responses to such events.<br><br>The performance of the main elements of protection schemes can no longer be considered in isolation, simply assuming supervising elements and internal relay logic behave correctly with the power system remaining in a steady state.<br><br>A means to simulate the bulk electric power system in a way that models the stability of protective relays, control systems such as under frequency load shedding and special remedial action schemes (RAS) with their associated wide-area protection/control algorithms, throughout a system's dynamic response to a credible contingency is required.<br><br>The PSS®CAPE–Transient Stability Link, (CAPE-TS Link) is a new simulation platform that allows engineers to achieve this. It integrates PSS®E's dynamic simulation engine with CAPE's protection simulator to allow wholistic assessments of the protection and control systems' behaviour throughout the system's dynamic recovery.<br><br>This presentation introduces the CAPE-TS Link with its advanced simulation engine, sophisticated relay models and timed stepped integration with PSS®E's dynamic engine. It<br>*Speaker:* Peter Mangan, Managing Director at Applied Power Technologies |
| | *Continued - Please see the next page.* |

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| PSS®E Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 11:30 am | **User defined modeling in PSS®E**<br>Creating user-defined dynamic models in PSS®E is an extremely powerful tool which has been used very successfully by utilities and equipment vendors all over the world. In this session we will discuss the changes that have been implemented in PSS®E user written models in the last several years including best practices and our future plans to make user-written models easily portable from one PSS®E version to another.<br>Speaker(s): Jay Senthil, Senior PSS® Engineer |
| 12:30 pm | Lunch |

| Time | Activity | Workshop: PSS®E dynamic simulations: Recent Enhancements and Troubleshooting Cases<br>[Meeting room name] |
|---|---|---|
| 1:30 pm | Workshop start | In this session we will look into some of the recent changes that were added into PSS®E dynamic simulation including tools for dynamic data checking, a new verbose debug (VERBDEB) feature to help identify problematic models including user-written models, better messaging techniques, ability for performing automatic "zsorce" reconciliation to correct/identify problem with the input data, and playback feature to compare dynamics response to real-world metered results for model validation purposes.<br><br>**Software requirements:** None<br><br>**Workshop leader:** Jay Senthil, Senior PSS®E engineer<br><br>**Duration:** 0.5 day<br><br>**Cost:** Complimentary |
| 3:00 pm | Break | |
| 5:00 pm | Workshop end | |

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# Paid Course: PSS®E to PSCAD Benchmarking, Hybrid/Co-Simulation Studies and IEEE/DLL Modeling Standard Course

Friday, December 6, 2019

[Meeting room name]

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Join this seminar to learn about the advanced use of PSCAD and PSS®E, including benchmarking, translation from PSS®E to PSCAD, hybrid/co-simulation, and in-depth discussion on the new IEEE/Cigre DLL modeling standard for real-code interfaces to controllers.

**Software requirements:** This course will demonstrate the use of PSCAD and PSS®E, including the optional E-TRAN module to convert PSS®E to PSCAD and the co-simulation module.

**Instructor:** Lukas Unruh, System Studies Engineer at Electranix Corporation

**Duration:** 1 day

**Cost:** $750 AUD / per participant

| Time | Activity |
|---|---|
| 8:00 am | Coffee and Pastries |
| 9:00 am | Course Start |
| 10:30 am | Break |
| 12:30 pm | Lunch |
| 1:30 pm | Course Continued |
| 3:00 pm | Break |
| 5:00 pm | Workshop end |

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# 2019 Australia PSS® User Group Meeting

Agenda at a glance | Tuesday, December 3, 2019

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| PSS® Plenary Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 8:00 am | Registration, coffees, and pastries |
| 9:00 am | Welcome and introduction |
| 9:15 am | **What's new in the PSS® Portfolio**<br>Overview of new developments, features and news in PSS® suite. Including information about Interoperability in the PSS® Portfolio and beyond - application examples of data, models and simulation engines across the entire PSS® portfolio. Speaker(s): Amar Patel, PSS®E Product Manager |
| 10:00 am | **CIM Standard and how the Common Information Model enables the Network Model Management for TNSP and DNSP**<br>Learn about the IEC standardized Common Information Model for data exchange. Get an basic understanding how the electrical network is modeled in CIM and how such modelling enables network model management and data exchange between domains and utilities. Speaker(s): Martin Mangold, PSS®ODMS and PSS®MOD Product Manager |
| 10:30 am | Break – split into separate tracks |

| PSS®SINCAL Platform Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 11:00 am | **Participant welcome to PSS®SINCAL Platform Australia UGM and Opening Panel Session for PSS®SINCAL Platform users**<br>Q&A and discussion with PSS®SINCAL Platform users. Speaker(s): Mathias Ramold, Project Management Expert PSS®SINCAL and Anatoli Semerow, Product Manager of PSS®NETOMAC Engine |
| 12:30 pm | Lunch |
| 1:30 pm | **New features in PSS®SINCAL Version 15.5**<br>Learn about the latest features implemented into PSS®SINCAL V15.5 and view live demonstrations.<br>Speaker(s): Mathias Ramold, Project Management Expert PSS®SINCAL |
| 3:00 pm | Break |
| 3:30 pm | **New features in PSS®SINCAL Version 16.0**<br>Learn about the latest features implemented into PSS®SINCAL V16.0 and view live demonstrations.<br>Speaker(s): Mathias Ramold, Project Management Expert PSS®SINCAL |
| 4:15 pm | **Using the Expert Mode for Dynamic & Transient Analysis in PSS®SINCAL Platform**<br>Concept of the calculation engines in PSS®SINCAL Platform and how to use the expert mode for dynamic and transient analysis. Speaker: Anatoli Semerow, Product Manager of PSS®NETOMAC Engine |
| 5:00 pm | Session end |

