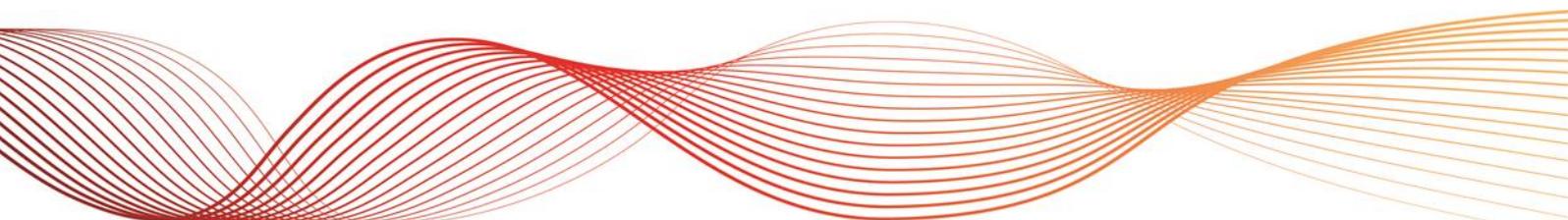




SOUTH AUSTRALIAN PLANNING REQUIREMENTS FOR NEW ELECTRICITY GENERATION

SOUTH AUSTRALIAN ADVISORY FUNCTIONS

PUBLISHED: JULY 2014



IMPORTANT NOTICE

Purpose

The purpose of this publication is to provide information about the current planning requirements, and other regulatory and licensing requirements for the development of new generation in South Australia. This publication is based on information available to AEMO as at 27 May 2014, although AEMO has endeavoured to incorporate more recent information where practical.

Disclaimer

AEMO has made every effort to ensure that quality of the information in this publication but cannot guarantee that information, forecasts and assumptions are accurate, complete or appropriate for your circumstances. This publication does not include all of the information that an investor, participant or potential participant in the National Electricity Market might require, does not amount to a recommendation of any investment.

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1 INTRODUCTION

1.1 Establishing generation in South Australia

This document provides information about the planning, licensing, and regulatory requirements for establishing new generation in South Australia. These requirements are:

- Development approval (including environmental requirements).
- Licensing.
- Registration.
- Connection.

Fees are payable for each, and change periodically. Proponents of new generation projects seeking to understand the current fees for each requirement should contact the relevant authority for details.

The following sections provide information on each of the required planning steps, and links to relevant materials and organisations to contact for more information.

1.2 State government authorities and roles

The relevant state authorities responsible for licensing generators and networks, and approving construction projects include:

- The Essential Services Commission of South Australia (ESCOSA), which is responsible for licensing generators and networks.
- The Energy Markets and Programs Division of the Resources and Energy Group in the Department of State Development, which focuses on delivering cost-effective, safe, reliable, and sustainable energy to the South Australian community.
- The Department of Planning, Transport and Infrastructure, which provides information on the planning requirements and activities requiring a development application.
- The Office of the Technical Regulator (OTR), which is responsible for safety and technical regulation.

Further information on these activities is available on the websites listed in the table below.

Links to supporting information

Information source	Website address
Department of State Development	http://www.statedevelopment.sa.gov.au
ESCOSA	http://www.escosa.sa.gov.au
OTR	http://www.sa.gov.au/otr
SA Government development applications and planning matters	http://www.sa.gov.au or directly at: http://www.sa.gov.au/topics/housing-property-and-land/building-and-development/building-and-development-applications

2 THE NATIONAL ELECTRICITY MARKET

2.1 The National Electricity Market

South Australia is part of the National Electricity Market (NEM), a wholesale market operating across eastern and south-eastern Australia. The Australian Energy Market Operator (AEMO) operates both the NEM and the power system. It also provides access to the market systems required by participants, for example generators that participate in the wholesale market by selling the electricity they generate. AEMO balances electricity demand and supply by dispatching the least-cost generation needed to meet demand.

Physically, electricity flows from generating systems into the transmission and distribution networks operated by network service providers (NSPs) before reaching end users. In South Australia, ElectraNet is the primary transmission network service provider (TNSP), and SA Power Networks is the primary distribution network service provider (DNSP).

