Request for Information –

Emerging Transmission Network Limitations

Cairns and Far North Queensland Area

Powerlink Queensland
30 May 2003

CONTENTS

1.0 Executive Summary

Powerlink has identified emerging limitations in the electricity network that transfers power to Cairns and the Far North Queensland area.

The relevant area consists of the city of Cairns and its immediate surrounds, together with the area to the west and north of Cairns which is supplied from the Turkinje substation near Mareeba.

Electricity demand in the Far North Queensland area is forecast to grow at an average of 3.3% for the next ten years.

The Cairns and Far North Queensland area is primarily supplied by a double circuit 275kV transmission line from Ross to Chalumbin then via a single circuit 275kV transmission line from Chalumbin to the Woree substation on the outskirts of Cairns. There is also a 132kV circuit parallel to the 275kV Chalumbin to Woree line and two other lower capacity 132kV lines, one from Townsville to Woree via a number of coastal centres and one from Chalumbin to Woree.

Consistent with the National Electricity Code, its transmission authority and connection agreement requirements, Powerlink plans future network augmentations so that the reliability and power quality standards of Schedule 5.1 of the National Electricity Code can be met during the worst single credible fault or contingency (N-1 conditions) unless otherwise agreed with affected participants.

In Cairns and the Far North Queensland area, the most critical credible contingency will be either an outage of one of the 275kV circuits between Ross and Chalumbin or an outage of the 275kV circuit from Chalumbin to Woree. When one of these 275kV circuits is out of service, Powerlink has identified that the following network limitation is likely to occur:

- from the summer of 2005/6 onwards, the capability of the existing system to supply peak demand in the Cairns and Far North Queensland area will be exceeded

If no corrective action is taken, it may be necessary to interrupt some customer supply in the area to prevent voltage collapse and to re-establish secure operation of the system. The analysis is based on assumptions about future electricity demand and anticipated generation patterns.

Powerlink seeks comments on this paper and information on potential solutions to the emerging limitations, which may be able to be provided by parties other than Powerlink. Submissions are due by 4 July 2003. A decision is required by December 2003 to ensure reliability of supply to Cairns and Far North Queensland can be maintained.

2.0 Introduction

This document seeks information on potential solutions to emerging limitations in the electricity transmission network supplying the Cairns area. Corrective action is required if reliable supply is to be maintained during credible contingencies.

This paper is an integral part of Powerlink's approach to meeting National Electricity Code requirements that ensure adoption of the most cost-effective solution to future network limitations.

2.1 Purpose of this Paper

The purpose of this paper is to:

- provide information about the existing transmission network in the relevant area
- provide information about emerging network limitations and the expected time at which action must be taken to maintain system reliability during contingencies
- seek information on potential solutions to the emerging limitations which may be able to be provided by solution providers other than Powerlink
- explain the process to be used to evaluate alternative solutions

2.2 Context

Powerlink Queensland has a responsibility to ensure its network is developed with sufficient capacity to provide network services to customers[1]. If technical limits of its transmission system will be exceeded, Powerlink is required to notify Code participants within the time required for corrective action. Prior to construction of any major network augmentation to maintain reliability of supply, Powerlink must also meet the following regulatory requirements[2]:

- consult with Code Participants and interested parties regarding alternative solutions, including those which may be provided by solution providers other than Powerlink. These may include local generation, demand side initiatives, interconnectors and options involving other networks including market network services.
- demonstrate proper consideration of various market development scenarios, including variations in electricity demand growth rates, and the

[1] Powerlink's transmission authority includes a responsibility "to ensure as far as technically and economically practicable, that the transmission grid is operated with enough capacity (and if necessary, augmented or extended to provide enough capacity) to provide network services to persons authorised to connect to the grid or take electricity from the grid." (Electricity Act 1994, S34.2). The connection agreement between Powerlink and Ergon Energy includes obligations regarding the reliability of supply as required under clause 5.1.2.2 of the Code. Capacity is required to be provided to the Far North Queensland area such that forecast peak demand can be supplied with the most critical element out of service, ie N-1.

[2] As set by the ACCC and contained in Chapter 5 of the National Electricity Code

ability of reasonable options to satisfy emerging network limitations under these scenarios.

- ensure that the recommended solution meets reliability requirements at the lowest total net present value cost when compared with other feasible solutions.

This discussion paper is a critical step in fulfilling these regulatory obligations in relation to supply to the Cairns and Far North Queensland area.

3.0 Existing Supply System to Cairns and Far North Queensland

3.1 Geographic Region

The Cairns area is at the northern extremity of the Queensland electricity transmission system and the majority of the energy supplied to the area is generated in Central Queensland, some 800 kilometres away.

The electricity supply system to the Far North Queensland geographical area is shown in Figure 1, which shows the locations of the coastal 132kV lines and the inland 275kV lines from Ross, near Townsville, to Chalumbin and Woree.

