Position details

Title of Position:	Senior Power System Engineer
Reports to (position title):	Manager Network Capability
Division:	Network
Function:	Network Capability
Number of Direct Reports:	NIL
Grade:	7

Health, Safety & Wellbeing

ElectraNet is committed to co-creating a workplace of choice and enriching the communities in which we operate.

As an industry leader, ElectraNet is at the forefront of the clean energy transition. We are socially and environmentally ambitious, and our continued commitment to developing, operating and maintaining our network in a way that creates opportunities for people and nature is essential to achieving our vision of energising South Australia's Clean Energy future.

Our commitment also drives our focus to create a physical and psychosocial environment that supports the health, safety and wellbeing of our people, enabling them to thrive.

We all contribute to ElectraNet's workplace culture and have a duty of care to ourselves and one another to work safely, assess and manage risk, courageously speak up and promptly report any unsafe working practices, hazardous working conditions or security threats and to collectively learn and grow from every opportunity.

Position Overview

Senior Power System Engineers specialise in power system planning and network performance. They apply established engineering principles with a strong focus on hands-on modelling, analysis and technical delivery to ensure the secure and reliable operation of the network.
The role is accountable for:

- Developing, validating and maintaining power system models using PSS®E, PowerFactory, PSCAD, Mudpack/SSAT
- Performing system capability and security assessments (transfer limits, voltage, frequency, system strength, fault levels)
- Supporting operation of an inverter-dominated system, including stability and power quality challenges
- Delivering operational planning studies and network capability assessments
- Provide power system analysis and engineering support to regulated network augmentation projects undertaken by ElectraNet
- Providing regulator-defensible technical advice to internal and external stakeholders
- Applying automation (Python or similar) to improve study efficiency and repeatability

Key Responsibilities

Strategic Influencing

- Take initiative, drive for outcomes, take ownership, make independent decisions and formulate policies and procedures within established frameworks to obtain the best performance and results.
- Plan, direct, manage, coordinate and supervise work of other employees including professional employees.
- Provide ongoing, balanced feedback that rewards positive results and supports employees to learn and grow.
- Inspire, motivate, mentor and develop employees to be engaged, accountable and achieve best practice in their respective disciplines.
- Support external stakeholder management to deliver effective engagement with consumers and other stakeholders and support the regulatory positioning of the business.

Operational & Technical

Capable of working for extended periods under minimum supervision, the role is accountable for contributing to technical advice and operational support in:

- Development of technical deliverables and making technical decisions in accordance with the ElectraNet Technical Authority Framework
- Developing and maintaining fit-for-purpose power system models, including:
    - PSS®E
    - DIgSILENT PowerFactory
    - PSCAD
    - Mudpack / SSAT
    - Model validation, testing, commissioning and governance
- Undertaking system capability and security assessments, including:
    - Network transfer capability studies
    - Voltage control and reactive power analysis
    - Frequency performance and dynamic stability analysis
    - System strength and fault level assessments
- Delivering operational planning studies, including:
    - Contingency analysis
    - Constraint identification and mitigation
    - Outage and scenario-based studies
- Supporting connection and network development assessments, including:
    - Generator, load and storage connection studies
    - Performance and compliance assessments
    - Network augmentation projects
- Contributing to proactive long-term planning, including:
    - Scenario modelling and development assessments

  - Market and planning inputs
  - Preparation of planning reports (e.g. TAPR inputs)
- Applying automation and data analytics to improve efficiency and repeatability of studies:
  - Python or similar scripting
  - Batch processing and data analysis
- Providing high-quality, regulator-defensible technical advice to internal and external stakeholders, aligned with National Electricity Rules and AEMO requirements
- Maintaining awareness of emerging power system challenges, including inverter-based resources, system strength, stability and power quality, and adapting analysis approaches accordingly

Behavioural

- Build and maintain strong working relationships with and between internal and external stakeholders, delivering a high level of customer service.
- Create and develop a respectful workplace environment that values cultural diversity, innovation, open discussion and cross functional collaboration to help drive high performance.
- Lead by example; role model desired behaviour and priorities, demonstrate personal accountability for self-development and for achieving quality and timely result.
- Demonstrate behaviour that is consistent with ElectraNet's values, Code of Conduct and Acceptable Use of Technology Resources Policy while performing the role in a professional and ethical manner.
- Promote safe work practises that support the safety of all workers and the security of ElectraNet's assets, proactively reporting safety incidents, near misses and security threats.

Significant Working Relationships

- Network Planning, Protection and Security
- Network Connections
- SA Power Networks (SAPN)
- Australian Energy Market Operator (AEMO)

Equipment & Technology Used

- PSS/E & AULimit
- PSCAD
- Power Factory
- Other specialist analysis tools, e.g. PLEXOS, Mudpack, SSAT & Matlab

Selection Criteria

Knowledge & Experience

Essential

- Extensive experience in transmission power system engineering
- Hands-on expertise in utilising power system analysis and modelling tools including:
  - PSS®E
  - PowerFactory
  - PSCAD

- Mudpack / SSAT

- Strong capability in:
  - Power system analysis, modelling and validation
  - System security and operational planning
- Deep understanding of:
  - Voltage control
  - Frequency performance
  - System strength and fault levels
  - Inverter-based resources
- Experience in:
  - Contingency analysis
  - Transfer capability studies
- Ability to deliver regulator-defensible technical advice
- Strong working knowledge of:
  - National Electricity Rules
  - AEMO frameworks
- Experience with Python / automation of studies

Desirable

- Minimum 10 years' experience, and demonstrated capability in an Engineering related role
- Automation of studies / advanced analytics
- Connection studies (generation, load, storage)
- Inverter-dominated system experience

Qualifications

- Tertiary qualification in Electrical Engineering or relevant discipline (essential).
- Eligible for membership of Engineers Australia or professional association (essential)
- Chartered status with Engineers Australia or equivalent (desirable)

Background Checks

- Pre-employment checks, including background and security checks (such as global criminal checks) are required for this position, completed prior to commencement and repeated on a regular basis after appointment.

NOTE: Copies of the above listed qualifications/licences/certificates are required as evidence on appointment.