AEMO publishes more detailed information about the NEM on its website.¹

2.2 NEM governance

NEM governance is undertaken by:

- The Council of Australian Governments' (COAG) Energy Council, which is responsible for pursuing priority issues of national significance in the energy and resources sectors, and progressing key energy market reforms.
- The Australian Energy Regulator (AER), which is responsible for the economic regulation of NSPs and compliance with national energy laws, regulations, and rules.
- The Australian Energy Market Commission (AEMC), which is responsible for making rules for the energy markets and providing independent advice on market improvements to the COAG Energy Council.
- AEMO, which, in addition to its market and system operator and other functions, provides planning reports and other technical advice to the South Australian Government.

2.3 Useful information published by network service providers

ElectraNet

ElectraNet publishes an annual planning report (APR) that analyses the expected future operation of the South Australian transmission network. This takes into account forecast loads, future generation opportunities, market network services, demand-side participation solutions (including the potential for load reduction), and transmission developments. Following stakeholder consultation, the APR also identifies solutions to emerging electricity network limitations or constraints over a 10-year planning period.

ElectraNet also publishes the Network 2035 Vision, a report which sets out a framework for the development and operation of South Australia's transmission network.

SA Power Networks

SA Power Networks also publishes an APR containing information about its distribution network, including forecast loads, emerging network limitations, and proposed solutions for a five-year planning period.

¹ Available at: http://www.aemo.com.au/About-the-Industry/Energy-Markets/~media/Files/Other/corporate/AEMO16839_FactSheet_NationalElectricityMarket_D6.pdf.ashx.

Links to supporting information

Information source	Website address
AEMC	http://www.aemc.gov.au
AEMO	http://www.aemo.com.au
AEMO: Fact Sheet - The National Electricity Market	http://www.aemo.com.au/About-the-Industry/Energy-Markets/~/_media/Files/Other/corporate/AEMO16839_FactSheet_NationalElectricityMarket_D6.pdf.ashx
AER	http://www.aer.gov.au
ElectraNet	http://www.electranet.com.au
ElectraNet: Transmission APR	http://www.electranet.com.au/network/transmission-planning/annual-planning-report
ElectraNet: Network 2035 Vision	http://www.electranet.com.au/network/transmission-planning/network-2035-vision
SA Power Networks Distribution APR	http://www.sapowernetworks.com.au
COAG Energy Council	http://www.scer.gov.au

3 PLANNING

This section provides information about the planning authorities that potential generators should contact when planning to establish new generation in South Australia.

3.1 Development approval

The key legislation regarding planning and development matters is the Development Act 1993 (the Development Act).

Three avenues for obtaining development approval to establish a new generating system are listed below. The most appropriate method depends on circumstances specific to the development.

- Local government council (council) development assessment process.
- Major development assessment process.
- Public infrastructure assessment process.

3.1.1 Council development assessment process

Local councils are the approving authority if a proposed development is within their jurisdiction. Proponents submit development plans to the council for assessment and approval. Each council has a development plan containing the planning policies that apply to a development application. Development applicants and third parties have appeal rights to council decisions on development applications, depending on the project scale and site zoning.

In 2012, the relevant minister approved the Statewide Wind Farms Development Plan Amendment (DPA) to provide greater certainty for communities and investors. For potential wind farms, a DPA must also be submitted to the Development Policy Advisory Committee (DPAC) for assessment. The DPAC conducts the public consultation process for these DPAs and provides a report to the minister.

3.1.2 Major development assessment process

Under Section 46 of the Development Act, the minister can declare a proposed development to be a major development if they consider this necessary for the development's proper assessment, or if it is of major economic, social, or environmental importance.

This assessment process has five stages:

- 1) Referral of the development application to the Development Assessment Commission (DAC).
- 2) The proponent prepares and issues detailed assessment documents for comment.
- 3) The proponent responds to public and government agency comment.
- 4) The minister assesses the proposal and releases an assessment report.
- 5) Decision by the state governor.

Under this process, the public and government have the opportunity to comment on the development prior to a decision being made. Further detail about the process is available on the South Australian Government's website.

Once a decision is made, there are no appeal rights.

Given the need for a public consultation, this process takes longer than the council development assessment process.

3.1.3 Public infrastructure assessment process

Section 49 of the Development Act establishes the planning and development system framework for public infrastructure, which includes “the infrastructure, equipment, structures, works and other facilities used in connection with the supply of ...electricity, gas or other forms of energy”. Under Section 49, a state agency can apply for approval of a development proposal for public infrastructure if:

- That agency proposes to undertake the development.
- That agency undertakes the development in partnership or joint venture with a private sector party.
- A private person undertakes a development that has been initiated or supported by that agency and is specifically endorsed by that agency for the purposes of Section 49.

