ElectraNet SA
electricity transmission network

Request for Information

Projected Transmission Network limitations:

Lower Eyre Peninsula 132 kV Supply Region of South Australia

ElectraNet
November 2005

Disclaimer

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1. INTRODUCTION

This Request for Information (RFI) document is provided to Registered Participants, interested parties, and the public to provide information regarding the forecast adequacy of the 132 kV electricity supply system that serves the Lower Eyre Peninsula region of South Australia. This RFI seeks comment and information from Registered Participants, interested parties, and potential solution providers regarding possible solutions to projected network limitations forecast to occur on the Lower Eyre Peninsula 132 kV transmission system. The projected network limitations are described in detail in section 6 of this document.

ElectraNet has undertaken rigorous analysis of the 132 kV electricity transmission system that supplies the Lower Eyre Peninsula region of South Australia. These studies have identified projected network limitations on the transmission system that will require remedy prior to the summer of 2006/07.

The projected network limitations relate to the ability to continue to meet both the Essential Services Commission of South Australia's Electricity Transmission Code (ETC) and the NER reliability, security of supply, and service obligations as a result of the continued load growth in the region. Existing network support contracts with International Power-Synergen (IP-S) for the Lower Eyre Peninsula 132 kV network have mitigated the projected network limitations to date, however these contracts will expire shortly. Action is required by December 2006 to ensure a reliable electricity transmission supply is maintained to the Lower Eyre Peninsula region beyond that date.

This RFI has been prepared by ElectraNet to initiate consultation under the National Electricity Rules (NER) to ensure that the most cost-effective development that meets the projected network limitations is implemented, leading to the lowest possible cost of providing reliable transmission supplies to electricity consumers.

This RFI is regarded by ElectraNet as a preliminary but integral part of its approach to meeting its obligations under Clause 5.6.6 of the NER, although the issue of a formal RFI is not required under the Rules. The adoption of a public RFI process is part of ElectraNet's commitment to ensure the selection and implementation of the most cost-effective solution(s) to all projected network limitations on ElectraNet's power system.

1.1. Purposes of the Discussion Paper

The purposes of this discussion paper are to:

- Provide information about the existing 132 kV electricity transmission system that supplies the Lower Eyre Peninsula region of South Australia;
- Provide information about projected network limitations and the expected time at which action must be taken to meet service standards and maintain system reliability under normal operating conditions and following a credible single contingency event;
- Seek information on solutions to the projected limitations in the Lower Eyre Peninsula region that could be provided by solution providers other than ElectraNet, and;
- Explain the process being used to obtain and evaluate alternative solutions.

1.2. Discussion Paper Context

ElectraNet is required to ensure that its electricity supply network is operated with sufficient capacity to provide network services to customers in accordance with the provisions of the NER and the ETC[1].

ElectraNet is subject to regulatory requirements in terms of identifying and evaluating options to ensure that the reliability obligations stipulated in the relevant standards are satisfied. This document has been developed as a critical step in meeting those requirements.

1.2.1. Background

ElectraNet is the principal transmission network service provider in South Australia. It is a privately owned company that has a long-term lease for the operation, maintenance, and development of the South Australian transmission system that comprises plant and equipment mainly operating at voltages of 132 kV and above. ElectraNet is registered with NEMMCO as a Transmission Network Service Provider (TNSP).

If the technical limits or reliability requirements of its transmission system are forecast to be exceeded, ElectraNet is required to notify Registered Participants within the time required for corrective action to be implemented. Prior to construction of any major network augmentation, ElectraNet must also meet the following regulatory requirements[2]:

- Consult with Registered Participants and interested parties regarding alternative solutions, including those which may be provided by solution providers other than ElectraNet such as local generation, market network services, distribution services, and demand side initiatives;
- Demonstrate proper consideration of various market development scenarios, including variations in electricity demand growth rates, and the ability of new or proposed demand-side responses and/or new or proposed generation capacity to satisfy projected network limitations, and;
- Ensure that the recommended solution to meet a reliability or service standard requirements does so at the lowest total present value cost when compared with other feasible solutions, in accordance with the Regulatory Test promulgated by the Australian Energy Regulator (AER).

As the first step in meeting these obligations in relation to projected transmission network limitations, ElectraNet has elected to make available this “Request for Information” paper.

1.3. Status of RFI

This RFI is made available to Registered Participants and other interested parties to obtain information regarding possible non-network solution that may provide cost effective alternative means of meeting power system performance obligations. By issuing this RFI, ElectraNet is not under any obligation to select any particular proposal, negotiate with any particular proponent, or enter into any agreement with a proponent.

ElectraNet will not be legally bound in any way or otherwise obligated to any person who may receive this RFI or to any person who may submit a proposal. At no time will ElectraNet be liable for any costs incurred by a person in the assessment of this RFI, any site visits, obtainment of further information from ElectraNet, or the preparation of a response to this RFI.

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[1] *ETC available on ESCOSA website (www.escosa.sa.gov.au)*
[2] *As set by the AER and contained in Chapter 5 of the National Electricity Rules.*

1.4. Coordination and Closing Date

The closing date for submissions to this RFI is Friday 9th December 2005.

Requests for additional information or clarification regarding this RFI should be directed to:

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2. EXISTING SUPPLY SYSTEM TO THE EYRE PENINSULA

2.1. Geographic Region

Eyre Peninsula is located in the western part of South Australia (refer Figure 1). The region extends from Penong, approximately 65 km west of Ceduna, in the north-west, to Port Lincoln, in the south, and to Middleback (approximately half way between Whyalla and Cowell) to the east. The total geographic area covered is about 22,000 square kilometres. Although it covers a significant geographic area it is only sparsely populated, containing some 2% of the South Australian population. The major population centres are at Whyalla (~25,000) and Port Lincoln (~12,000). There are several other rural centres on the Eyre Peninsula, the major ones being Ceduna (~2,800), Streaky Bay (~1000), Cleve (~800), Cowell (~700), Kimba (~700), and Wudinna (~600), with approximately 18,000 individual electricity consumers in the Lower Eyre Peninsula region south of Whyalla.

The main industries on the Eyre Peninsula are mining and steel manufacturing (at and near Whyalla), fishing, grazing, agriculture and aquaculture. The peninsula has significant mineral deposits although these have not been exploited to any great degree at present.

