



SUPPLEMENTARY REPORT

DEVELOPMENT OF ELECTRICITY SUPPLY TO THE NSW FAR NORTH COAST

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Executive Summary

This supplementary report is being issued to provide background to and information on the outcomes of the Request for Proposals (RfP) for Network Support on the NSW Far North Coast which was issued by TransGrid in May 2010.

The main findings include:

- Network support would not allow the Dumaresq - Lismore 330 kV line to be deferred beyond the presently expected completion date. However, it may help to reduce the risk of supply interruptions in the period before the line can be completed
- Six responses proposals were received in response to the RfP and only one contained sufficient information; including the amount of support to be provided and the cost, to allow it to progress to evaluation
- Excluding the five responses which could not be evaluated:
 - The amounts of support offered were less than that being sought; and
 - Support was not offered for summer 2010/11 or summer 2011/12.
- Regardless, TransGrid is negotiating with one proponent to establish a network support contract. The contract would be subject to preconditions requiring the proponent to complete works essential to the provision of the network support service.

1. Purpose

In May 2010 TransGrid published a Request for Proposals (RfP) seeking network support on the NSW Far North Coast. This supplementary report is being issued to provide background to and information on the outcomes of that RfP process.

2. Background

In the early 2000s the transmission networks supplying the NSW Far North Coast and the Gold Coast area of Queensland were identified as approaching the limits of their capacity. To identify the overall optimal developments to meet the growing load (demand) within these areas, joint planning¹ between Powerlink Queensland, Energex, Country Energy and TransGrid was undertaken over a number of years. One of the projects to emerge from that joint planning process was construction of the Dumaresq – Lismore 330 kV line.

In April 2008, TransGrid and Country Energy published an Application Notice “Development of Electricity Supply to the NSW Far North Coast”². Two submissions were received which expressed an interest in providing network support. Neither submission contained sufficient information, particularly commercial information, to enable their cost effectiveness to be assessed. Nevertheless, TransGrid worked with the proponents to determine whether a cost effective network support option could be developed.

In March 2009 TransGrid and Country Energy published the Final Report “Development of Electricity Supply to the NSW Far North Coast”. At that stage the aforementioned network support options were not sufficiently developed to enable them to be considered as feasible options. Regardless of this, TransGrid and Country Energy maintained the option of implementing a network support arrangement should that prove to be feasible and cost effective³. Consequently, the conclusion of the Final Report was that TransGrid would:

1. Proceed with construction of the Dumaresq – Lismore 330 kV line and associated works; and
2. Continue discussions with the proponents of potential network support developments to determine whether they were feasible and cost effective.

Since the Final Report was published:

- the availability of Directlink (a dc link between the Terranora area and Mullumbimby, which can reduce the loading on TransGrid’s transmission network serving the Far North Coast) has reduced; and
- the expected completion date of the proposed new 330kV transmission line connection between Dumaresq and Lismore has been revised to mid 2014
- Additional measures to manage the risk of load interruptions are necessary as the network supplying the Far North Coast will not meet reliability standards under high load conditions from summer 2010/11.

Consequently, TransGrid issued the RfP seeking proposals for network support.

3. The Request for Proposals

The RfP covered summer 2010/11 to summer 2014/15. Summer 2014/15 was included to test whether it would be possible to defer completion of the new 330 kV line beyond the presently expected completion date.

The amounts of network support required over this period are shown in Table 1. They are based on some support from Queensland being available via Directlink (refer to Appendix A). The effectiveness of load reductions in managing the network limitations depends on where those reductions occur. The figures in Table 1 are for load reductions in the optimal locations.

Additional information on calculation of these quantities is also provided in Appendix A.

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Table 1 Amounts of Support Sought

Summer	Optimally Located Support Required (MW)
2010/11	Up to 70 ⁴
2011/12	Up to 20
2012/13	Up to 30
2013/14	Up to 45
2014/15	Up to 70

Six responses to the RfP were received. They covered local generation, investigation of the potential for demand management in the area, energy storage and assistance in verifying that requested demand reductions are actually delivered.

The identities of the responding parties cannot be disclosed as some responses were “Commercial in Confidence”.

Table 2 provides a summary of the nature of the responses to the RfP.

Table 2 Nature of Responses Received

	Related to Network Support	Amount of Support and the Associated Cost Quantified	Within the Relevant Area
Response 1	Yes	Yes	Yes
Response 2	No (a study was offered)	Neither was quantified	Yes
Response 3	Implied	Neither was quantified	No
Response 4	No (a verification service was offered)	Neither was quantified	Not applicable to the service offered
Response 5	Yes	No cost information	Yes
Response 6	Yes	Neither was quantified	Implied

Five of the six responses contained insufficient information to enable them to be evaluated and/or did not offer services that could be accepted by TransGrid.