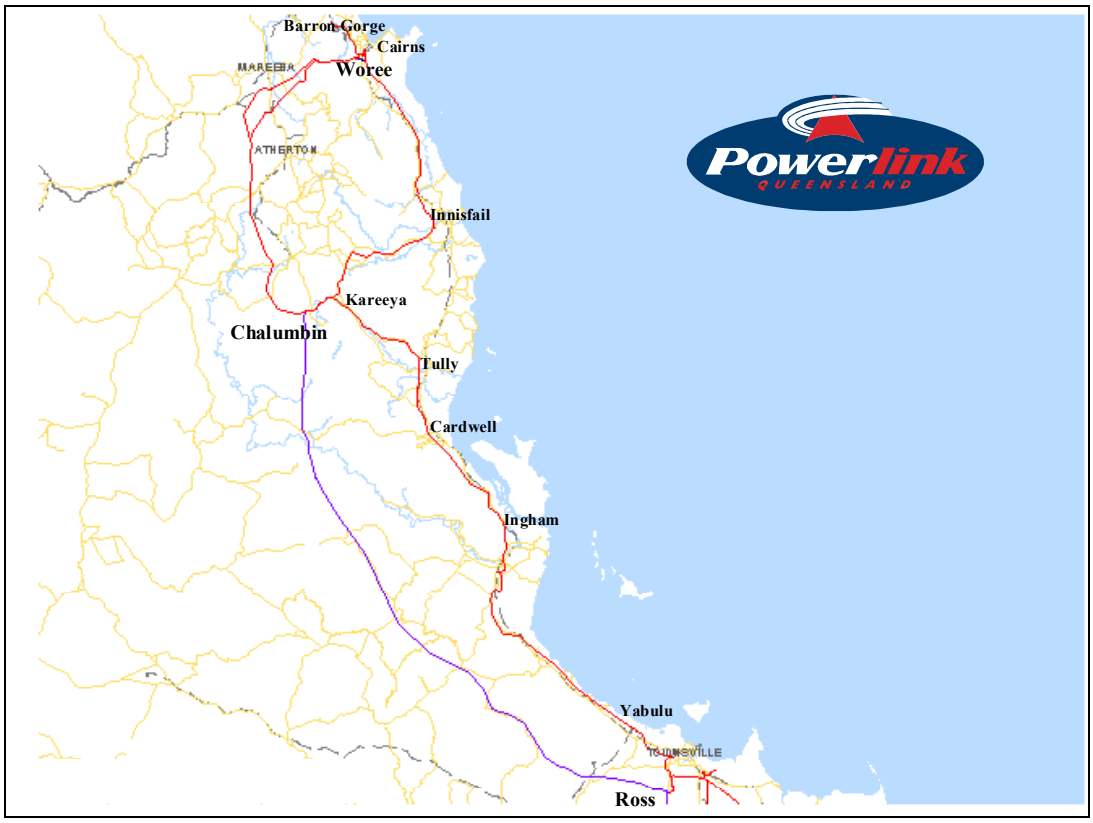

Figure 1: Far North Queensland Geographical Area

The relevant area is the area supplied from the Woree substation, this consists of the city of Cairns and its immediate surrounds, together with the area to the west and north of Cairns which is supplied from the Turkinje substation near Mareeba.

3.2 Existing Network Supply System

An operational schematic of the transmission system is shown in Figure 2 below.