Figure 1 – Eyre Peninsula transmission system

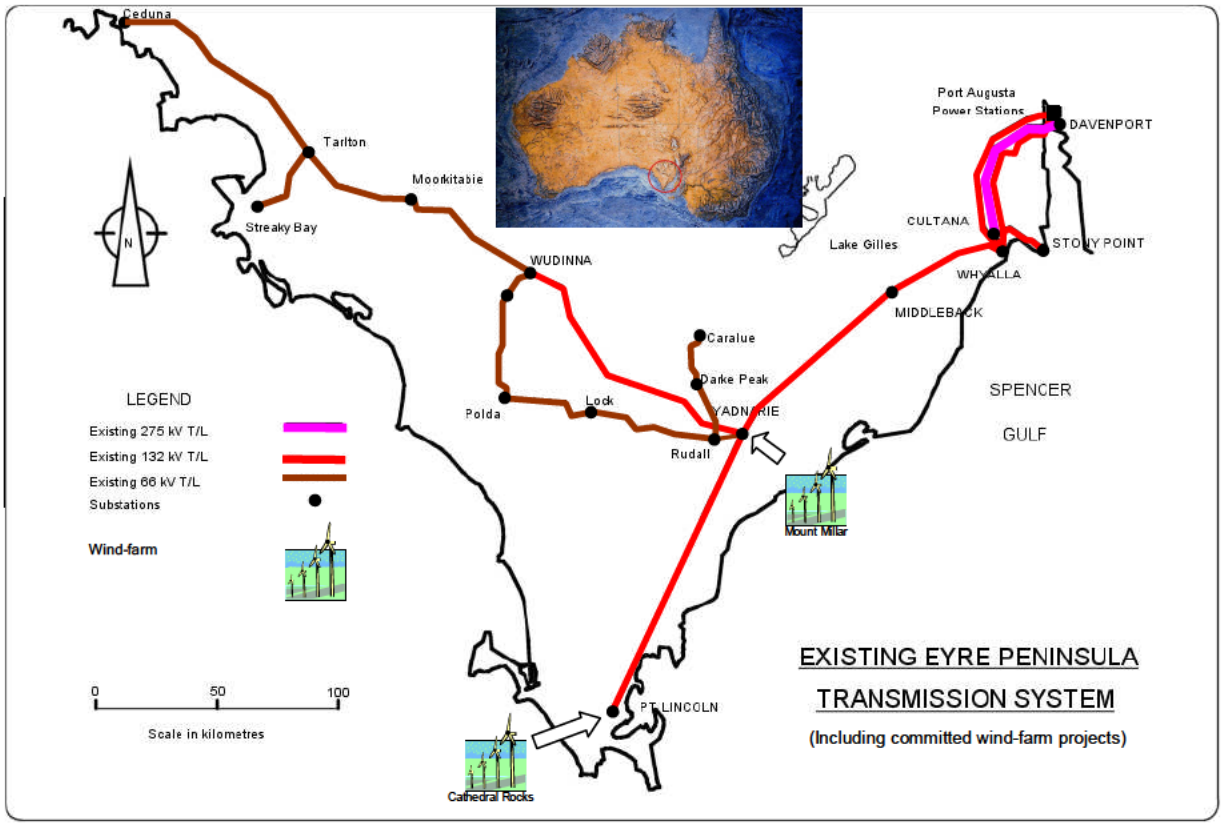


Diagram 1

2.2. Existing electricity supply system

Eyre Peninsula electricity consumers are supplied from a number of ETSA Utilities distribution systems that in turn derive their supply from three ElectraNet substations located at Yadnarie (near Cleve), Wudinna, and Port Lincoln. Middleback substation provides a dedicated electricity supply to the Iron Duke mine that is operated by OneSteel (formerly BHP-Whyalla). The 132 kV transmission system that supplies these connection points has been progressively developed since the mid 1960's.

2.2.1. Transmission system

The 132 kV transmission supply between Port Lincoln and Whyalla was constructed in the mid 1960's to supply a 132/33 kV substation at Port Lincoln that was established at the same time. Prior to the establishment of this transmission supply, Port Lincoln was supplied by a local power station that utilised both steam and distillate powered electricity generators. That power station has now been de-commissioned. The Port Lincoln region is supplied from ElectraNet's Port Lincoln connection point via a 33 kV network that is operated by ETSA Utilities.

The Yadnarie 132/66 kV substation was established in the early 1970's by tapping into the existing Whyalla–Port Lincoln 132 kV line and establishing a 66 kV connection point to supply the western Eyre Peninsula to Ceduna. As the electrical demand on the Ceduna 66 kV system increased, voltage regulation became an issue, and the 132 kV system was extended to the west in 1983 and a second 132/66 kV substation established at Wudinna to inject into the 66 kV system.

Middleback 132/33 kV substation was established on the Whyalla-Yadnarie 132 kV line in 1989 in order to provide an electricity supply to the Iron Duke mine operated by BHP-Whyalla (now OneSteel).

The present Eyre Peninsula 132 kV transmission system comprises a radial 132 kV line approximately 260 km in length, between Whyalla and Port Lincoln. An intermediate 132 kV substation is located on this line at Yadnarie (near Cleve), approximately half way between Whyalla and Port Lincoln. Another radial 132 kV line that is approximately 110 km in length exits Yadnarie and connects to Wudinna substation to the north-west. The ETSA Utilities 66 kV system provides an underlying sub-transmission network that also connects between Yadnarie and Wudinna 132/66 kV substations, and extends further west to Ceduna providing bulk electrical supply to numerous supply points along the way. A 33 kV network, operated by ETSA Utilities is supplied from the ElectraNet connection point at Port Lincoln, and provides bulk supply to a number of locations at the southern end of the peninsula.

The general arrangement of the Eyre Peninsula transmission system is shown in Figure 1.

2.2.2. Sub-transmission and distribution systems

ElectraNet's connection points at Yadnarie and Wudinna are interconnected by an underlying 66 kV sub-transmission network. However, this 66 kV network can only provide partial back-up support to the two ElectraNet connection points under contingency conditions due to a combination of the route-length, voltage drop, and the rating of the interconnecting 66 kV line.

There is no interconnecting sub-transmission network that provides an electrical connection between the Port Lincoln connection point and either the Yadnarie or Wudinna connection points.

2.2.3. Technical Information – Transmission

Technical information about various elements of the transmission network in the lower Eyre Peninsula is contained in tables 1 and 2 below.

Table 1 – Lower Eyre Peninsula connection point details

Connection Point	Year of commissioning	Basic composition
Yadnarie	1970	2x20 MV.A 132/66 kV transformers
Wudinna	1983	1x25 MV.A 132/66 kV transformers
Port Lincoln	1966	3x25 MV.A 132/33 kV transformers

Table 2 – Lower Eyre Peninsula transmission line details

Transmission Lines	Age	Length (km)	Summer design rating (MV.A)	Winter design rating (MV.A)
Whyalla-Middleback 132 kV	39	48.2	106*	137**
Middleback-Yadnarie 132 kV	39	85.6	88*	91**
Yadnarie-Port Lincoln 132 kV	39	130.2	88*	91**
Yadnarie-Wudinna 132 kV	22	120.3	91**	91**

* Design rating following implementation of the new small network augmentations(refer to section 6.1)

** Limited by substation equipment

2.2.4. Generation

Prior to the establishment of the 132 kV transmission system in the mid 1960's, the electricity supply to the Lower Eyre Peninsula was provided by a number of localised generation facilities with the largest of these being located at Port Lincoln. Several smaller facilities were also installed in the local Council areas throughout the peninsula. With the advent of a reliable mains-based electricity supply, most of these generating stations were de-commissioned and are no longer serviceable. Port Lincoln Power Station remained serviceable until the late 1990's, but has since been de-commissioned.

Port Lincoln is the most significant centre on the Lower Eyre Peninsula in both terms of population and commercial activity. It now has a peak electrical demand in excess of 35 MW. Because of the importance of the Port Lincoln load-centre to the Eyre Peninsula region an increased level of supply reliability over that normally expected for a load supplied from a long (260 km) radial line was considered justified. As a consequence, in 1998, ETSA, as a government-owned integrated electricity utility at that time, installed a gas turbine driven power station with a single 25 MW generating unit at Port Lincoln to provide substantial back-up supply capacity in the event of an outage of the 132 kV transmission system.

With the advent of the National Electricity Market (NEM) and the privatisation of ETSA in the late 1990's, the requirement to provide a significant level of alternative electrical supply at Port Lincoln was included in the regulatory framework established by the South Australian government (notably, the SA Transmission Code, that has since been superseded by the Electricity Transmission Code, or ETC).

As a result of load growth and the regulatory requirements applicable to the Port Lincoln connection point, additional back-up capacity was needed in 2000, and a second 25 MW gas turbine driven generator was installed at that time. The two gas turbine driven generators are now owned by International Power-Synergen (IP-S) and are presently contracted to ElectraNet to provide back-up electricity supply capacity to the Port Lincoln area.

Because of the relatively high cost of fuel associated with the IP-S generators at Port Lincoln, these units are normally only dispatched under the NEM at times of high pool prices, and this typically corresponds to periods when there is a shortage of other generation. However, this does not always correspond to times of high load on the Eyre Peninsula. Consequently, normal NEM dispatch of the Port Lincoln generators cannot be relied upon to meet service obligations in the region.

2.2.5. Planned Transmission Augmentations

ElectraNet has planned projects underway to increase the operating temperature of the Whyalla – Yadnarie – Port Lincoln transmission lines. There is a need to upgrade the thermal ratings of this line because it was constructed in the mid 1960's using the British design criteria of the day. As a consequence, the Whyalla-Port Lincoln 132 kV transmission line has a design rating that is considerably less than that obtained from modern 132 kV lines using equivalent conductors.

The need to augment the Whyalla – Yadnarie – Port Lincoln 132 kV line was consulted in the 2005 Annual Planning Report (APR) published by ESIPC on 1 July 2005. As no submissions were received, ElectraNet is now preparing to proceed with the construction of two new small network augmentations on the Lower Eyre Peninsula to uprate the thermal capability of:

- The section of line from Whyalla to Middleback from 49^{o}C to 65^{o}C, and the section of line from Middleback to Yadnarie from 49^{o}C to 60^{o}C, and;
- The 132 kV line from Yadnarie to Port Lincoln from 49^{o}C to 60^{o}C.

Once the operating temperatures of these transmission lines have been increased, the Lower Eyre Peninsula 132 kV system will have adequate thermal rating until approximately 2013/14, based on the current ETSA Utilities load forecast.

2.2.6. Planned Distribution Augmentations

ETSA Utilities is presently progressing a Request for Proposals (RFP) under ESCOSA Guideline 12 – Demand Management for Electricity Distribution Networks, in relation to supply arrangements within the Cowell district. However, this is a relatively small load with highly localised impacts located some distance from the Port Lincoln area and will not impact on the performance or capability of the existing transmission system to any significant degree.