TransGrid is negotiating with the one party with the objective of establishing a contract for provision of network support for risk mitigation. That contract would be subject to preconditions requiring the proponent to complete works essential to the provision of the network support service.

Table 3 below summarises the potential to acquire some network support resulting from the RfP. Network support for risk mitigation in summer 2014/15 would only be required if construction of the Dumaresq – Lismore 330 kV line is not completed by that time.

Table 3 Summary of the Potential for Network Support

Summer	Potential for Network Support	Support Offered (MW)
2010/11	No	0
2011/12	No	0
2012/13	Yes	23.5
2013/14	Yes	23.5
2014/15	Yes	23.5

Of the six responses received, none offered support for summer 2010/11. Although one referenced support in summer 2011/12 it could not be evaluated further.

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In the other summers, the level of support offered was less than that being sought. The quantity offered for 2014/15 was substantially less than that required to defer the project. Therefore network support would not allow the 330 kV line to be deferred beyond the presently expected completion date.

4. Conclusions

The main findings are that:

- Network support would not allow the new 330 kV line to be deferred beyond the presently expected completion date. However, it may help to reduce the risk of supply interruptions in the period before the line can be completed;
- Of the six responses received, only one contained sufficient information to enable it to be evaluated; and
- Excluding responses which could not be evaluated:
 - The amounts of support offered were less than that being sought; and
 - Support was not offered for summer 2010/11 or summer 2011/12.

TransGrid is negotiating with one party with the intention of establishing a network support contract which would be subject to preconditions requiring the proponent to complete works essential to the provision of the network support service.

Appendix A – Amount of Support Sought

Main Network Limitation

On outage of the 87 Armidale – Coffs Harbour 330 kV line the main transmission network limitation is overloading of the 96C Armidale – Coffs Harbour 132 kV line (refer to Figure 1).

The extent of this overload depends primarily on the loads in the Far North Coast area and on the magnitude and direction of flows on both Directlink and the Queensland – NSW Interconnector (QNI). Southward flows (imports to NSW) on Directlink are beneficial as they reduce the loading on 96C line. Southward flows on QNI are detrimental as they increase the loading on 96C line.

Queensland NSW Interconnector Flows

NSW (and the ACT) is a net importer⁵ of power from Queensland and Victoria. In particular, imports from those regions are critical in supplying NSW (and the ACT) at times of high demand for electricity. At those times, the actual levels of import are determined by factors within the National Electricity Market (NEM), which are beyond TransGrid's control, particularly generator bidding behaviours. Consequently, it is necessary to consider a range of possible generation/import patterns when planning to meet the total NSW/ACT load.

One of the generation/import patterns considered by TransGrid when planning to meet the total NSW/ACT load involves high import from Queensland (1,078 MW on QNI and 180 MW on Directlink)⁶. For the investigation of supply to the NSW Far North Coast this pattern was modified to reflect the fact that high loads on the NSW Far North Coast can occur at or near the times of high loads in south east Queensland (due to the geographical proximity of these areas and them generally being exposed to the same, or similar, weather conditions⁷). An examination of the magnitude of QNI flows at times of high Far North Coast summer demands⁸ revealed that the maximum likely import via QNI was around 800 MW at these times. Consequently, the levels of network support sought were based on 800 MW of import from Queensland via QNI⁹.

Directlink Capability

Directlink comprises three nominal 60 MVA dc links operating in parallel. Allowing for losses, the maximum southward flow (delivered at Mullumbimby) is around 170 MW. Should one of the three dc links be out of service the maximum southward capability is around 115 MW and with two of the dc links out of service it is around 57 MW¹⁰.

The reliability of Directlink was an issue during the AER's consideration (in 2005 and early 2006) of the application by Directlink Joint Ventures (DJV) to convert Directlink to regulated status. At that time Directlink's availability was around 80% (well below typical availability levels for transmission networks) and DJV gave undertakings to improve this. In its consideration of DJV's application the AER used a benchmark of 99% as an acceptable availability level.