The DAC notifies and provides development details to councils whose areas are affected by a proposed development.

The DAC assesses applications and must provide a report on the development application to the minister within three months of application lodgement. Once the minister decides on the application there is no right of appeal.

The minister must prepare a report for Parliament if they approve a development that:

- A local government council opposes.
- The DAC report identifies as being seriously in conflict with the relevant development plan, or prescribed code or standard.

For wind farms, the Statewide Wind Farms DPA also applies. Further information on this is provided in Section 3.1.1 of this document.

Additionally, Section 49A of the Development Act establishes a regime to assess developments proposed by ‘prescribed persons’ for the purposes of providing electricity infrastructure (as that term is defined by the Electricity Act 1996). This section does not apply to new generating plant with a generating capacity greater than 30 MW or to power lines that are greater than 66 kV and measure more than five kilometres.

3.2 Environmental studies

3.2.1 Commonwealth legislation

The Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act) provides a legal framework and decision-making process to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. These are defined in the EPBC Act as “matters of national environmental significance” and include:

- World heritage properties.
- National heritage places.
- Wetlands of international importance.
- Nationally threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- Nuclear actions, including uranium mines.
- Water resources related to a coal seam gas development and large coal mining development.

Any person who is unsure whether the EPBC Act applies to their development, or is seeking a development assessment for environmental impact (as required under the EPBC Act), should contact the Commonwealth Department of the Environment.

Information about proposed developments and their potential environmental impact is published to provide opportunity for stakeholder comment. The Department also provides a recommendation to the minister, or their appointed delegate, who decides whether a development is likely to significantly impact on a protected matter under the EPBC Act.

Developers should be aware that state and territory governments have primary responsibility for environmental protection and that other requirements may apply to proposed developments. The EPBC Act approval process applies in addition to any required state or local government approvals.

3.2.2 South Australian legislation

As part of a development application, the DAC may require a more detailed environmental assessment. For example:

- An Environmental Impact Statement (EIS). This is the assessment required for the most complex proposals, where a range of issues require detailed investigation. If the DAC directs an applicant to prepare an EIS, the applicant must release it for public comment for a minimum of six weeks, and hold a public meeting in an area near the proposed development site.
- A Public Environmental Report (PER). This assessment is sometimes referred to as a targeted EIS, and applies when the issues surrounding the development application require in-depth investigation but are narrower in scope and relatively well-known, or when existing information is available. A PER must be released for public comment for at least six weeks and a public meeting must be held near the proposed development site.
- A Development Report (DR). This is the least complex assessment, and relies principally on existing information. No public meeting is required and the applicant must release the DR for public comment for three weeks.

Further information on the DAC’s role and the requirements for each assessment is available on the DAC’s website and in the Development Act.

For wind farm developments, the Environmental Protection Authority has issued the Wind Farm Environmental Noise Guidelines to assist in assessing possible environmental noise impacts from proposed wind farms, set out noise level criteria, and offer advice on complying with the guidelines.

3.3 Other legislative requirements

Other relevant legislation includes:

Commonwealth Acts

- Aboriginal and Torres Strait Islander Heritage Protection Act 1984.
- Native Title Act 1993.

South Australian Acts

- Aboriginal Heritage Act 1988.
- Dangerous Substances Act 1979.
- Electricity Act 1996.
- Environment Protection Act 1993.
- Land Acquisition Act 1969.
- Native Title (South Australia) Act 1994.
- Native Vegetation Act 1991.
- Natural Resource Management Act 2004.
- Work Health and Safety Act 2012.
- Pastoral Land Management and Conservation Act 1989.