2.3. Wind generation

There are currently two wind-turbine powered electricity generating stations (wind farms) in the Lower Eyre Peninsula region, one at Mount Millar, west of Cowell, and the other at Cathedral Rocks, south of Port Lincoln. The Cathedral Rocks Wind Farm comprises a total of 65 MW of wind driven generation that connects to the Port Lincoln 132 kV connection point and is presently in service. The Mt Millar wind farm is presently under construction and will comprise 70 MW of installed generation when completed late in 2005 or early in 2006.

Because of the unpredictable nature of the wind energy that powers these wind farms, these units are classified as unscheduled generators in the NEM. Analyses undertaken by the Electricity Supply Industry Planning Council (ESIPC) suggest that about 15% of this installed capacity could be considered as firm on a State-wide basis and as such provide a source of

reliable generating capacity. However, the ESIPC cautions that their analysis was based on state-wide diversity of weather/wind conditions, and that only over a broad-ranging geographic sample would the study results be applicable with an acceptable degree of certainty.

Given the relatively close geographic proximity of the two wind-farms on the Eyre Peninsula, and the likelihood that peak demand will occur at times of high ambient temperatures (40°C and above) and low wind conditions, the ESIPC suggests that localised contribution from the wind-farms to supply the Eyre Peninsula would be negligible. On this basis, ElectraNet has assumed the firm supply capacity provided by both the Mount Millar and Cathedral Rocks wind farms to the Eyre Peninsula region to be 0 MW for planning purposes. Consequently, local wind-farms, both existing and proposed, are not considered able to address the projected network limitations forecast on the Lower Eyre Peninsula transmission system.

2.4. Committed generation

ElectraNet is not aware of any committed non-wind based generation proposals that will potentially impact the 132 kV transmission network, the 132/66 kV and 132/33 kV connection points, or the 66 kV and 33 kV distribution networks that service the Lower Eyre Peninsula region of South Australia.

Generation-based proponents are invited to submit proposals that they feel will meet the electricity supply requirements of the Lower Eyre Peninsula region, or expand on any previous proposal that they have provided in this regard. Interested Parties and solution providers should be cognisant of the potential interaction of the projected limitations with existing and potential wind-farms, generally in the coastal regions of the peninsula, when seeking further information from ElectraNet and when formulating their submissions and proposals.

3. LOAD CHARACTERISTICS

3.1. Strategic significance

The Lower Eyre Peninsula contains a mixture of electrical loads including industrial, mining, agriculture, grazing, and aquaculture loads. Commercial loads also comprise a significant portion of total load at the major rural centres and Port Lincoln.

The coastal regions of the Lower Eyre Peninsula, including Port Lincoln, have a 'Mediterranean' climate with relatively mild summer conditions that result in a less pronounced summer peak load, with near equivalent peaks being experienced in both the summer and winter seasons, albeit at different times of day. However, the inland areas experience significantly harsher summer conditions with a pronounced summer peak. When coupled with the Port Lincoln load, this produces a net summer peak load on the Lower Eyre Peninsula, typically occurring at about 1300 hours.

There are four transmission customer connection points supplied by the Lower Eyre Peninsula 132 kV transmission system. Three of these connection points supply the ETSA Utilities distribution system at Port Lincoln, Wudinna, and Yadnarie. The fourth connection point supplies a mining load at Middleback. The ability of the existing 132 kV transmission system to supply the Eyre Peninsula loads has been stretched by a recently announced load increase at the Middleback connection point.

3.2. Load Forecast

The load forecasts for the four Lower Eyre Peninsula connection points for the coming 10-year period have been provided by ETSA Utilities for Port Lincoln, Wudinna and Yadnarie, and by OneSteel for the Middleback connection point, and are tabulated overleaf.

The growth in electrical load in a region is dependent upon many variables including economic growth, housing and commercial development, industrial growth, spot-load increases that occur in response to local requirements, and environmental conditions (predominately weather conditions). The forecasting of electrical load is based on econometric analysis coupled with knowledge of localised developments and historical information and trends. Load forecasts are typically reviewed annually, and when significant changes in circumstances occur. The load forecasts provided below are subject to continuous review and may alter as a consequence within the time frames associated with this consultation process. They are based on a 10% probability of exceedence and medium economic growth.

Load trace information for the regions (see section 3.3) indicates that there is only a small amount of diversity between these loads at times of peak demand, meaning that the total demand of all of the connection points must be supplied by the 132 kV transmission line at the time of maximum load in the region.

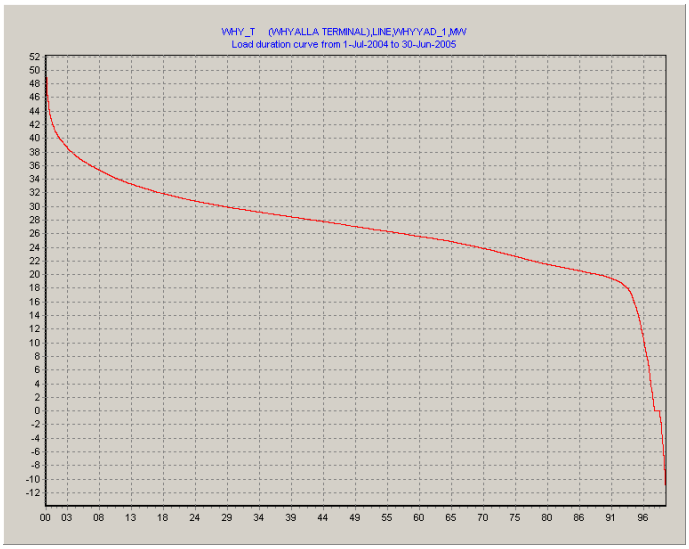
Table 3 - Lower and mid Eyre Peninsula Load Forecast

CONNECTION POINT	Units	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Year From Base		0	1	2	3	4	5	6	7	8	9	10
Port Lincoln (ETSA)	MW	35.2	36.5	37.9	39.3	40.7	42.2	43.8	45.4	47.1	48.8	50.6
	PF	17.4	18.2	19.1	18.9	19.8	20.8	20.7	21.7	22.8	23.9	24.5
	MV.A	0.90	0.89	0.89	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	Growth		3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%
Wudinna (ETSA)	MW	15.3	15.7	16.2	16.6	17.1	17.6	18.1	18.6	19.2	19.7	20.3
	PF	1.8	2.1	2.3	2.6	2.9	3.2	3.5	3.8	4.2	4.5	6.7
	MV.A	0.99	0.99	0.99	0.99	0.99	0.98	0.98	0.98	0.98	0.97	0.95
	Growth		2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Yadnarie (ETSA)	MW	10.4	10.7	11.1	11.4	11.7	12.1	12.4	12.8	13.2	13.6	14.0
	PF	0.5	0.7	0.9	1.1	1.4	1.6	1.8	2.0	2.3	2.5	4.6
	MV.A	1.00	1.00	1.00	1.00	0.99	0.99	0.99	0.99	0.99	0.98	0.95
	Growth		3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Middleback (OneSteel)	MW	2.0	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5	20.5
	PF	0.9	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
	MV.A	2.3	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0	30.0
Diversity		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Total Load, lower and mid Eyre Peninsula	MW	63.0	83.5	85.6	87.8	90.1	92.4	94.8	97.3	100.0	102.6	105.4

3.3. Load shape and duration

The load duration curve for the Lower Eyre Peninsula 132 kV transmission system is shown below for the 12-month period July 2004 – June 2005. The peak load carried by the line during this period was just over 50 MW.

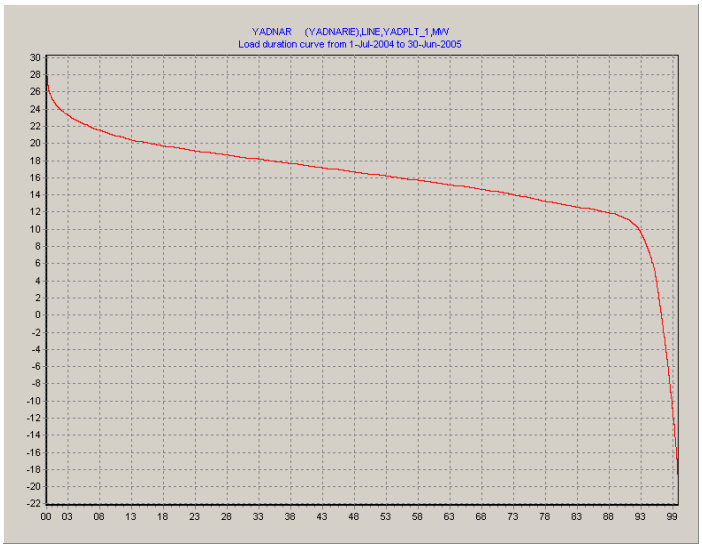
Figure 2 – Lower Eyre Peninsula load duration curve July 2004 – June 2005



As can be seen in Figure 2, the Lower Eyre Peninsula load only exceeds 90% of the peak value for a very small period of time (about 1%, or 90 hours per year). The minimum load on the system is approximately 35% of peak and the average load is about 53% of the peak value. This data indicates that the Lower Eyre Peninsula system has a relatively low load factor (average load divided by peak load) of about 53 %.