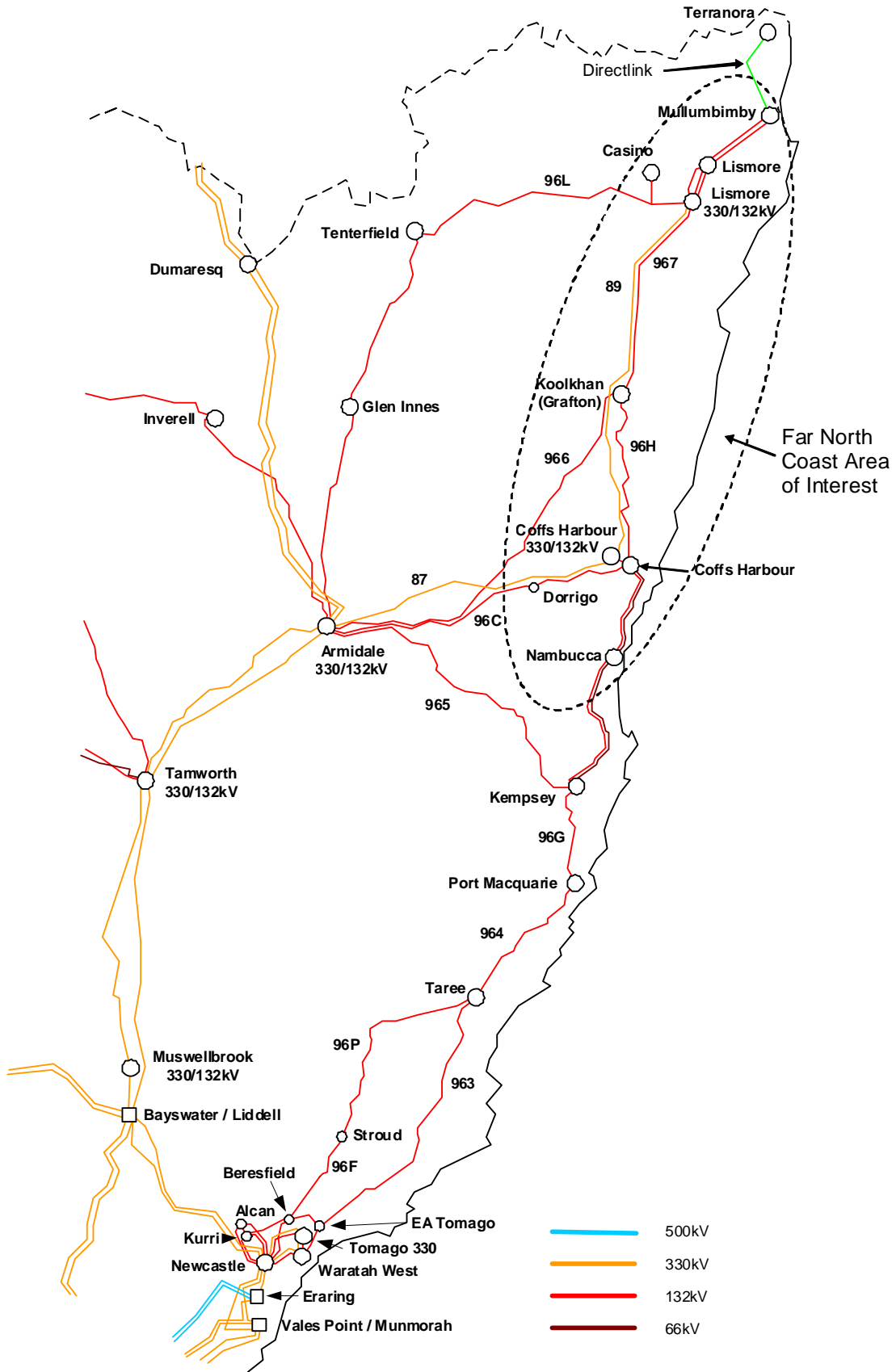
Information on Directlink availability has been available since Directlink converted to regulated status (in early 2006). Analysis of that information shows that:

- the (rolling annual) availability of two or more links remains well below the 99% benchmark (as does the availability of all three links); and
- the (rolling annual) availability of one or more links is also below 99% and has shown a general decline since data became available.

Based on the information available at the time, TransGrid stated in the Final Report that it considered that a maximum of one link of Directlink could be relied upon to be available¹¹.

The levels of network support sought in the RfP were based on one link of Directlink being available.