Links to supporting information

Information source	Website address
Development Act 1993	http://www.legislation.sa.gov.au/LZ/C/A/DEVELOPMENT%20ACT%201993.aspx
Development Assessment Commission	http://dac.sa.gov.au



Development Regulations 2008	http://www.legislation.sa.gov.au/LZ/C/R/Development%20Regulations%202008.aspx
Environmental Protection Authority Wind Farm Environmental Guidelines	http://www.epa.sa.gov.au/environmental_info/noise/wind_farms
Environment Protection and Biodiversity Conservation Act 1999 (the EPBC Act)	http://www.environment.gov.au/epbc/index.html
SA Government Website: Development Plans	http://www.sa.gov.au/topics/housing-property-and-land/local-government/development-plans
SA Government Website: Statewide Wind Farms DPA	http://www.sa.gov.au/topics/housing-property-and-land/local-government/development-plans/amendments-to-development-plans-proposed-by-the-minister/statewide-wind-farms-amendment

4 LICENSING REQUIREMENTS

Any person who generates electricity in South Australia is required to have a generation licence, except where:

- The generating plant has a rated nameplate output of 100 kVA or less.
- The electricity is not supplied for reward, or to or by means of, a transmission or distribution network.²

ESCOSA is responsible for issuing, varying, or transferring licences to generate electricity.

ESCOSA has issued Advisory Bulletin No. 4, Licensing Arrangements for the Electricity and Gas Supply Industries, which outlines the procedure for issuing licences. Licence application forms are available on ESCOSA's website.

4.1 Special licence conditions for wind generation

Applicants seeking a licence to generate electricity using wind generating systems must meet special licence conditions determined by ESCOSA, including:

- Providing evidence that the generating system can meet specific technical standards regarding fault ride-through and reactive power capability.
- Providing accurate wind forecasting data on request from ESCOSA or AEMO if AEMO approves a generating unit's classification as non-scheduled,

Further information about these licence conditions is available on ESCOSA's website and in the licence application form available also on its website.

Links to supporting information

Information Source	Website Address
ESCOSA Wind Licensing Principles	http://www.escosa.sa.gov.au/projects/15/2010-wind-generation-licensing.aspx
ESCOSA Licensing	http://www.escosa.sa.gov.au/electricity-overview/licensing.aspx
ESCOSA Wind Generation Licensing Conditions	http://www.escosa.sa.gov.au/library/100503-ElectricityGeneration-ModelLicenceConditions_2010.pdf
ESCOSA: Advisory Bulletin No. 4, Licensing Arrangements for the Electricity and Gas Supply Industries	http://www.escosa.sa.gov.au/library/110711-AdvisoryBulletin4-LicensingArrangements.pdf

² Electricity (General) Regulations 1997, Part 2, Section 6(2). Available at: [http://www.legislation.sa.gov.au/LZ/C/R/Electricity%20\(General\)%20Regulations%201997.aspx](http://www.legislation.sa.gov.au/LZ/C/R/Electricity%20(General)%20Regulations%201997.aspx).

5 REGISTRATION IN THE NEM

5.1 Registration

Under the National Electricity Law, any person who owns, controls, or operates a generating system connected to a transmission or distribution network must register as a Generator in accordance with the National Electricity Rules (NER), unless exempt.

To be eligible for registration, a person must:

- With AEMO'S approval, classify each of its generating units as either scheduled (that is, dispatched by AEMO), semi-scheduled, or non-scheduled.
- Satisfy AEMO that each generating system is capable of meeting or exceeding its stated performance standards.

Further eligibility requirements must be met to register as a Market Generator.

A person must also classify each generating unit as either a market generating unit (that is, energy is settled by AEMO) or a non-market generating unit. With AEMO's approval, a person may also classify a generating unit as an ancillary service generating unit. Table 5-1 provides a brief description of generating unit classification categories.

Table 5-1 — Generating unit classification categories

Classification	Description
Scheduled	A generating unit with a nameplate rating of 30 MW or greater, or is part of a generating system that is greater than 30 MW at a common connection point. AEMO can classify these generating units as non-scheduled if: <ul style="list-style-type: none"> • The primary purpose of the generating unit is local use or its aggregate sent-out generation rarely exceeds 30 MW. • It is not practicable for the generating unit to participate in central dispatch.
Semi-scheduled	A generating system with intermittent output (for example, wind or solar) with an aggregate nameplate rating of 30 MW or more.
Non-scheduled	A generating system with an aggregate nameplate rating of less than 30 MW.
Market	A generating system whose sent-out generation is not entirely purchased by the Local Retailer or by a Customer located at the same connection point.
Non-market	A generating system whose sent-out generation is entirely purchased by the Local Retailer or by a Customer located at the same connection point.

AEMO has issued a standing exemption from registration for applicants with generating systems that have a nameplate rating of less than 5 MW.³ Where a generating system has a nameplate rating of more than 5 MW but less than 30 MW, and an annual export lower than 20 GWh, AEMO will consider an application for exemption on a discretionary basis. Further information about applying for a registration exemption is available on AEMO's website.