The equivalent data for the Port Lincoln connection point is shown below.

Figure 3 – Port Lincoln load duration curve July 2004 – June 2005

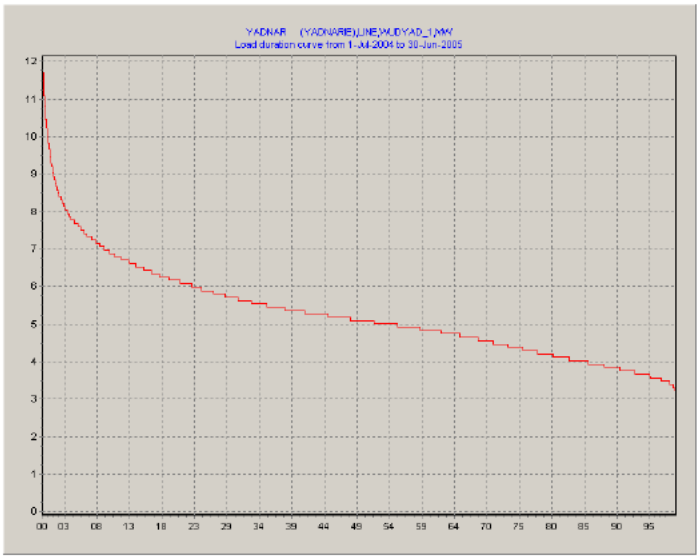


The Port Lincoln load has a higher load factor (approximately 64%) and does not exhibit the same level of "peakiness" as that associated with the total load characteristic in the region.

The Port Lincoln load exceeded 90% of the recorded peak load for approximately 130 hours per year, and seldom drops below 40% of the peak value.

The load duration curve for Wudinna below shows a recorded peak load of 12 MW, a minimum load of approximately 3.5 MW, and a load factor of around 40%.

Figure 4 – Wudinna load duration curve July 2004 – June 2005



Indicative daily load curves for a high summer and high winter load day for the Yadnarie and Port Lincoln connection points are shown in the following charts.

Figure 5 – Yadnarie summer peak daily load curve

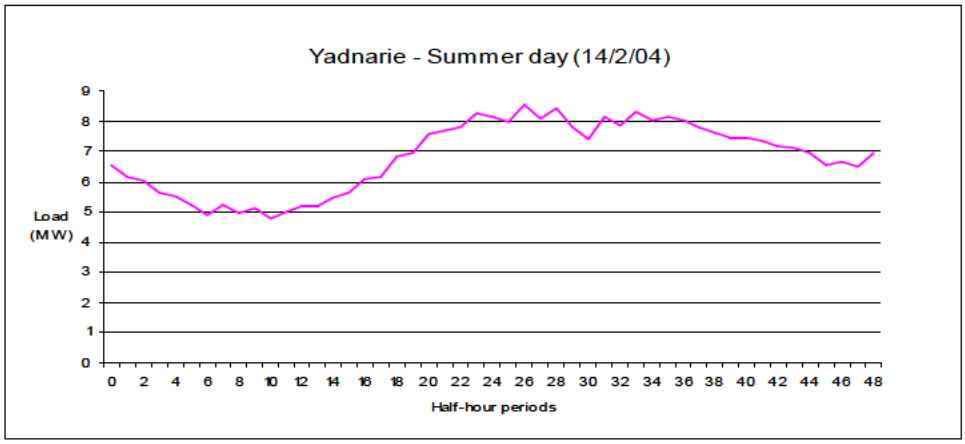


Figure 6 – Yadnarie winter peak daily load curve

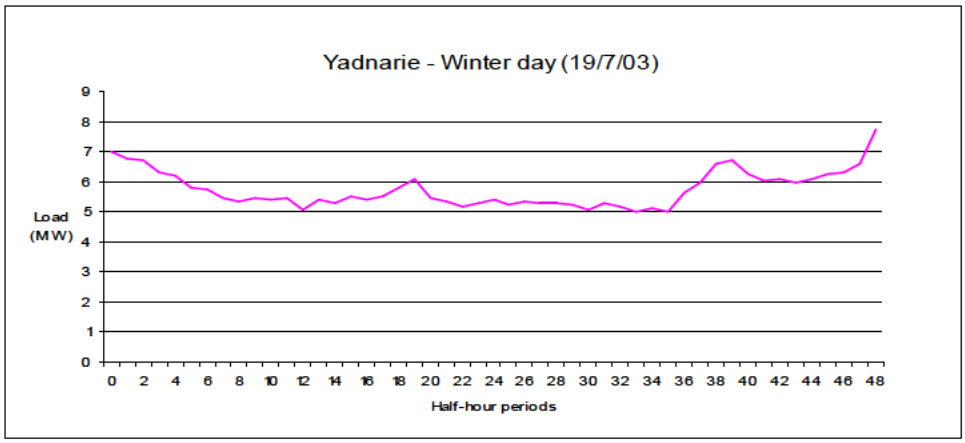


Figure 7 – Port Lincoln summer peak daily load curve

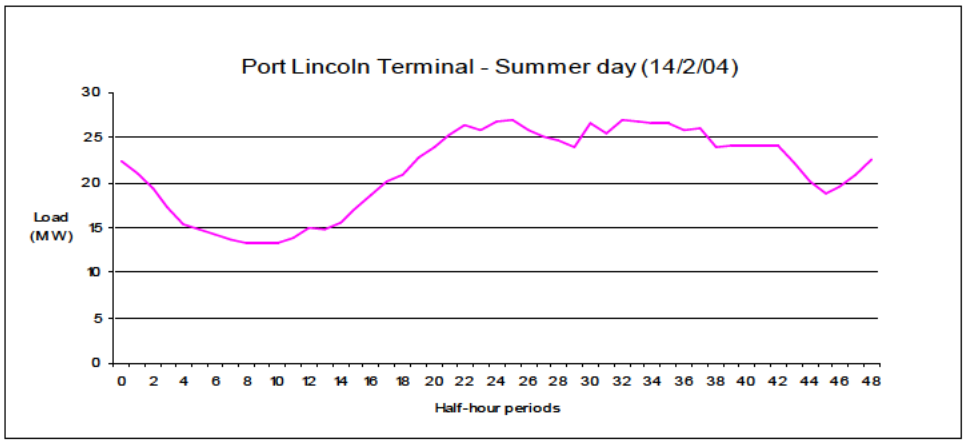
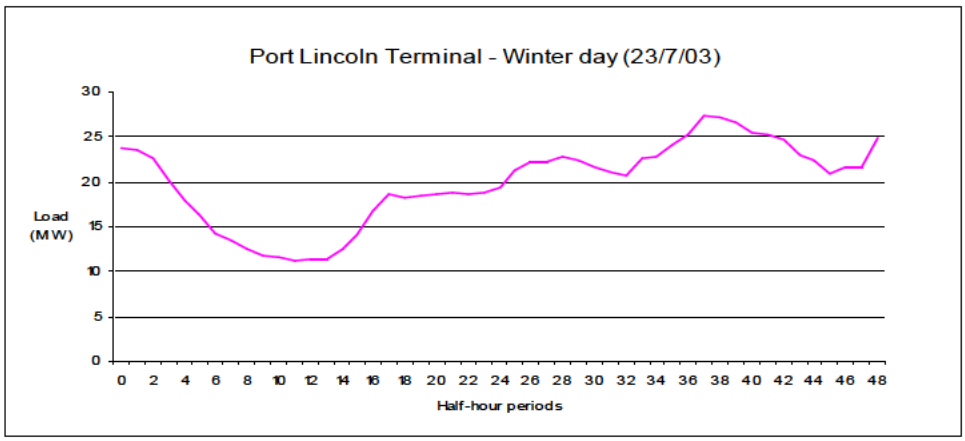


Figure 8 – Port Lincoln winter peak daily load curve



These daily load curves indicate a distinct summer peak load early in the afternoon (at approximately 1300 hours) at both Yadnarie and Port Lincoln, with Port Lincoln experiencing a secondary peak at approximately 1800 hours. It is likely that these peaks correspond to air conditioning usage in both residential and commercial areas coupled with background industrial and manufacturing activity.