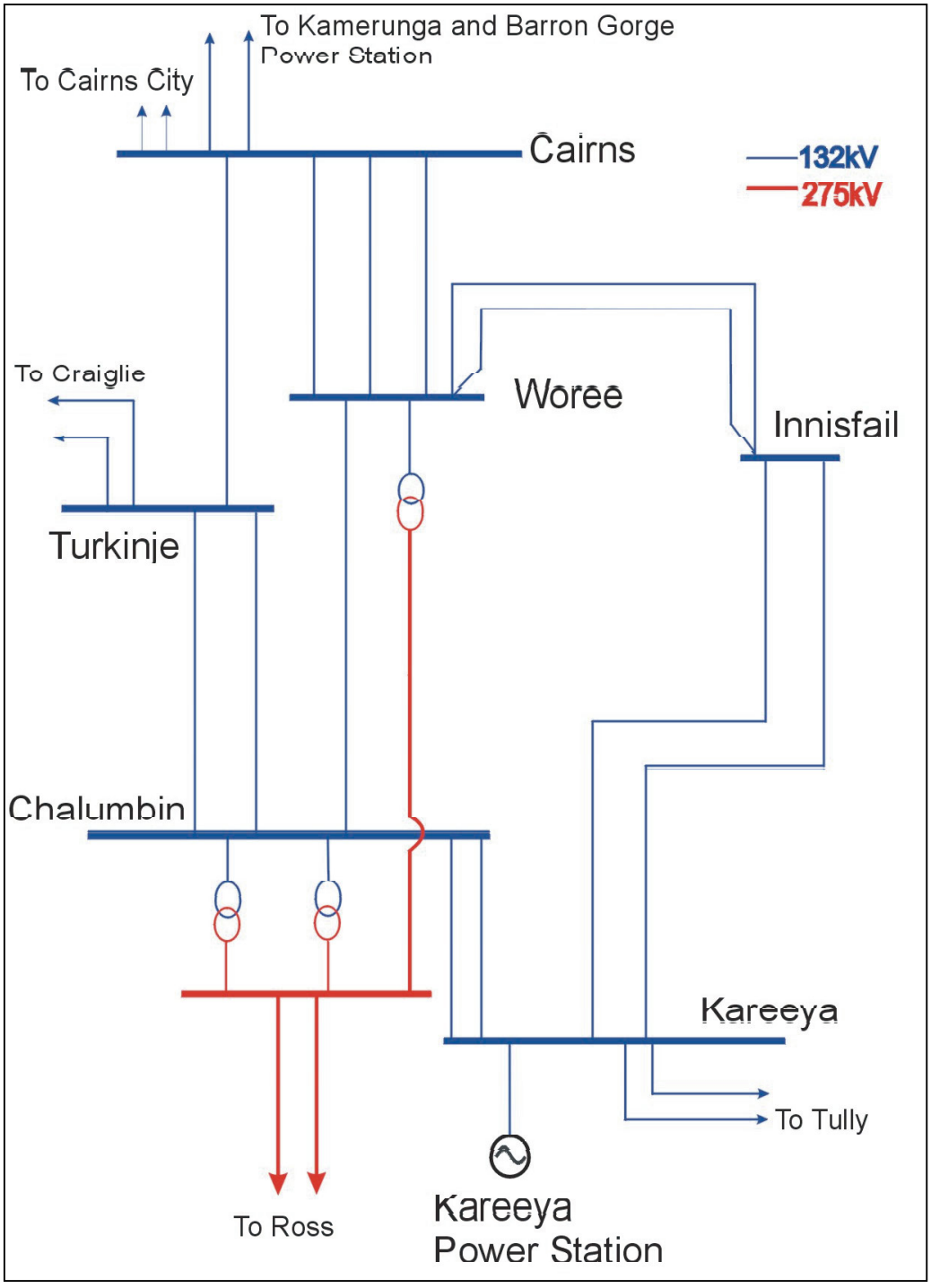

Figure 2: Far North Queensland Transmission System

The majority of the electricity used in the Cairns region is transported from Central Queensland on Powerlink's 275kV system to Ross, near Townsville. From Ross it is transferred via a double circuit 275kV transmission line to Chalumbin then via a single circuit 275kV transmission line between Chalumbin and the Woree substation on the outskirts of Cairns.

There is also a 132kV circuit parallel to the 275kV Chalumbin to Woree line and two other lower capacity 132kV lines, one which runs from Garbutt in Townsville to Woree via a number of coastal centres and one which runs from Chalumbin to Cairns via Turkinje, near Mareeba. The coastal and inland transmission lines are connected by a 132kV line between Kareeya and Chalumbin.

During typical conditions the 275kV circuits supply 65% of the electricity demand in the Cairns area. The other 35% is supplied via the 132kV system. Power from Woree supplies the Powerlink bulk supply points at Cairns and Kamerunga where it is transferred into the Ergon Cairns area distribution network. In normal conditions the Woree substation also provides approximately 35% of the energy to the Turkinje bulk supply point which supplies the Ergon network which distributes power in the area to the north of Cairns.

3.3 Existing and Committed Generation

A hydro power station is situated at Barron Gorge 20 kilometres north of Cairns and injects into the Kamerunga substation. The Barron Gorge power station is owned and bid into the electricity market by Stanwell Corporation. It consists of two hydro turbine units with a total capacity of 60MW. This power station is a run of river hydro with very limited water storage so its ability to generate is very dependent on rainfall and irrigation releases from the Tinaroo Dam in the immediately preceding days. The power station has the ability to operate as a synchronous condenser to provide voltage support to the system without generating power.

There is a 72MW hydro power station at Kareeya 150 kilometres south of Cairns. It is a hydro station with water storage capacity in the Koombooloomba Dam. This power station is also owned and bid into the electricity market by Stanwell Corporation. The power station is capable of operating as a synchronous condenser provided that one unit is generating minimum load (approximately 5MW).

The power generated by these two hydro power stations is dependent on rainfall and storage levels. During periods of high rainfall they can generate at their maximum capacity of 132MW but during prolonged dry spells their output may be very low. As an example, during the December quarter of 2002, the combined output from these power stations was zero for 17% of the time and less than 10MW for 63% of the time.

Generation from these two hydro power stations is currently determined by Stanwell Corporation in response to market conditions and any contractual obligations involving operation of these power stations. There is currently no contractual arrangement[3] between Powerlink and Stanwell Corporation regarding the use of these hydro generators to meet supply to the Cairns and Far North Queensland area.

[3] A network support arrangement between Powerlink and Stanwell Corporation regarding operation of the hydro power stations may be an outcome of this consultation and regulatory test evaluation regarding emerging transmission network limitations (see section 9).

There is a 12MW wind power station at Windy Hill on the Atherton Tableland. This power station is an embedded generator, that is, it is connected into the Ergon distribution system. Its output therefore is accounted for in the demand forecasts as a reduction in the load which needs to be supplied from the Powerlink transmission system.

There is also some limited electricity cogeneration at sugar mills in the area. This generation is only available during the crushing season, which is typically finished before the period of peak electricity demand from December to March. These generators are also embedded in the distribution system and their output has been accounted for as a reduction in the load on the transmission system.

Powerlink is not aware of any other committed generation proposals in the target area.

4.0 Load Characteristics

4.1 Overview

The Cairns region peak electricity demand is forecast to grow at 3.3%p.a. on average over the next ten years. The peak demand in the area is experienced in summer driven by high temperatures and high air conditioning loads.

As a result of the heavy airconditioning usage, the Cairns area also has a high reactive power demand with a consequent requirement for reactive power supply and for voltage regulation or control.