Registration is required prior to commissioning and operating a generating system. Further information on registration is available in AEMO's Generator Registration Guide published on its website.

AEMO requires registration applications to be submitted at least three months prior to commissioning, but prefers that applicants consider the registration requirements as early as possible.

³ Generating systems less than 5 MW must also meet the following criteria: (i) The sent-out generation of the unit is purchased in its entirety by the Local Retailer or by a Customer located at the same connection point; or (ii) Each of the generating units comprising the generating system is classified as a market generating unit by a Market Small Generation Aggregator.



Technical areas that can cause registration delays include:

- Incomplete data and simulation models.
- Generating systems that do not meet agreed performance standards.
- Supervisory Control and Data Acquisition (SCADA) data not ready for remote monitoring. SCADA data must be ready before AEMO allows first synchronisation.

Links to supporting information

Information source	Website address
AEMO: Fact Sheet - The National Electricity Market	http://www.aemo.com.au/About-the-Industry/Energy-Markets/~media/Files/Other/corporate/AEMO16839_FactSheet_NationalElectricityMarket_D6.pdf.ashx
Generator Registration Information	http://www.aemo.com.au/Electricity/Registration/Participant-Categories/Generator

6 NEW GENERATION CONNECTIONS

This section provides an overview of the connection process to establish new generation in South Australia.

6.1 Key network connection roles and responsibilities

AEMO's role

AEMO's role in connecting new generation involves:

- Assessing, advising, and accepting proposed negotiated access standards for issues that are defined in the NER as "AEMO advisory matters".
- Assessing connecting generating systems' capability to achieve their proposed performance standards.
- Registration.
- Commissioning and post-commissioning.

ElectraNet's role

Under the NER, TNSPs are responsible for assessing and processing connection enquiries and applications to their networks. As the TNSP that owns and operates the high voltage transmission network in South Australia, ElectraNet is the relevant TNSP.

SA Power Networks' role

Under the NER, DNSPs assess and process all connection applications to their distribution network. As there is only one distribution network in South Australia, SP Power Networks is the appropriate DNSP. SA Power Networks publishes guides to connecting small or large embedded generation to its network.

6.2 Connection process

The generator connection process is described in the following sections and must be followed by any person seeking to connect a generating system to a transmission or distribution network. AEMO's New Generator Transmission Connections in the NEM outside of Victoria provides an illustration of the different connection process maps to assist applicants to understand the process.

NER Chapter 5 sets out details of the connection process. Connection applicants should review these requirements to understand the regulatory processes, and the roles and responsibilities of each party involved in the process.

In areas where multiple generators are seeking to connect their generating systems to a transmission network, it may be more efficient to develop a jointly-funded network extension, also known as a Scale Efficient Network Extension (SENE). Under the NER, any person (or group) can request and fund a TNSP to conduct a SENE design and cost study to identify the likelihood of multiple network users accessing transmission infrastructure and the cost of accommodating those users. They then decide whether to fund and connect to a SENE.

6.2.1 Stage 1 - Pre-feasibility

This stage is informal. Potential connection applicants explore the feasibility of their generation project and commence preliminary discussions with the relevant NSP, landowners, and government authorities.

Potential connection applicants should discuss the proposed location of their generating system and connection point with the relevant NSP.

It is also important to explore land and land use planning issues; failure to secure land or obtain relevant development approvals in a timely manner will cause applicants delays.

Contact details, application forms, and guidelines explaining how to connect to ElectraNet's or SA Power Network's existing networks are published on their websites. They can also advise on the anticipated fees and charges, and any preliminary work associated with connection applications.

6.2.2 Stage 2 - Enquiry

Submitting a connection enquiry to the relevant NSP assists applicants to determine the most suitable connection point and clarify the information required to submit a connection application. The connection enquiry must advise the type, magnitude, and timing of the proposed network connection and any other requirements specified by the relevant NSP.

Connection applicants are expected to have identified the generating system's location based on the available fuel source and a high-level review of network capability. Once an enquiry has been submitted, connection applicants who require transmission network data to undertake connection studies can request it from AEMO. This data is available to Registered Participants on request. Alternatively, connection applicants can register with AEMO as an Intending Participant to obtain this data.

For proposed connections to the distribution network, connection applicants should contact SA Power Networks to request network data and for further information.