The daily winter load at Port Lincoln has a dominant peak at approximately 1830 hours, and is likely to correspond to electric cooking and heating loads, with a lesser secondary peak towards midnight, presumably corresponding to electric water heating loads. The winter peak load at Yadnarie occurs at approximately 2400 hours, and again, most likely corresponds to electric water heating systems.

From the daily load curves given above, it is also evident that the daily winter peak loads are of significantly shorter duration than the daily summer peak loads that span about 10 hours.

3.4. Impact of Wind Generation on Load Supplied via the Transmission Network

The load duration curves provided above do not include the impacts of the wind farms that are installed or under construction on the Eyre Peninsula. The following graphs represent the expected load duration curves for the load to be supplied from the 132kV system with and without wind generation for the 2005/06 and 2015/16 financial years based on high level meteorological data for the region. The information contained within these curves should be regarded as indicative only.

Figure 9 – Anticipated 2005/06 load duration curve for Eyre Peninsula corrected to 10% POE

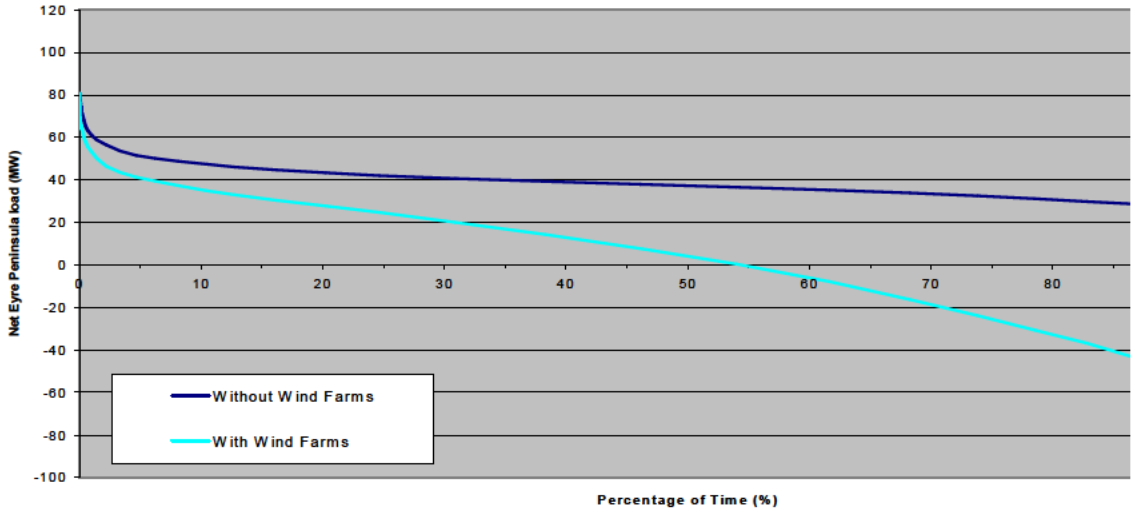
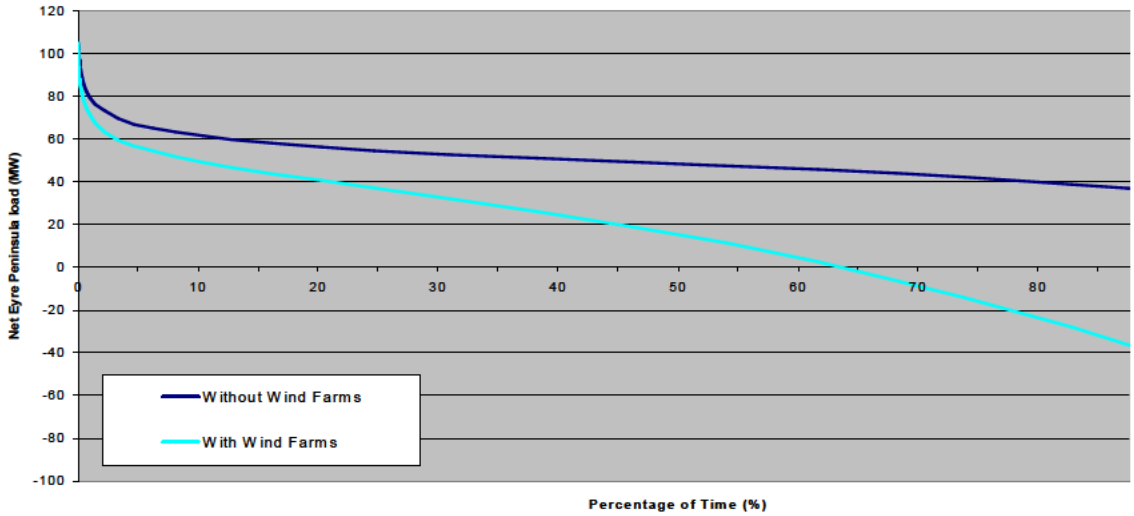


Figure 10 – Anticipated 2015/16 load duration curve for Eyre Peninsula corrected to 10% POE



Note : The impact on the load duration curves from the wind farms at Cathedral Rocks and Mt Millar has been estimated based on metrological data.

The graphs on the previous page show that, while wind is not expected to make any measurable contribution to reducing the peak load on the Lower Eyre Peninsula, it will alter the load shape significantly by reducing the average load supplied by the 132 kV system. The data also indicates that there will be periods when the quantity of generation available from the wind farms will exceed the electrical load, and power will be available for export from the Peninsula to the remainder of South Australia via the existing transmission network.

4. LOWER EYRE PENINSULA SERVICE OBLIGATIONS

As a Transmission Network Service Provider operating in the South Australian jurisdiction of the National Electricity Market, ElectraNet is bound by the service obligations of the National Electricity Rules (NER) and the South Australian Electricity Transmission Code (ETC). These place differing obligations on ElectraNet, with the Rules focussing on power system security and quality of supply, and the ETC focussing on supply reliability at individual connection points.

4.1. National Electricity Rules

The Eyre Peninsula 132 kV system south of Whyalla is a radial network that is operated as part of the shared transmission system under the NER. Schedule 5.1.2.1 of the NER requires a TNSP to plan, operate and maintain its power system to permit unconstrained power flow from the generators to the customers with all transmission facilities in service. However, because of system security considerations this obligation requires the non-radial portions of the power system to be planned on a single credible contingency (N-1) basis. The NER also specifies the acceptable voltage levels that should be provided at the connection points.

Under clause S5.1.4 of the NER, it is a minimum requirement for a Network Service Provider to keep connection point voltage levels within +/- 5% of the target voltage level under normal system operating conditions, and that this voltage should always remain within +/- 10 % of nominal (except as a consequence of a contingency event). The present target voltage at the Port Lincoln 132 kV connection point is 100% of nominal.

It is an obligation under the NER that the transmission system is operated in a “secure operating state”. The power system is defined to be in a secure operating state if, in NEMMCO's reasonable opinion, the power system is in a “satisfactory operating state”, and the power system will return to a “satisfactory operating state” following the occurrence of a single credible contingency event. The power system is said to be in a “satisfactory operating state” if:

- The frequency at all energised busbars of the power system is within the normal operating frequency band (49.85Hz to 50.15Hz), except for brief excursions within the normal operating frequency excursion band (49.75Hz – 50.25Hz);
- The voltage magnitudes at all energised busbars at any switchyard or substation of the power system are within the relevant limits in accordance with clause S5.1.4 of the Rules;
- The current flows on all transmission lines of the power system are within their ratings;
- All other items of plant forming part of or impacting on the power system are being operated within their ratings;
- The configuration of the power system is such that the severity of any potential fault is within the capability of circuit breakers to disconnect the faulted circuit or equipment, and;
- The condition of the power system is stable in terms of transient, voltage, frequency and oscillatory stability.

NEMMCO, as the system controller, constrains power flows on the power system so that it can withstand the next single contingency event without violating the system security requirements of the NER. However, as the system security requirements only apply to energised busbars, they are not applicable to radial systems such as the Lower Eyre Peninsula 132 kV system that would be disconnected as a result of a single contingency event.