4.2 Load Growth Overview

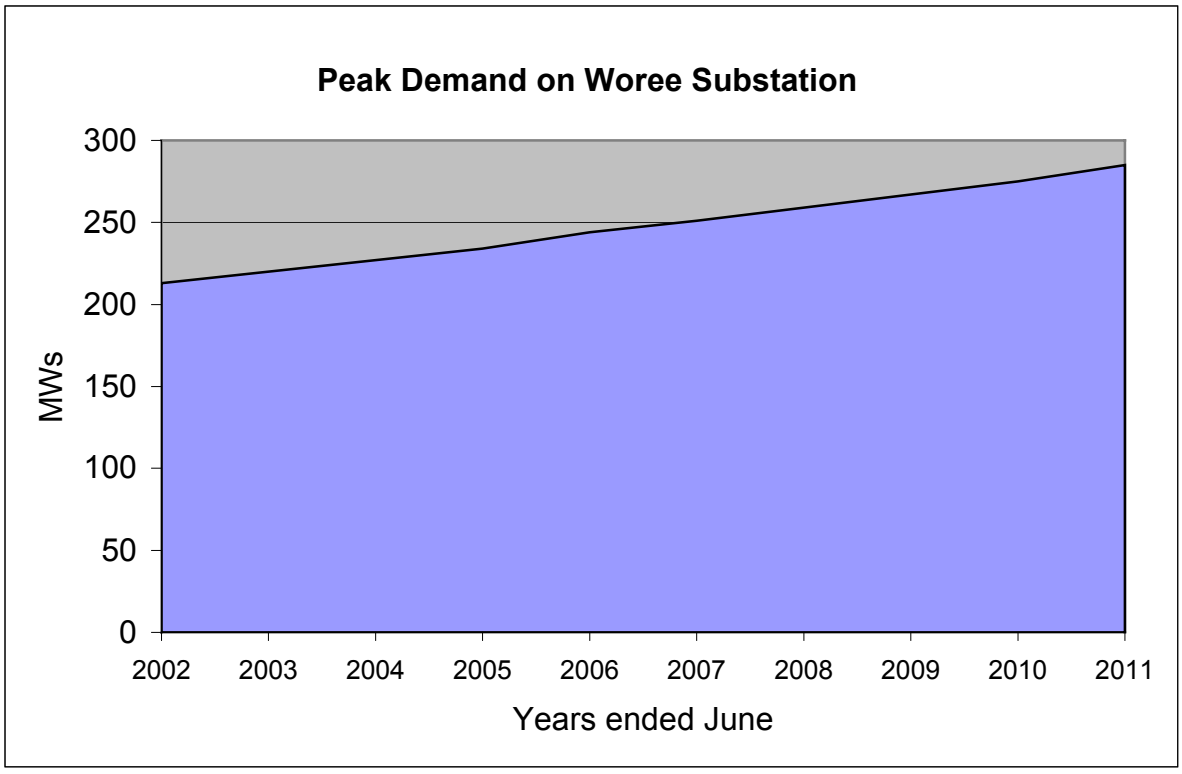

Figure 3: Woree Coincident Peak Demand

The peak demand forecast for the Cairns area (supplied through Woree) is shown in Figure 3 above, and Table 1 below. The Cairns area demand is defined as the sum of the loads supplied at Kamerunga, Cairns, Cairns City, an estimated portion of the Turkinje load and the future Edmonton substation[4], which is supplied through Woree.

[4] The possible establishment of Edmonton substation will be discussed further in Powerlink's Annual Planning Report 2003. Load supplied from Edmonton will offset load which would otherwise be supplied from Cairns substation.

Woree Peak Demand Forecast	
Year ended June	**Maximum Demand MWs**
2002 (actual)	213
2003 (actual)	220
2004	227
2005	234
2006	244
2007	251
2008	259
2009	267
2010	275
2011	285

Table 1: Woree Coincident Maximum Demands

Powerlink obtains electricity demand forecasts over a ten year horizon from Distribution Network Service Providers and customers at each connection point in Powerlink's transmission system. These forecasts thus take account of demand management programs in place or foreseen by distributors, and also the presence of embedded generation which may reduce the forecast of demand which needs to be supplied via each transmission connection point.

Forecasts in this section were obtained by aligning the local Ergon forecasts with an independent assessment of energy and demand forecasts for the Queensland region carried out by the NIEIR[5]. This independent assessment included a review of the impact of potential future embedded generation. These NIEIR forecasts assume a medium economic scenario, and typical weather conditions (ie a 50% probability of exceedance).

It can be seen from the above that the load in the Cairns area is expected to grow at an average rate of 3.3% per annum, which averages 8MW increase per annum.

[5] The National Institute of Economic and Industrial Research

4.3 Pattern of Use

The following graphs (Figures 4 and 5) show the daily and annual load curves in the Cairns area. The daily curve is representative of the peak demand day.