Useful connection information

AEMO publishes an interactive transmission network map and diagram that is updated annually. Connection applicants can contact AEMO to confirm the most up-to-date information. Illustrations of the distribution network can be obtained from SA Power Networks.

AEMO also publishes the following information about the capability of transmission networks in the NEM:

- The National Transmission Network Development Plan, which provides an independent and strategic view of the efficient development of the transmission networks in the NEM over a 25-year planning horizon. It focuses on large-scale electricity generation and the main transmission networks that connect this generation to population and industrial centres.
- The Electricity Statement of Opportunities (ESOO), which provides an analysis of opportunities for electricity generation and demand-side investment over a 10-year outlook period under a range of economic scenarios.
- The National Electricity Forecasting Report, which provides AEMO's independent electricity consumption forecasts over the next 10 years for all NEM regions.
- The Power System Adequacy report, which complements the current ESOO by outlining the expected impact on medium-term power system security and reliability over the next two years.⁴
- The Congestion Information Resource, which provides information on transmission network congestion patterns and helps participants to understand and manage transmission network congestion.

As a part of its South Australian Advisory Functions, AEMO also publishes reports that provide information specific to South Australia, including:

- The South Australian Electricity Report.
- The South Australian Electricity Market Economic Trends Report.
- The South Australian Fuel and Technology Report.⁵

ElectraNet's and SA Power Networks' APRs are also useful, as they provide detailed analysis of electricity networks and their adequacy under a range of future conditions, and identify how these could be developed to meet expected future requirements.

In determining the generating system's location and its economic viability, connection applicants should consider the electrical energy losses associated with sending electricity from the proposed connection point to the regional reference node (RRN). In the NEM, marginal loss factors (MLFs) are used to describe and account for transmission losses from each generation connection point and adjust a generator's dispatch offer.

Typically, the further a generator transmission connection point is located from the RRN the greater the electrical energy losses. Similarly, distribution loss factors (DLFs) are used to account for average electricity losses between distribution and transmission connection points.

⁴ The final Power System Adequacy report was published on 13 August 2012.

⁵ All reports and associated data are available on AEMO's website at: <http://www.aemo.com.au/Electricity/Planning/South-Australian-Advisory-Functions>.

Transmission connection applicants can contact AEMO to obtain an indicative MLF for a proposed connection point; this service may incur a fee. The RRN for South Australia is the Torrens Island substation in the Adelaide Metropolitan region. AEMO publishes the DLFs calculated by SA Power Networks. Distribution connection applicants should contact SA Power Networks for further information about DLFs.

Response to connection enquiry

Typically, an NSP response to a connection enquiry will include:

- The topology of the proposed connection.
- The technical studies and access standards to be addressed.
- The technical and outstanding information required to finalise a connection application.
- Applicable fees to process a connection application.

For a fee, the NSP may also assist the connection applicant to analyse the various connection options to determine any other information required for a valid connection application. The NSP will determine connecting plant layout and switching arrangements, and provide information to the applicant on the exact point to which their new generating system can connect.

6.2.3 Stage 3 - Application

A connection application must propose the technical access standards (see Schedule 5.2 of the NER) that will be applied to the proposed generating system. Once performance standards are agreed, they become the performance standards for the generating system.

The level of technical data required depends on the system size, with generators below 30 MW typically requiring a lower level of technical information.

AEMO's Technical Information Requirements for Generator Connections provides an overview of the technical information required at each stage of the connection process.

As part of assessing an application to connect, and in order to maintain service and quality of supply to existing Registered Participants, the NSP must consult with AEMO and all Registered Participants who may be affected.

After an application to connect has met the NSP requirements and performance standards have been agreed, the NSP must make an offer to connect in accordance with the NER. The technical and commercial arrangements applicable to the connection must then be finalised and fees could be payable.

6.2.4 Stage 4 - Contracts

The offer to connect must be in a form that is capable of acceptance, and its contents are prescribed by clauses 5.3.5 and 5.3.6 of the NER.

Once the offer has been accepted by the connection applicant, a connection agreement will be entered into between the NSP and the connection applicant. Its contents are prescribed by the NER.

6.2.5 Stage 5 - Construction

The connection applicant is expected to undertake detailed design work, construct the generating system and connection assets, and prepare and provide to the NSP and AEMO (in the case of transmission connections) finalised:

- Technical data.
- Simulation models.
- Energy conversion model data (for semi-scheduled generating systems).
- Commissioning plans.