Figure 1 Transmission System Supplying the NSW North Coast



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- 1 Joint planning involves planning the networks owned by the participating parties as though there were no ownership boundaries. The outcome is a programme of developments to meet the various emerging limitations, at the lowest overall (community) cost. The programme of works is agreed by all parties and each party undertakes the works within its network.
- Another outcome is that any detrimental impacts that developments within one network may have on adjoining networks are considered, and if necessary mitigated, as part of the joint planning process. Thus, the agreed programme of works includes those necessary to manage material detrimental inter-network impacts (should there be any).
- The versions of the National Electricity Rules in force at the time that the regulatory consultation was undertaken (Versions 19 to 26) provided two methods to address material inter-network impacts; through gaining the agreement of the owners of other potentially affected networks or through preparation of an augmentation technical report. TransGrid and Country Energy adopted the first of these approaches which was implemented through joint planning with Powerlink and Energex. Consequently, the analysis necessary under the second approach (which has recently been claimed should have been undertaken) was not required.
- 2 The versions of the National Electricity Rules in force at the time (Versions 19 to 26) provided for a two stage regulatory consultation process. Broadly, the first stage (the Application Notice) was to:
- describe the network limitations;
 - describe the reasonable options being considered to address the limitations;
 - make a preliminary assessment of which option may satisfy the Regulatory Test; and
 - seek comments/submissions.
- The second stage (the Final Report) was essentially an update of the Application Notice incorporating any new information available, particularly relevant information provided in submissions (if any).
- Whilst the requirement was for all reasonable network and non-network options to be described, accepted practice was to describe only those of which the network owner was aware. This anomaly in the NER has subsequently been corrected, the present version requires that only known credible options be described.
- The consultation for supply to the Far North Coast followed the process with no reasonable non-network options being known of when the Application Notice was published and none being proposed in response to the Application Notice. Network support from the sugar mill generators was not considered to be a reasonable option as the owners of those mills had publicly stated that they did not wish to be contractually bound to provide network support.
- 3 Implementing network support arrangement(s) would involve negotiating contract(s). It is normal commercial practice when negotiating contracts (or having the prospect of needing to do so) to not reveal the number of contracts being negotiated, the identities of the parties with whom those contracts may be negotiated or the nature of their proposals (from which their identities could be deduced). Consequently, TransGrid and Country Energy were unable to provide anything other than high level information on the submissions received. However, the maximum amount of information possible in the circumstances was made public and TransGrid's intention to continue to pursue the possibility of implementing a network support option (if feasible and cost effective) was clearly stated.
- Essentially, the dilemma faced was to either limit the amount of information provided in the Final Report or to compromise the ability to acquire network support. While neither option was appealing, TransGrid takes the success of the RfP as vindication of the approach adopted.
- 4 The amount of support sought for summer 2010/11 reflected the fact that, at the time that the RfP was issued, it was believed that works to uprate 96C line may not have been able to be completed prior to summer 2010/11. The figures for subsequent summers are based on 96C line having been uprated. The uprating of this 132 kV transmission line reduces the reliability exposure in the area.
- 5 See Electricity Statement of Opportunities 2010 page 137 minimum reserve levels.
- 6 TransGrid considers a range of generation/import patterns (including high import from Queensland). During its most recent determination of TransGrid's allowable revenue, the AER reviewed and accepted the reasonableness of the generation/import patterns TransGrid considers.
- 7 High loads in south east Queensland reduce the amount of "spare" generation in Queensland which may be able to provide power to NSW at those times.
- 8 This investigation was undertaken prior to publication of the Final Report. A recent check of QNI flows at times of high Far North Coast summer demands for the two most recent summers supports the conclusion of that investigation.
- 9 Similarly, in the Application Notice and the Final Report, the years in which the capability of TransGrid's transmission network was expected to be exceeded were based on high levels of import via QNI (1,000 MW in the Application Notice and following additional investigations, 800 MW in the Final Report).

- ¹⁰ Given the nominal capability of each of the links of Directlink relative to the size of the NSW Far North Coast load, the number of links available is the most significant factor affecting the loading on TransGrid's transmission network (under contingencies) and consequently on when the capability of that network may be exceeded and the amount (if any) by which it may be exceeded.

Therefore, the Application Notice and the Final Report considered the full range of Directlink availability (ie no links available through to all links being available), although these were not specifically described as scenarios. TransGrid and Country Energy also considered the possibility of local generation at the two sugar mills providing network support. However, due to the publicly stated position of the owners of those mills of not wishing to be contractually bound to provide support to either Country Energy or TransGrid, that was not considered to be a realistic scenario. Other factors (such as "high" and "low" rates of load growth) which had no impact on when network limitations would arise were not specifically considered as separate scenarios.

Comments have been made recently about having only a single reasonable scenario. Those comments appear to be based either on a misunderstanding of what factors are important (for example they mention "high" and "low" rates of growth which do not change when the network limitations arise) or on a belief that it would have been better to consider changes in the important factors (such as the number of poles of Directlink which may be available) as separate scenarios, rather than as sensitivities within a single scenario.

The comments also extended to a contention that considering only a single scenario resulted in a failure to provide a detailed description on why the Dumaresq – Lismore line was considered to have passed the regulatory test. The connection between these points is not clear, however TransGrid notes that the bulk of the information in both the Application Notice and the Final Report related to the limitation in the capacity of TransGrid's network, the options considered to relieve that limitation and identification of the option which satisfied the Regulatory Test.

- ¹¹ Recent discussions with Directlink indicate that some remedial works have been undertaken in the last few months. However, at this stage it is not possible to predict how effective those works may be in improving the availability of Directlink.