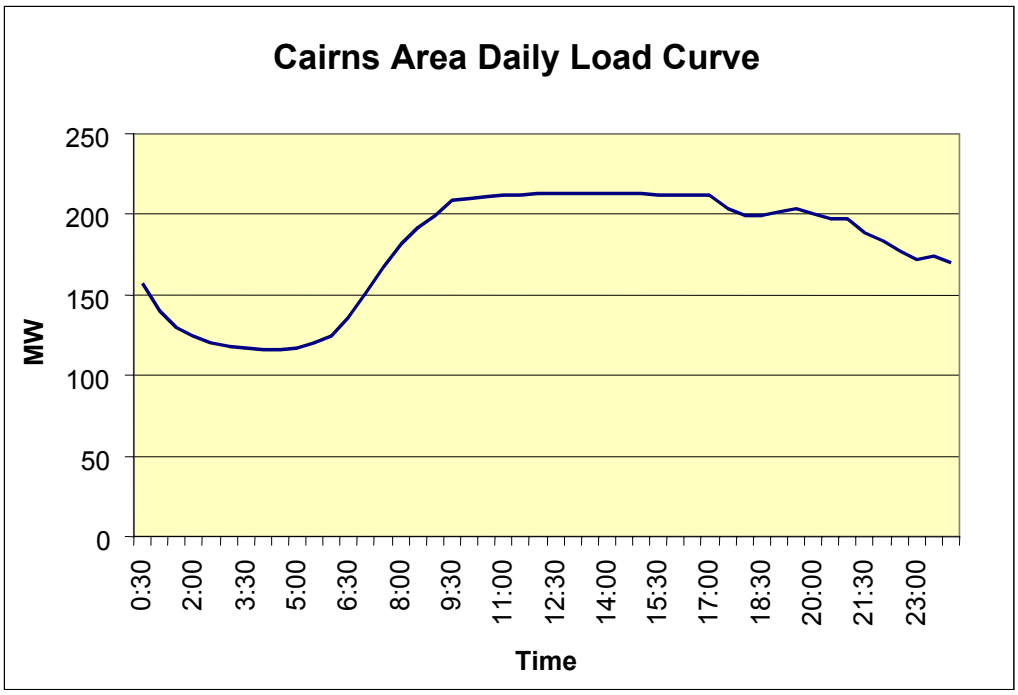

Figure 4: Cairns Area Daily Load Curve

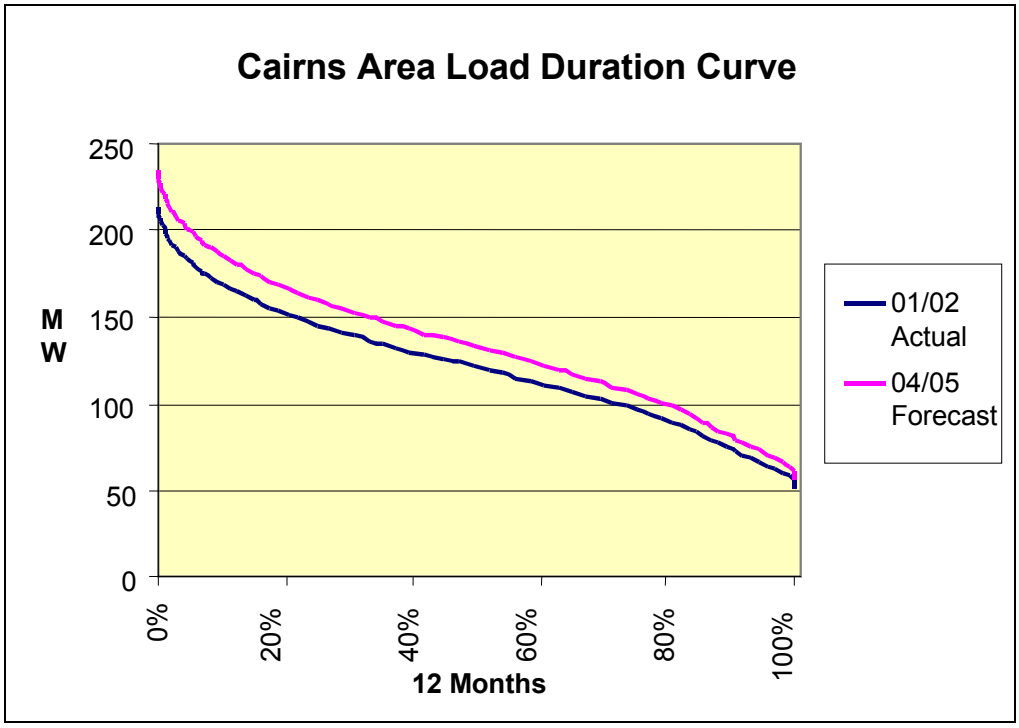

Figure 5: Cairns Area Load Duration Curve

The daily load curve shows that on the peak demand day the peak demand level typically lasts for about eight hours from 9.00AM to 5.00PM and demand remains at high levels until 9.00PM.

5.0 Transmission Planning Criteria

As a transmission network service provider (TNSP), Powerlink must comply with technical standards in the National Electricity Code. In particular, requirements relating to reliability and system security contained in Schedule 5.1 of the Code must be met. This schedule requires that the transmission network be planned so that:

- the power frequency voltage is maintained within limits outlined in S5.1.4;
- voltage fluctuations do not exceed limits set out in S5.1.5;
- harmonic voltage distortion does not exceed limits set out in S5.1.6;
- voltage unbalance does not exceed limits set out in S5.1.7;
- the power system can operate in a stable state as defined in S5.1.8;
- faults can be cleared in times specified in S5.1.9;
- current rating of equipment is not exceeded as described in S5.1.12.

Schedule 5.1 also includes details of credible contingencies and levels of redundancy to be considered in planning and operating the transmission network.