The connection applicant should also consider data, metering, and registration requirements. If these requirements are not met, commissioning may be delayed.

6.2.6 Stage 6 - Completion

The completion stage comprises registration, commissioning, and activities undertaken in the post-commissioning period of new generation.

Registration

See Section 5.

Commissioning

Prior to (or shortly after) connecting to a network, on-site testing must be conducted to demonstrate that the new generating system has been constructed in accordance with all regulatory and contractual obligations.

The NER requires commissioning plans to be agreed with the NSP and AEMO at least three months prior to the commencement of commissioning. Given the time involved in developing and agreeing commissioning plans, AEMO suggests that applicants consider this requirement as early as possible. Each plan must:

- Set out the expected timing of activities.
- Identify the data that will be provided to the connecting NSP and AEMO once test results are available.

Applicants should review AEMO’s Commissioning Requirements for Generating Systems when preparing commissioning plans. The NSP may also have additional commissioning requirements that must be considered.

The applicant should provide the NSP and AEMO with final generating system model and data sheets prior to registration to allow sufficient time for control settings to be determined. This is typically six months prior to first synchronisation.

If the generating system has a material inter-network impact (see clause 5.7.7 of the NER), as assessed in accordance with AEMO’s Criteria for Assessing Material Inter-Network Impact of Transmission Augmentations, the connection applicant must provide advice at least 80 business days prior to the expected first synchronisation date for AEMO to determine whether inter-network tests are required.

Post-commissioning

Within three months of completing on-site commissioning, the connection applicant must submit to the NSP and AEMO a commissioning report which demonstrates that the generating system meets agreed performance standards. Connection applicants should contact the relevant NSP and AEMO to determine their respective requirements. Additionally, they are required to provide AEMO with information that updates the models and parameters provided under clause S5.2.4 of the NER within three months of commissioning tests. AEMO’s R2 Testing Guideline assists in preparing testing programs for R2 registered data.

If the commissioning and other specified test results indicate that the generating system does not meet the agreed performance standards, clause 5.8.5 of the NER requires the connection applicant to meet with the relevant NSP and AEMO to agree on a process to achieve compliance.

After commissioning, the connection applicant is also required to submit a compliance program under clause 4.15 of the NER in respect of its compliance with the agreed performance standards.

Links to supporting information

Information source	Website address
AEMO: Commissioning Requirements for Generating Systems	http://www.aemo.com.au/Electricity/Network-Connections
AEMO: Criteria for Assessing Material Inter-Network Impact of Transmission Augmentations	http://www.aemo.com.au/en/Electricity/Planning/Policies-and-Procedures/Assessment-of-Material-InterNetwork-Impact
AEMO: New Generator Transmission Connections in the NEM outside of Victoria	https://www.google.com/url?q=http://www.aemo.com.au/Electricity/Network-Connections/NEM_Generator_Transmission_New-Connection&sa=U&ei=ZRmZU7HNEYrc8AWstoLYBA&ved=0CAUQFjAA&client=internal-uds-cse&usg=AFQjCNE9drfbcSGZYtvE1ndP7vIuxrezJA



Information source	Website address
AEMO: R2 Testing Guideline	http://www.aemo.com.au/Electricity/Registration/Application-Forms/R2-Testing-Guideline
ElectraNet	http://www.electranet.com.au
SP Power Networks: Embedded Generation	http://www.sapowernetworks.com.au/centric/customers/embedded_generation.jsp



TERMS AND ABBREVIATIONS

Term	Definition
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
APR	Annual planning report
COAG	Council of Australian Governments
Development Act	Development Act 1993
DAC	Development Assessment Commission
DNSP	Distribution network service provider
DPA	Development plan amendment
DPAC	Development Policy Advisory Committee
DR	Development Report
EIS	Environmental Impact Statement
ElectraNet	The primary TNSP in South Australia
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESCOSA	Essential Services Commission of South Australia
ESOO	Electricity Statement of Opportunities
MLF	Marginal loss factor
NEM	National Electricity Market
NER	National Electricity Rules
NSP	Network service provider
OTR	Office of the Technical Regulator
PER	Public Environmental Report
RRN	Regional reference node
SCADA	Supervisory Control and Data Acquisition
SENE	Scale Efficient Network Extension
SA Power Networks	The primary DNSP in South Australia
TNSP	Transmission network service provider