4.2. South Australian Electricity Transmission Code (ETC)

The South Australian Electricity Transmission Code (ETC) assigns reliability standards for each connection (exit) point or group of connection points within the transmission network and thereby imposes specific requirements on ElectraNet for planning and developing its transmission network. Examples of the specified levels of reliability include:

- 'N' or 'System Normal' - defined as the ability to supply all load with all elements of the electricity system intact (i.e. supply cannot be maintained during a single fault or contingency event without loss of load);
- 'N-1' – the power system is able to meet peak load following the occurrence of the worst **single** credible fault or contingency event;
- 'N-2' – the power system is able to supply all peak load following two coincident single fault or contingency events (a **double** contingency).

The ETC has classified each individual customer connection point in South Australia into one of five categories. The following table summarises the service obligations for those five ETC categories.

Table 5 – South Australian Electricity Transmission Code service obligations

ETC Category	1	2	3	4	5 + CBD
Transmission line capacity...					
• 'N'	100% of Agreed MD				
• 'N-1' (any combination of Transmission, Distribution, Generation, Load interruptibility)	Nil	2/3 of Agreed MD	100% of Agreed MD		
• 'N-1' **continuous** capability	None stated			100% of Agreed MD for single cred ble contingency event	
• 'N-2' (any combination of Transmission, Distribution, Generation, Load interruptibility)	None stated				'CBD' 100% of Agreed MD; remainder 50% of Agreed MD
• Restoration time to 'N' standard after outage	2 days (best endeavors)			12 hours (best endeavors)	4 hours (best endeavors)
Transformer capacity...					
• 'N'	100% of Agreed MD				
• 'N-1' (any combination of Transmission, Distribution, Generation, Load interruptibility)	Nil	100% of Agreed MD			
• 'N-1' **continuous** capability	None stated			100% of Agreed MD for single cred ble contingency event	
• 'N-2' (any combination of Transmission, Distribution, Generation, Load interruptibility)	None stated				'CBD' 100% of Agreed MD; remainder 50% of Agreed MD
• Restoration time to full capacity after transformer failure	4 days (best endeavors)				2 days (best endeavors)
• Spare transformer requirement	At least one spare for this Category			None Stated	
Allowed period to bring up to compliance with required contingency standard	N/A	12 months (best endeavors); maximum 3 years			

Of the Lower Eyre Peninsula connection points, Middleback, Yadnarie, and Wudinna are classified as Category 1 loads, meaning that ElectraNet is obliged to provide transmission line capacity and transformer capacity for at least 100% of the Agreed Maximum Demand (AMD) under N, or 'system normal', operating conditions only, with no obligation to provide surplus line or transformer capacity to cater for contingency operating conditions. The ETC permits

transmission line or transformer capacity to be provided by any means including transmission or distribution system support, generation, or demand side measures.

The Port Lincoln connection point is classified as a Category 2 load, meaning that ElectraNet is obliged to provide at least 2/3 of the Agreed Maximum Demand under a single contingency event and 100% transformer capacity with the loss of the largest transformer at the Port Lincoln connection point. At present ElectraNet has 100% back-up transformer capacity installed at Port Lincoln, and contracts with IP-S for it to provide the necessary back-up supply to meet the required transmission line capacity obligation using their Port Lincoln power station.

Transmission voltage levels at Port Lincoln are presently adequate and within the NER requirements. However, the addition of load at the Middleback connection point will result in deterioration in 132 kV voltage levels, and as a consequence will reach unacceptable levels under high-load-low-generation conditions on the Lower Eyre Peninsula.

5. SERVICE OBLIGATIONS

The Eyre Peninsula projected network limitations relate to the ability to continue to meet the ETC service obligations and NER security obligations following the Middleback load increase and with continued load growth in the region.

5.1. Quantity and Quality of Service

The following relevant service standards are contained within the ETC.

Clause 2.1 Quality of supply and system reliability

2.1.1 Quality of supply

A transmission entity shall use its best endeavours to plan, develop and operate the transmission network to meet the standards imposed by the National Electricity Rules in relation to the quality of transmission services such that there will be no requirements to shed load to achieve these standards under normal and reasonably foreseeable operating conditions.

2.1.2 System reliability

A transmission entity shall use its best endeavours to plan, develop and operate the transmission system so as to meet the standards imposed by the National Electricity Rules in relation to the transmission network reliability such that there will be minimal requirements to shed load under normal and reasonably foreseeable operating conditions.
Clauses 2.1.1 and 2.1.2 effectively require that ETC compliant service levels are maintained for all single network contingency events that can occur on the South Australian transmission system and requires that there is no disconnection of the radial supply system on the Lower Eyre Peninsula.

Category 1 loads

A transmission entity shall not contract for an amount of agreed maximum demand greater than 100% of installed line capacity. A transmission entity shall have no obligation to provide N-1 line capacity beyond that necessary to maintain power system performance and quality of supply standards under the NER. A transmission entity shall use its best endeavours to restore contracted line capacity within 2 days of an interruption.

A transmission entity shall not contract for an amount of agreed maximum demand greater than 100% of installed transformer capacity and shall have no obligation to provide N-1 transformer capacity. A transmission entity shall keep in stock at least one spare transformer capable of replacing the installed transformer capacity. In the event of a transformer failure, a transmission entity shall use its best endeavours to repair the installed transformer or install a replacement transformer within 4 days of the failure.

Category 2 loads

A transmission entity shall not contract for an amount of agreed maximum demand greater than 100% of installed line capacity. A transmission entity shall provide N-1 line capacity of at least two thirds of agreed maximum demand. N-1 capacity may be provided by whatever means including by the implementation of transmission system capability, distribution power system capability, generating unit capability or load interruptibility (or any combination thereof). A transmission entity shall use its best endeavours to restore contracted line capacity within 2 days of an interruption.

In the event that agreed maximum demand at a connection point or group of connection points exceeds available capacity for N-1 (for lines) as required for this category, a transmission entity will use its best endeavours to meet the standards within 12 months and, in any case, within 3 years.

A transmission entity shall not contract for an amount of agreed maximum demand greater than 100% of installed transformer capacity. A transmission entity shall provide N-1 transformer capacity of at least 100% of agreed maximum demand. N-1 capacity may be provided by whatever means including by implementation of transmission system capability, distribution power system capability, generating unit capability or load interruptibility (or any combination thereof). A transmission entity shall keep in stock at least one spare transformer capable of replacing the installed transformer capacity. In the event of a transformer failure, a transmission entity must use its best endeavours to repair the installed transformer or install a replacement transformer within 4 days of the failure.

In the event that contracted capacity at a connection point or group of connection points exceeds available capacity for N-1 (for transformers) as required for this category, a transmission entity will use its best endeavours to meet the standards within 12 months and, in any case, within 3 years.

The ETC Category 1 service standards apply to the Middleback, Yadnarie and Wudinna connection points. The ETC Category 2 service standards apply to the Port Lincoln connection point.

The quality of electricity supply provided on the Lower Eyre Peninsula must meet the requirements of the ETC and the NER. This requires compliance with the relevant provisions of AS/NZ 61000 parts 3.6 and 3.7.

The following performance targets are applicable to ElectraNet under the NER and are relevant to the Lower Eyre Peninsula 132 kV supply system. Those performance targets are imposed by the AER as the economic regulator under the NER.

Table 6 – South Australian Electricity Code Performance Targets

Performance Indicator	**Performance Target**
Total Circuit Availability	99.6%
Number of Events >0.2 system minutes*	5 (total)
Number of Events >1.0 system minutes*	2 (total)
Average Outage Duration (minutes)	100

* Where system minutes is defined as $\frac{\text{(MW interrupted x minutes interrupted)}}{\text{(System Maximum Demand)}}$

All proposals to provide network support services to address the projected network limitations on the Lower Eyre Peninsula will be required to support ElectraNet's performance against these targets.

5.2. Impacts of Committed Developments

There are two committed developments presently being implemented in the Lower Eyre Peninsula region.

The first of these is the development of a 70 MW wind farm at Mt Millar, approximately 35 kilometres east of Yadnarie. The indicative impact that both this wind farm and the recently completed 65 MW Cathedral Rocks wind farm at Port Lincoln have on the total Lower Eyre Peninsula load that must be supplied by the transmission network has been shown in section

3.4 of this paper. However, the contribution of those wind farm developments to the firm generating capacity on the Eyre Peninsula has been assumed to be zero for planning purposes, as discussed in section 2.3.

The second committed development is a substantial load increase at Middleback substation as a result of the mining company Onesteel's expansion of its Iron Duke mine. The Middleback load increase strengthens the need to augment the Lower Eyre Peninsula transmission system as outlined in this document, as it will increase the loading on the local transmission system and exacerbate the projected voltage limitations under high load and low localised generation levels.