Examples of differing levels of redundancy include:

- 'System Normal': the absolute minimum level of reliability required. Defined as the ability to supply all load with all elements of the electricity system intact (ie – loss of supply would occur in the event of a single fault or contingency during a period of maximum demand)
- 'N-1': able to meet peak load with the worst *single* credible fault or contingency, and
- 'N-2': able to supply all peak load during a *double* contingency

Consistent with the National Electricity Code and its transmission authority requirements, Powerlink plans future network augmentations such that the reliability and power quality standards of Schedule 5.1 can be met under conditions of 'N-1. The Connection Agreement between Powerlink and Ergon Energy includes obligations regarding the reliability of supply as required under clause 5.1.2.2 of the Code. Capacity is required to be provided to the Far North Queensland area such that forecast peak demand can be supplied with the most critical element out of service, ie N-1.

The assessment of emerging network limitations in section 7.0 describes the capability of the existing network to maintain supply during the loss of any single transmission element (ie: N-1 criterion). The most critical element in supply to the Cairns area can be either the Chalumbin-Woree 275kV transmission line, or one of the 275kV transmission lines between Ross and Chalumbin.

6.0 Background – Network Capability

There is a range of technical factors which influence transmission network capability. Most important in relation to the network supplying the Cairns area is voltage control.

It is important for the quality of electricity supply to customers and the integrity of the total power system to maintain satisfactory voltage levels.

A fault or contingency can cause system voltages to fall rapidly. This is because a network fault causes increased power flows on the remaining equipment in service (ie- higher electrical current). Voltage drop is directly related to power flow, meaning that higher power flows following a fault or contingency result in a drop in voltage in the areas being supplied.

Unacceptably low voltage profiles can lead to collapse of the power system and widespread uncontrolled loadshedding as the problem 'cascades' to other elements of the network. Other consequences of low voltages may include 'brown-outs', failure of and/or damage to customer equipment such as motors etc.

Following a contingency, after some tens of seconds, voltage can be improved, to a limited extent, through automatic adjustments to transformer operation (tapchanging). In some circumstances, system voltages can also be managed through the installation of voltage regulation equipment in the network (eg – capacitor banks, static var compensators etc).

Other factors that influence voltage control include the type of power use (eg – air conditioning load requires more voltage support), the amount of local power generation and the number of generating units which are operating. If local generators are operating and are able to provide sufficient voltage support[6] when a contingency occurs, the impact of a network outage on voltages is reduced.

[6] ie - supplying reactive power (MVArs)

7.0 Emerging Network Limitations

7.1 Limiting Factors

The ability to reliably meet customer demand in the Cairns and Far North Queensland area is driven by the capability of the transmission network in conjunction with operation of the local hydro generators.

The transfer capability of the transmission system is actually reduced when local hydro generation is supplying some of the load. However, under these circumstances, the total amount of customer load that can be supplied is increased because the reduction in transmission capability is less than the power supplied by the generation. It is therefore more useful to think of system capability in terms of the "Maximum Supportable Load" which can be supplied, which takes account of the varying transmission capability and the contribution from local generation.

The transmission system transfer capability to Cairns and Far North Queensland is limited by the exhaustion of reactive power during the most critical single contingency. This leads to loss of voltage control and an inability to sustain voltages above statutory requirements. This is often referred to as a "voltage stability limit".

7.2 Limiting Contingency

For supply to the Cairns and Far North Queensland area, the critical contingency is either an outage of the Chalumbin to Woree 275 kV transmission line or one of the Ross to Chalumbin 275kV transmission lines.

7.3 Under Voltage Limitations in Cairns and Far North Queensland

Powerlink's transmission grid supplying the Cairns and Far North Queensland area is capable of supplying all of the area's forecast load under normal conditions. However detailed investigations have determined that during periods of peak load[7][8], the capability of the existing network will be exceeded during a single contingency by the summer of 2005/6. Without corrective action, customer loadshedding will be required during single contingencies from late 2005 onwards (in summer peak periods) in order to prevent voltage collapse and to allow safe operation of the system.

Studies show that, for an outage of one of the critical 275kV circuits during the peak summer period in 2005/6, load shedding of up to 3% of the peak demand (approximately 8MW) would be required to maintain satisfactory voltage levels throughout the region.

This analysis indicates that reinforcement of supply to the Cairns area is required by late 2005 to overcome voltage stability limitations and prevent loadshedding during single contingencies.

[7] For the purposes of this analysis, it is assumed that the hydro power stations are not generating but that one Barron Gorge generator is operating as a synchronous condenser.

[8] The output of the wind power station has been accounted for as a reduction in forecast peak demand and therefore has already been accounted for.

8.0 Factors Impacting Timing of Required Corrective Action

8.1 Assumed Electricity Demand

Section 7.3 identified that, without corrective action, the existing system will be unable to maintain supply during single contingencies by late 2005.

The primary driver of this emerging network limitation is the forecast growth in electricity demand in the area. The 2005 timing conclusion was based on a load growth forecast that assumed typical temperatures and medium economic growth. Changes to this assumption can alter the required timing for corrective action as follows:

Very Hot Conditions: If one in ten year extreme temperatures coincide with a single contingency during the summer of 2004/5 (a very low probability), system capability would be exceeded. In this situation, loadshedding may need to occur to manage voltage levels.