**PSS® Welcome Reception | 5:30 pm – 8:00 pm**

Network with peers and PSS® engineers. Enjoy complimentary beverages and hors d'oeuvres, and view informal demonstrations: PSS®E, PSS®SINCAL, PSS®ODMS, and PSS®NETOMAC Engine.

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## 2019 Australia PSS® User Group Meeting

Agenda at a glance | Wednesday, December 4, 2019

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| PSS®SINCAL Platform Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 8:00 am | Coffee & pastries |
| 9:00 am | **Integration of Renewables using the Maximal Hosting Capacity Module (ICA), and EEG Module**<br>Studies for integration of renewables into power systems is one of the major tasks of DNO engineers and requires an efficient use of the tools. Learn how to gain most value by being supported by PSS®SINCAL in that recurring task. Speaker(s): Mathias Ramold, Project Management Expert PSS®SINCAL |
| 9:45 am | **Modeling of Renewables for steady-state and dynamic analysis using Graphical Model Builder (GMB)**<br>User-defined behavior of renewables can be modeled by the GMB and easily utilized within different calculation methods. Learn how to create and implement these models. Speaker: Anatoli Semerow, Product Manager of PSS®NETOMAC Engine |
| 10:30 am | Break |
| 11:00 am | **Getting out of the blocks earlier by using smart load and fast model creation in PSS®SINCAL**<br>For the past 24 months, Powercor and Citipower in Victoria have been working with Zepben to develop software tools and integrations that utilise AMI derived load data and data extraction processes from the GIS and ADMS to provide rapid and reliable model build of SINCAL models on demand. The models are capable of utilising stored AMI load data directly from an external database via SINCAL's smart load flow. This presentation will examine the issues encountered to date in the development of these mechanisms, and what is planned for the next 6 months.<br>Speaker: Bill Tarlinton, Managing Director of Zeppelin Bend (Zepben) |
| 11:45 am | Michael Jurasovic, Tasmanian Networks<br>**LV network modeling** |
| 12:30 pm | Lunch |

| Time | Activity | Workshop: Integration of Renewables using PSS®SINCAL<br>[Meeting room name] |
|---|---|---|
| 1:30 pm | Workshop start | During this workshop, participants will get an overview how to perform integration studies of renewables. Step by step, from steady-state to harmonics analysis, it will be shown how users can efficiently use PSS®SINCAL for this task. Usable functionalities as ICA or EEG will be shown.<br><br>**Software requirements:** Participants should bring a company laptop with PSS®SINCAL v16.0 installed.<br><br>**Workshop leader:** Mathias Ramold, Project Management Expert PSS®SINCAL<br>Duration: 0.5 day<br><br>**Cost:** Complimentary |
| 3:00 pm | Break | |
| 5:00 pm | Workshop end | |

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## 2019 Australia PSS® User Group Meeting

Agenda at a glance | Thursday, December 5, 2019

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| PSS®SINCAL Platform Session<br>[Meeting room name] | |
|---|---|
| **Time** | **Presentation Title** |
| 8:00 am | Coffee & pastries |
| 9:00 am | **Automation of PSS®SINCAL for Workflows**<br>Learn the new capabilities of the enhanced Python interface in PSS®SINCAL Platform.<br>Speaker: Anatoli Semerow, Product Manager of PSS®NETOMAC Engine |
| 9:45 am | **Modeling of REFCL in PSS®SINCAL**<br>Speaker: Abdul Barik, AusNet Services |
| 10:30 am | **Break** |
| 11:00 am | **New developments and customer "Wish List"**<br>Determination of requirements, user's needs and regulatory specifications for future releases of PSS®SINCAL Platform. Speaker(s): Mathias Ramold, Project Management Expert PSS®SINCAL and Anatoli Semerow, Product Manager of PSS®NETOMAC Engine |
| 12:00 pm | **Closing Panel Session for PSS®SINCAL Platform users**<br>Q&A and discussion with PSS®SINCAL Platform users |
| 12:30 pm | **Closing of the PSS®SINCAL Platform Australian UGM** |
| 12:30 pm | Lunch |

| Time | Activity | Workshop: Automation of PSS®SINCAL for Workflows<br>[Meeting room name] |
|---|---|---|
| 1:30 pm | Workshop start | During this workshop, participants will learn how to automate PSS®SINCAL using the scripting language Python and to use it for repeating tasks and by that save time in every day work<br><br>**Software requirements:** Participants should bring a company laptop with PSS®SINCAL v16.0 installed.<br><br>**Workshop leader:** Anatoli Semerow, Product Manager of PSS®NETOMAC Engine<br><br>**Duration:** 0.5 day<br><br>**Cost:** Complimentary |
| 3:00 pm | Break | |
| 5:00 pm | Workshop end | |