5.3. Economic Impacts

The Lower Eyre Peninsula 132 kV system has limited capacity to accommodate significant additional electrical demand or generation without significant augmentation, and consequently has the potential to act as an impediment to continued development in the region. However, with appropriate augmentation of the existing network or via the provision of economic network support from other sources, the existing network would be capable of meeting the demand of normal load growth within the region, for future years.

5.4. Existing Registered Participant Impacts

On the basis that the contribution to peak load from the wind farm developments at Cathedral Rocks and Mt Millar is negligible (refer section 2.3), and following the Middleback load increase, ElectraNet's service obligations to existing Registered Participants in the Lower Eyre Peninsula region can only be met during the approaching summer (2005/06) and beyond by either utilising the existing network support contract with IP-S, augmenting the Lower Eyre Peninsula transmission system, and/or entering into alternative network support arrangements.

6. PROJECTED NETWORK LIMITATION

There are potentially three projected network limitations that manifest themselves on the Lower Eyre Peninsula 132 kV transmission system: the rating of the 132 kV transmission lines; the continued adequacy of the existing network support contracts to meet service obligations, and; voltage levels at the 132 kV connection points.

6.1. Supply to the Yadnarie, Wudinna and Port Lincoln connection points

As mentioned in section 2.2.5 of this document (Planned Transmission Augmentations), ElectraNet is planning to perform the necessary work to increase the operating temperature of the Whyalla – Yadnarie – Port Lincoln transmission lines. ElectraNet consulted in the 2005/06 Annual Planning Report to improve the thermal capability of the Whyalla to Middleback line section from 49^{o}C to 65^{o}C and the Middleback to Port Lincoln line section from 49^{o}C to 60^{o}C.

Assuming that the operating temperature of the existing Whyalla – Yadnarie – Port Lincoln 132 kV transmission line will be increased to the thermal ratings consulted in the 2005/06 Annual Planning Report, then the existing 132 V transmission system south of Whyalla will have adequate thermal rating to supply the forecast load until approximately 2013/14. Network augmentation will be required beyond that date to meet the service standards contained in the NER and the ETC.

6.2. Supply to the Port Lincoln Connection Point

In order to meet the ETC Category 2 load service standards at the Port Lincoln connection point, the following network support levels, as defined by the ETC requirement, are needed:

Table 7 – Network support levels required at Port Lincoln connection point

CONNECTION POINT	Units	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
PORT LINCOLN TERMINAL	MW	35.2	36.5	37.9	39.3	40.7	42.2	43.8	45.4	47.1	48.8	50.6
ETC Line Obligation*	MW	23.5	24.4	25.3	26.2	27.2	28.2	29.2	30.3	31.4	32.6	33.7
Estimated Energy**	MW.h	351.8	364.8	378.3	392.2	406.7	421.7	437.3	453.4	470.1	487.5	505.2

* Required Transmission line capacity as stipulated by the South Australian Electricity Transmission Code (ETC) published by ESCOSA *..." 'N-1' (any combination of Transmission, Distribution, Generation, Load interruptibility)...2/3 of Agreed Maximum Demand "* - refer Section 4.2 of this document.

** The estimated energy need per annum is based on a potential transmission line outage of 15.6 hours per annum (based on 1.5 outages/100 km and average outage time of 4 hrs) and an average load at Port Lincoln of 64% of peak (see section 3.3).

Those required network support levels are presently provided by two (nominally rated) 25 MW gas turbine powered generators that are owned by International Power–Synergen (IP-S) and that are contracted with ElectraNet to provide back-up capacity to the Port Lincoln region. The two generators each have a rating of about 22 MW under summer operating conditions.

The contract with IP-S for network support is soon to expire and ElectraNet will be evaluating all feasible options to provide network support at Port Lincoln, including a continuation of the present arrangement, to provide for a secure long-term electricity supply to the Port Lincoln region.

Given the timing and the altered circumstances on the Lower Eyre Peninsula, it is now appropriate to review the existing transmission supply arrangements in the region. ElectraNet seeks information regarding potential alternative solutions to meet the present NEM and regulatory requirements within the Lower Eyre Peninsula and to determine if the continued use of the back-up generating facilities provided by IP-S remains the most cost-effective means of providing ElectraNet's service obligations at the Port Lincoln connection point.

6.3. Eyre Peninsula Voltage Support

Port Lincoln Terminal substation is at the extremity of the radial 132 kV line that constitutes the back-bone of Eyre Peninsula's transmission network. The combined effects of Port Lincoln Terminal's electrical load and the length of radial 132 kV line involved, which is over 260 kilometres long, inherently results in large reactive power losses, particularly at times of high load, which can lead to excessive voltage drop. Reactive support to maintain satisfactory voltage levels on this network is presently provided by switched capacitors and by the generators located at Port Lincoln, which can be brought into service if needed at times of high load and low voltages.

All proposed solutions must address the need to provide adequate voltages at Port Lincoln over at least a 15 year evaluation period (that is, up to at least 2020/21). In this context, adequate voltages are taken to be 95% to105% under "system normal" operating conditions, and 90% to 110% under worst case single contingency operating conditions (for contingencies that do not result in disconnection), as measured at the Port Lincoln 132 kV connection point. Solution providers should also be cognisant of the need to maintain similar 132 kV voltage levels at Yadnarie, Wudinna and Middleback 132 kV connection points. Because of the ETC quality of supply and reliability requirements, network support will need to be pre-dispatched or immediately available to cater for a potential Cultana transformer contingency.

Studies indicate that the maximum load that can be supported by the existing Lower Eyre Peninsula 132 kV transmission system while maintaining satisfactory voltage levels under system normal operating conditions is 74 MW. The following table indicates the level of load at risk on the Lower Eyre Peninsula system and the equivalent estimate of energy at risk. The estimate of energy at risk includes the predicted contribution to load support from wind generation on the Eyre Peninsula, which would act to decrease the amount of energy at risk.

System normal operating conditions

Voltage Support	Units	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Lower Eyre Pen - Total	MW	63.0	83.5	85.6	87.8	90.1	92.4	94.8	97.3	100	102.6	105.4
Supportable Load*	MW	64	74	74	74	74	74	74	74	74	74	74
Load at Risk	MW	0	16.0	18.1	20.3	22.6	24.9	27.3	29.8	32.5	35.1	37.9
Energy at Risk (inc wind gen)	MW.h	0	50	52	55	92	163	257	380	503	730	958

* The value of supportable load changes with the increase of load at Middleback due to the change in load distribution through-out the Lower Eyre Peninsula region.

The 132 kV voltage on the Eyre Peninsula and Upper North transmission systems is regulated by the single 275/132 kV transformer at Cultana and the two 275/132 kV transformers located at Playford Power Station. Of these, the Cultana transformer is critical in maintaining adequate voltage levels on the Lower Eyre Peninsula. Analysis shows that an outage of the Cultana 275/132 kV transformer will result in unsatisfactory 132 kV voltages when the Lower Eyre Peninsula load exceeds 54 MW. The following table indicates the level of load at risk and associated energy at risk associated with a single contingency outage of the Cultana 275/132 kV transformer, and takes into account the positive contribution made by wind generation.

Contingency operating conditions

Voltage Support	Units	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	15/16
Lower Eyre Pen - Total	MW	63.0	83.5	85.6	87.8	90.1	92.4	94.8	97.3	100.0	102.6	105.4
Supportable Load	MW	47	54	54	54	54	54	54	54	54	54	54
Load at Risk	MW	16.0	29.5	31.6	33.8	36.1	38.4	40.8	43.3	46.0	48.6	51.4
Energy at Risk (inc wind gen)	MW.h	544	1207	1480	1766	2130	2581	3180	3740	4427	5280	6376

* The value of supportable load changes with the increase of load at Middleback due to the change in load distribution through-out the Lower Eyre Peninsula region.

As can be seen, the voltage support requirements associated with a contingent outage of the Cultana 275/132 kV transformer override those necessary to meet the system normal voltage needs, and therefore dominate the argument for the need for augmentation of the Lower Eyre Peninsula transmission network to address this particular projected imitation.

To ensure that electricity consumers on the Lower Eyre Peninsula are not inconvenienced with the loss of electricity due to the loss of the Cultana transformer or high loads under a system normal condition, ElectraNet intends to mitigate the risk to consumers by pre-dispatching the network support generators at Port Lincoln, until a longer-term solution is identified and implemented.