Mild Weather Conditions: Milder summer temperatures reduce the forecast demands on the transmission grid. If mild conditions occur, network voltages may be able to be maintained during a contingency for one additional year (ie – until summer 2006/7).

8.2 Assumed Generation Pattern

As noted in section 7.3, Powerlink has determined that network limitations will arise in the Cairns area in late 2005 assuming zero generation from local hydro generators and support from one Barron Gorge generator operating as a synchronous condenser.

Should market conditions and water availability be favourable, power stations at Barron Gorge and Kareeya may be operating at the time of a single 275kV contingency. This could provide additional voltage support, and increase the maximum supportable load.

As discussed in section 7.1 the maximum supportable load in the Cairns area is increased by local generation but the increase in generation is partially offset by a resulting reduction in the transfer capacity of the transmission network.

Both these power stations are hydro generators whose operations are limited by their water supply. If the generator is not operating during a network contingency, reliability of supply to the Cairns area would not be supported. A network support service from one of the local hydro generators may be a feasible partial or total solution. This is discussed further in section 9.0.

As discussed in section 3.3 the output of wind farms and cogeneration at sugar mills is accounted for in the demand forecasts as a reduction in the load which needs to be supplied from the Powerlink transmission system.

8.3 Other Factors

Augmentations to the distribution network may influence the flows on the 275kV and 132kV system in the relevant area. Powerlink has held planning discussions with Ergon Energy and established that there are no distribution augmentations likely to be committed in the near future that would impact the required timing for action to address the emerging transmission network limitations.

There are no other factors, given the existing electricity supply system and committed augmentations, which have been identified to influence the timing of emerging network limitations in the Cairns area.

8.4 Conclusion

It is Powerlink's conclusion that the existing electricity system supplying the Cairns area must be augmented before October 2005 if supply reliability is to be maintained during a single contingency.

An outage of one of the 275kV transmission lines between Ross and Woree during the peak summer period from 2005/6 onwards given assumed load and generation conditions will require customer load shedding if corrective action is not taken. Also, because of the impact an outage of a feeder has on supply to the area, maintenance times for these feeders will be very restricted.

Given Powerlink's obligations outlined in earlier sections of this report it is considered that the system supplying the Cairns area should be augmented by October 2005 at the latest.

9.0 Assessment of Alternative Solutions

As outlined in section 7.3, it is essential that action be taken prior to the summer of 2005/6 to maintain a reliable electricity supply to the Cairns area. This action may involve network augmentation, or the implementation of local generation or demand side management (DSM) options which reduce, defer or eliminate the need for new network investment.

9.1 Identifying Solutions

In June 2002, Powerlink published its 2002 Annual Planning Report. This report advised of emerging network limitations in the Far North Queensland area. Powerlink has received no information regarding proposals to address these emerging limitations from prospective solution providers in the normal course of business or in response to its Annual Planning Report.

This paper, and subsequent consultation, provides a further opportunity for alternative solution providers to submit details of their proposals for consideration. The information provided in this document on emerging network limitations in the Cairns area is intended to enable interested parties to formulate and propose feasible and definitive local generation, network and demand side management solutions.

9.2 Criteria for Solutions

To assist solution providers understand the technical and other requirements, Powerlink has identified the following criteria which must be satisfied if solutions are to meet the underlying need for augmentation of supply to the Cairns and Far North Queensland area:

Size: Feasible options must be large enough, individually or collectively, to overcome the identified voltage limitations.

In 2005/6, this may require around 30MW of capacity to be supplied by a local generator. The capacity required depends on the interaction between the location of the generator and local voltage and load levels. In subsequent years, required capacity would increase by at least 20MW each year to keep pace with load growth, again dependent on the location of the generator.

A demand side management solution would need to reduce peak demand by around 8MW, with a proportionate reduction in the reactive power load, to address the limitation by a year with similar reductions for each additional year.

Reactive power support, such as a synchronous condenser in the immediate location of Cairns or Woree would require a capacity of 30 MVAr in 2005/6 to defer further corrective action by one year or 60 MVAr to achieve a deferral of two years.

Time of Year: Options must, at a minimum, be capable of meeting demand during peak summer months. Satisfactory voltage levels will not be able to be maintained with the existing system during summer from late 2005 onwards.

Location: To be a viable 'standalone' non-transmission solution, an option must increase the maximum supportable load in the Cairns area. Section 8.2 discusses the relationship between generation levels and maximum supportable load. This relationship varies with the location of the generator.

Operation: If it is recommended that a new local generation option is the most appropriate solution to the emerging reliability issues, this generator will be required to operate "on demand" at certain times to satisfy reliability criteria. Such operation will be required regardless of the pool price at the time (the National Electricity Code prevents a generator that is providing grid support from setting the market price).

Generation will need to be operational during all periods that the transmission system would not otherwise be able to supply load if a contingency occurred. That is, they must be operating "pre-contingency", when the transmission system is intact. Otherwise, loadshedding will occur immediately following a fault on the relevant 275kV feeder (loadshedding would be automatic and instantaneous following an outage of the 275kV feeder to prevent 'cascading' voltage collapse).

Demand side programs must either reduce load pre-contingency or automatically disconnect sufficient customer supply immediately following a contingency. Proponents of the latter type of program are advised that the demand side response must be automatic and occur within very few seconds to prevent voltage collapse. Therefore, any customers agreeing to participate in such a program would not be able to have any warning of the power interruption.