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## 2019 Australia PSS® User Group Meeting
Meet the Siemens PTI Speakers

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**Mathias Ramold, Project Management Expert PSS®SINCAL**
Mathias Ramold joined the PSS®SINCAL PLM team in October 2018. He is responsible for customer needs and workflow aspect and acts as an junior product lifecycle manager. Between 2011 and 2018 he worked as a senior consultant for Siemens PTI. His working fields included power system planning studies, protection coordination and training courses with focus on network analysis and PSS®SINCAL software. In 2017 he was appointed as Senior Key Expert for Network Analysis.

**Anatoli Semerow, Product Manager for PSS®NETOMAC Engine (incl. GMB, SSSA)**
Anatoli takes the responsibility for the areas of expertise in power system dynamics and transients at Siemens PTI. He has many years' experience in the field of dynamics, controls, modeling and simulation methods. Anatoli drives the development of the PSS®NETOMAC engine and of other future technologies for analysis and simulation of power systems in transmission and distribution. He provides trainings and consulting for the PSS®NETOMAC Engine, Graphical Model Builder (GMB) and Small Signal Stability Analysis (SSSA).).

**Amar Patel, Product Manager for PSS®E**
Mr. Patel is responsible for designing and managing PSS®E and PSS®MUST products, solutions, and services. In his 12 years with Siemens, Mr. Patel has research, development and product experience spanning multiple industries including Energy and Utilities, Automation, Telecommunications, Healthcare and Intelligent Systems and Controls. In this prior role with Siemens PTI Consulting, Mr. Patel developed solutions for the emerging markets of renewable generation, distributed energy resources, and microgrids including heading up design and development of advanced distribution analysis platform and an automated multi-feeder hosting capacity solution.

**Jay Senthil, Senior PSS®E Engineer**
Dr. Senthil has over 20 years of experience in developing production grade software tools including PSS®E and EMTP-type programs. He is an expert in various aspects of power system analysis, modeling, and simulation. He has played a major role in the development of several specialized equipment models, for dynamic simulation. Many of the specialized models he has developed are now part of the PSS®E dynamic model library.

**Martin Mangold, PSS®ODMS and PSS®MOD Product Manager**
Martin Mangold received the B.Sc. degree at the Technical University of Erlangen, Germany, in 2010, and the M.Sc. degree at the Technical University of Erlangen, Department of Electrical Engineering – Electronics and Information Technology, in 2013. Since October 2018 he is product lifecycle manager for the Network Model Management products from PTI – PSS®ODMS and PSS®MOD. Between 2013 and 2018 he worked as a power system consultant for Siemens PTI. His working fields included protection coordination and control studies as well as dynamic stability assessments.

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## 2019 Australia PSS® User Group Meeting
Guest Presenters

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**Peter Mangan, Managing Director, Applied Power Technologies**

Peter has demonstrated accomplishments in Transmission, Distribution and Generation protection, power quality and system dynamics, including the technical compliance assessment of major network connections, both synchronous and renewable. He also contributes strong modelling, analysis and design skills in power system protection, harmonic mitigation and system earthing. Peter brings a depth of technical knowledge, design skills and disciplined work ethics, gained from over 30 years' consulting experience in the electrical power industry to support the integrity and delivery of engineering projects.

**Bill Tarlinton, Managing Director of Zeppelin Bend (Zepben), and Simon Prlac, Network Solutions Engineer at Powercor**

Bill Tarlinton is the Managing Director of Zeppelin Bend (Zepben), who specialise in developing software solutions to help distribution utilities manage and utilise complex data and systems. Bill has extensive experience in software development specialised for electrical utilities and has overseen the development, deployment and management of several products used within Australian utilities. Simon Prlac works within Powercor as a Network Solutions Engineer and manages PSS®SINCAL within the company.

**Mark Parker - Director Engineering - EPEC Group, B.Eng Electrical, M.Eng Power Generation, MIEAust, CPEng, RPEQ (Electrical & Management)**

Mark Parker is a career power engineer currently involved in the development and operation of over 2GW of renewable and conventional generation projects across the NEM.

Mark's experience has covered the lifecycle of synchronous and asynchronous generation, energy conversion and storage projects, from planning and feasibility, business case, due diligence, tender, design, construction, commissioning, commercial operation and decommissioning.

**Lukas Unruh, System Studies Engineer at Electranix Corporation**
Lukas is experienced in performing state-of-the-art EMT modelling and simulation of large systems with high levels of renewable energy penetration while working alongside industry experts at Electranix Corporation. Many of his studies leverage recent advances in modern computing to perform simulations of a scale and complexity not feasible in previous years. Lukas is also involved in activities such as advanced weak-system screening analysis, study procedure streamlining and automation, and providing PSCAD and E-TRAN training services.

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