6.4. Summary – Need and Timing

In section 6.1 above it has been explained that the existing transmission lines in the Eyre Peninsula will reach their thermal capability beyond the summer of 2012/13. In section 6.2 the need to review available supply options given the expiry of existing network support contracts was identified. Section 6.3 highlighted the impact of the proposed load increase at the Middleback 132 kV connection point in 2006 and the impact that a single contingency outage will have on voltage levels on the Lower Eyre Peninsula.

Consequently, ElectraNet considers that any proposal to address future supply requirements on the Lower Eyre Peninsula must be capable of being implemented and commissioned by December 2006. Proposals that can be implemented soon after this date may be considered, but should be discussed in advance with ElectraNet.

7. ASSESSMENT CRITERIA AND PROCESS

7.1. Performance requirements

Any proposal for network support services to meet the projected network limitations on the Lower Eyre Peninsula 132 kV system will be required to meet the *Supply Quality and Quantity* requirements outlined in section 5.2 of this RFI over at least a 15 year evaluation period.

In the event that a proposal cannot meet the performance requirements over the full 15-year evaluation period, ElectraNet will examine the feasibility of combining the proposal with other proposals or with network augmentations for the purposes of the evaluation. If this is not feasible or practical, the proposal will by necessity be discarded.

7.2. Assessment Criteria

This RFI paper and subsequent consultation provides an opportunity for existing or alternative solution providers to submit details of their proposals for consideration. The information provided in this document on projected network limitations in the Lower Eyre Peninsula region of South Australia is intended to enable interested parties to formulate and propose feasible and definitive local generation, demand side management and/or other non-transmission network solutions.

7.2.1. Criteria for Solutions

ElectraNet considers that any proposal received must be capable of being implemented and commissioned by December 2006.

To assist solution providers in understanding the technical and other requirements, the following criteria must be satisfied if solutions are to meet the projected network limitations in the Lower Eyre Peninsula region:

Size: Feasible options must be large enough, individually or collectively, to meet the annual increase in demand for the lower Eyre Peninsula region (south of Whyalla). Options must be able to meet the capacity requirements stated in sections 6.1, 6.2 and 6.3 of this RFI over a 15-year evaluation period.

Time of year: Options must, at a minimum, be capable of meeting the capacity requirements and annual growth during the peak summer months. The existing system is most in need of augmentation during the summer peak, so options that do not reliably relieve load during this period do not represent viable options.

Location: To be a viable 'stand-alone' non-network solution, an option must reduce the demand at Port Lincoln by the amount shown in sections 6.1, 6.2 and 6.3.

All proposed solutions offered must address the 132 kV voltage support requirements at Port Lincoln. Transmission or sub-transmission system augmentation combined with generation outside the relevant area may be a viable solution and generation proponents interested in this approach are requested to provide a preliminary proposal to ElectraNet.

Timeframe: All options should be operational by December 2006.

Reliability: Options must be capable of reliably delivering electricity under a range of conditions and generator solutions must meet all relevant NER requirements related to Grid connection.

Certainty: Options must be committed using proven technology and have adequate funding and project management to deliver within the required timeframe. Corrective action is critical to the reliability of electricity supply to the Lower Eyre Peninsula region of South Australia – it is not considered appropriate to rely on uncommitted developments that may or may not proceed.

Longevity: Options, singularly or in combination, must be capable of providing solutions to the projected limitations in the Lower Eyre Peninsula region for a period of at least 15 years.

Evaluation: The evaluation period for this RFI is driven by the need to obtain the most cost effective development(s) over a reasonable time frame, allowing for uncertainties associated with future network developments, load growth, and generation patterns and development.

It is a requirement of the Regulatory Test that a reasonably long evaluation period is used. The NER states a minimum 10-year planning period under clause 5.6.2 (d). It is therefore considered that a 15 year evaluation period, which is 5 years in excess of the minimum required would represent a reasonable time frame for evaluation.

Liability: If ElectraNet decides to enter into a contractual arrangement for the provision of network services, ElectraNet may require the contracting party to indemnify ElectraNet against any and all liabilities, including claims, losses, actions or proceedings it or a third party may suffer should the contracting party fail to deliver the support services in accordance with ElectraNet's requirements and any applicable laws, including those governing the timeliness and standards of service. This indemnity will also apply for any claims or losses that would apply during an interim period; for example, when customers have lost supply when a generator is running-up prior to supplying load, or when switching is being undertaken on the distribution network.

7.3. Information to be Provided

Solution providers are invited to submit proposals that address the projected network limitations of the Lower Eyre Peninsula electricity supply system. A solution provider is permitted to submit a proposal that contains one or more possible options that overcome the projected network limitations.

In order to be a compliant proposal, a submission must contain the following information at a minimum:

- The name, address and contact details of the proponent making the proposal;
- The name, address and contact details of the party responsible for the system support option (if different to above);
- A explanation of the relevance of the proposal and/or options presented;
- If applicable to the solution being offered;
  - the size, type and location of load(s) that can be reduced, shifted, substituted or interrupted;
  - the size, type and location of generators that can be installed or utilised if required;
  - the type and location of action or technology proposed to reduce peak demand/provide electricity system support;
- The time required to implement the proposal, and any period of notice required before support services can be supplied, loads can be interrupted or generators started;

- An estimate of the expected reliability of the option offered. This could be expressed in terms of the availability factor for that portion of the required period for which the option is offered (i.e. the probability that the option will be available if called upon);
- Any other relevant information, and a summary of the likely impact on consumers, e.g. in relation to power quality and reliability etc;
- The level and availability of electricity system support from this proposal;
- The level of initial payment required ($ and/or $/kV.A);
- The level of availability payment required ($ and/or $/kV.A);
- The level of dispatch payment required;
- Any other relevant costs;
- Any additional requirements needed to enable the proposal to provide network support services, e.g. connection to the power system, transformation, etc, and;
- Any other issues considered relevant.

8. RFI PROCESS

8.1. Timetable

ElectraNet proposes the following timetable for this RFI to assess what action, if any, should be taken to address the identified network limitations.

Part 1	Initial Information Request (this paper) Submissions (response to this paper)	Issued 11 Nov 2005 Due by 9 Dec 2005
Part 2	Review and analysis. Likely to involve further consultation with Registered Participants and interested parties. Additional data may be requested to allow ElectraNet to carry out the economic assessment process as required by the National Electricity Rules and the AER Regulatory Test.	January 2006-March 2006
Part 3	Preparation of Application Notice and Summary Application Notice containing recommendation of solution that satisfies the Regulatory Test. Submission of Summary Application Notice to NEMMCO	April 2006-June 2006
Part 4	Presentation of Final Report and recommendation	July 2006
This timetable is intended to be indicative only. ElectraNet reserves the right to amend the timetable at any time. Amendments to the timetable will be made available on the ElectraNet website *(http://www.electranet.com.au/)*		

The consultation timetable is driven by the need to make a decision as soon as possible. At the conclusion of the process, ElectraNet will take immediate steps to implement the recommended solution to ensure that the reliability of the system can be maintained.

8.2. Assessment and Decision Process

ElectraNet's evaluation of the options will be carried out in accordance with the AER Regulatory Test.

- Options (and where necessary groups of options) will be evaluated and ranked on the basis of the present value of the total annualised costs of meeting ElectraNet's security and reliability of supply obligations.

- The total annualised cost of system support incurred by ElectraNet will include all capital, fixed, variable and operating costs of securing the specified level of system support.

- The total cost of supplying electrical losses will be determined based upon the average pool price and the highest 10 percentile pool price for the 12 month period immediately prior to the evaluation date.

- A 15 year period for evaluation will be used.

- External costs will be included in the evaluation of any option, as specified by the AER's Regulatory Test, wherever these reflect an existing or anticipated regulatory obligation of ElectraNet.

- The relative intrinsic risks, including the likely impact on system reliability and quality of supply, of specific options and technologies will be assessed in accordance with normal commercial practice.

- Extraneous costs associated with a proposal (e.g. network connection, or network augmentation) will be included as a cost for that proposal.

In addition to evaluating proposals or options separately, ElectraNet may combine separate proposals or options for the purposes of evaluation where this may lead to a more efficient outcome than the separate proposals or options. Proponents should indicate in their proposal whether they wish to have their proposals or options considered in combination with other proposals.

ElectraNet will follow up the RFI process with a public consultation regarding the augmentation of the Lower Eyre Peninsula transmission system, which will contain details of the compliant proposals received, and the outcomes of the regulatory test, including the augmentation selected that meets the regulatory test requirements.

9. CONTACT DETAILS

Please provide information by Friday 9th December 2005 to:

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