The daily load curve shown in Figure 4 shows that the peak daily load in the area lasts eight hours from 9.00am to 5.00pm. Any generation or DSM solution would therefore need to be capable of operating continuously for eight hours a day.

Timeframe: All options must be operational before October 2005. As outlined, the required timing for corrective action to address emerging network limitations is prior to the summer of 2005/6.

Reliability: Options must be capable of reliably delivering electricity under a range of conditions and, if a generator, must meet all relevant Code requirements related to grid connection.

Certainty: Options must be committed by November 2003 using proven technology and have funding and project management to deliver within the required timeframe. Corrective action is critical to the reliability of electricity supply to the Cairns area – it is not considered appropriate to rely on uncommitted developments that may or may not proceed.

9.3 Assessment of Solutions

The ACCC's Regulatory Test and Chapter 5 of the National Electricity Code require Powerlink to consider local generation, DSM, inter-regional and network options on an equal footing.

The Regulatory Test also specifies the assessment methodology to be used:

"In the event an augmentation is proposed to meet an objectively measurable service standard linked to the technical requirements of schedule 5.1 of the Code, the augmentation satisfies the Regulatory Test if it **minimises the net present value of the cost** of meeting those standards having regard to a number of alternative projects, timings and market development scenarios."

An augmentation proposed to meet an objectively measurable service standard linked to the technical requirements of Schedule 5.1 of the Code, or other statutory requirements, is referred to as a 'reliability augmentation'.

Any regulated augmentation proposed as a consequence of addressing the emerging network limitation in supply to the Cairns area as outlined in this report will be a 'reliability augmentation' because:

- there is a clear need for the augmentation based on the limitations identified in this report
- the limitations are based on an objectively measurable service standard linked to the technical requirements of schedule 5.1 of the Code as set out in this report

This means the assessment of solutions will be based on minimising the net present value of the cost of meeting the service standard.

A public process is required, with disclosure of project costs and comparison of alternatives. As the outcome of the economic analysis could be a recommendation to proceed with a regulated solution, it is important that all feasible options are considered in the process.

If a non-network option satisfies technical requirements, is committed and can be implemented for a lower cost than a transmission augmentation, it will be necessary for Powerlink to enter into a network support contract with the proponents of the alternative project to ensure supply reliability can be maintained. If regulated funding is required from Powerlink, it is necessary that network support arrangements satisfy the Regulatory Test in terms of both economics and disclosure of relevant costs to the market.

10.0 Request for Information

Powerlink invites submissions and comments in response to this discussion paper from national electricity market participants, solution providers and any other interested parties.

Submissions should be presented in a written form and should clearly identify the proponent of the submission including contact details for subsequent follow-up if required. If parties prefer, they may request to meet with Powerlink ahead of providing a written response.

10.1 Submissions from Solution Providers

This is not a tender process – it is a request for information. Submissions are requested so that Powerlink can fulfil its regulatory obligations to compare the net present value cost of alternatives to the option of augmenting the transmission supply system to maintain supply reliability.

If your submission proposes a solution, it should contain the following information:

- Details of the party making the submission (or proposing the solution)
- Technical details of the project (capacity, proposed connection point if relevant etc) to allow an assessment of the likely impact on supply capability
- Sufficient information to allow the costs of the solution to be incorporated in a cost-effectiveness comparison in accordance with ACCC Regulatory Test guidelines
- An assessment of the ability of the proposed solution to meet the technical requirements of the National Electricity Code
- Timing of the availability of the option, and whether it is a committed project
- Other material that would be relevant in the assessment of the proposed solution

As the submissions may be made public, any commercially sensitive material, or material that the party making the submission does not want to be made public, should be clearly identified. It should be noted that Powerlink is required to publish the outcomes of the Regulatory Test analysis. If solution providers elect not to provide specific project cost data for commercial-in-confidence reasons, Powerlink may rely on cost estimates from independent specialist sources.

10.2 Timetable for Submissions

Please provide information by Friday 4 July 2003 to:

Alison Gray
Manager Network Assessments
Powerlink Queensland
PO Box 1193
Virginia QLD 4014
agray@powerlink.com.au
Tel: (07) 3860 2300
Fax: (07) 3860 2388

10.3 Assessment and Decision Process

Powerlink intends to carry out the following process to assess what action, if any, should be taken to address the identified network limitations:

Part 1	Initial Information Request (this paper). Submissions (responses to this paper).	End of May Early July
Part 2	Review and analysis. Likely to involve further consultation with Code participants and interested parties. Additional data may be requested to allow Powerlink to carry out the economic assessment process as required by the National Electricity Code and the ACCC Regulatory Test.	July/August 2003
Part 3	Publication of application notice (draft report recommending the solution that satisfies the Regulatory Test) Submissions on application notice Presentation of final report and recommendation	August 2003 September 2003 October/November 2003
Powerlink Queensland reserves the right to amend the timetable at any time. Amendments to the timetable will be made available on the Powerlink website (www.powerlink.com.au)		

The consultation timetable is driven by the need to make a decision by late 2003 if any option involving significant construction is to be in place by the summer of 2005/6. At the conclusion of the process, Powerlink intends to take immediate steps to implement the recommended solution to ensure that the reliability of the system can be maintained. For example, if the preferred solution is a network augmentation, it is anticipated that orders will need to be placed by December 2003.