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Dear Warwick

**RE: Powerlink Revenue Proposal 2012/13 - 2016/17**

AEMO welcomes the opportunity to provide comments on Powerlink's Revenue Reset Proposal 2012/13 - 2016/17 (Revenue Proposal). AEMO plays a pivotal role in Australia's energy markets as the National Transmission Planner and provider of information through our Gas and Electricity Statements of Opportunity. In this role we consider that we can provide value to the AER's assessment.

Our submission focuses on the following areas of the Revenue Proposal:

- Load forecasting
- Alignment of the proposed network augmentations with the National Transmission Network Development Plan (NTNDP)
- Triggers for contingent projects
- Powerlink's Planning Criteria

**Load forecasting**

The Revenue Proposal forecasts peak demand growth over the regulatory reset period of 2,970 MW or 27 per cent. Quoting AEMO as the source, it states that this "clearly shows that Queensland has by far the highest forecast growth in peak demand over the next five years".[1]

AEMO does not independently produce forecasts for Queensland. The peak and energy demand forecasts for Queensland in the Electricity Statement of Opportunities (ESOO) are provided by Powerlink to AEMO. AEMO only produces independent forecasts for Victoria and South Australia.

AEMO published its 2011 ESOO at the end of August 2011 which contains updated demand forecasts including forecasts for Queensland supplied by Powerlink. Powerlink's 2011 forecasts are approximately 2.1 per cent lower for peak demand and 4.3 per cent lower for annual energy than their 2010 forecasts. AEMO's 2011 ESOO also provides an alternative regional peak demand and energy forecast for Queensland as a sensitivity. This forecast

[1] Page 7 of "2013-2017 Powerlink Queensland Revenue Proposal" available at http://www.aer.gov.au

suggests that Queensland demand could be between 240 MW and 620 MW lower than that in the 2011 Powerlink forecasts.

AEMO is also commencing a program of energy forecasting work to provide the industry with more transparency of forecasting processes to facilitate the delivery of clear, national forecasts for the benefit of the energy industry. We note that, as set out in Powerlink's Planning Criteria, the critical forecasts for the development of the transmission network are the 10% probability of exceedance (PoE) peak demand forecasts. The Revenue Proposals contains very limited information on the 10% PoE peak demand forecast. Nor does it provide the peak demand history referenced to a backcast set of 10%, 50% and 90% PoE demand forecasts. AEMO considers that this information would be insightful for the AER to make an informed assessment on both the current capability of the network, which has been designed to historic 10% PoE peak demand forecasts and the requirement for future expansion. AEMO aims to do provide this information for Queensland as part of its energy forecasting program. The submission does briefly outline the methodology used to forecast the 10% PoE demand forecast.[2] The methodology is based on determining the 10% PoE temperature conditions, and then adjusting historical demand and forecasting future demand to these conditions. Past experience has shown that this style of approach can give erroneous results as a range of factors also affect the peak demand including the coincidence of temperature conditions with day of the week and week of the year and the coincidence of demand in various areas across a state.

The statewide forecast is, however, not the only matter to be considered. We note that augmentation programs are designed to meet connection point demand, not regional demand. AEMO is not in a position at this stage to review the connection point forecasts. If the AER were to determine that the regional 10%PoE peak demand forecast should be reduced, it would then be necessary for the AER to conduct an assessment of the effect of this reduction on connection points and hence specific augmentation projects.

**Alignment with the NTNDP**

For the 2010 NTNDP, AEMO worked closely with the jurisdictional planning bodies across the NEM. Some of the information produced in the 2010 NTNDP was supplied by the jurisdictional planning bodies. Importantly the cost data used in the 2010 NTNDP was sourced from the jurisdictional planning bodies for all states except Victoria. Therefore AEMO is not in a position to comment on the accuracy of the cost information Powerlink supplied in support of its Revenue Proposal. AEMO is, however, in the process of developing a transmission project costing database that will allow us to provide more detailed comment on resets in the future.

AEMO's modelling in its 'base case' also included all projects which the jurisdictional planning bodies identified as being committed[3]. The assessment undertaken by AEMO in the NTNDP concentrated on identifying the potential thermal limitations on the main grid. It did not focus on local supply issues, intra-regional market benefits or stability considerations.

[2] Page 4 of Powerlink's "Demand and Energy Forecast Methodology". It is noted that further information was provided to the AER on a confidential basis.

[3] Powerlink's committed projects can be found in section 4.3.3 of the 2010 NTNDP http://www.aemo.com.au/planning/0410-0066.pdf

Therefore AEMO is only able to comment on those projects that were driven by the thermal capability of the main grid and were not already considered committed.

Considering the approach taken, we would expect strong alignment between the 2010 NTNDP and Powerlink's Revenue Proposal. In future NTNDPs, AEMO will investigate more closely the economics of network investment options, including different options and timing of proposed investments.

The Revenue Proposal contains fifteen proposed augmentations over the forthcoming regulatory period that exceed the $25 million project cost threshold. Of those projects, the NTNDP base case considered one as committed and the NTNDP analysis identified seven projects as potential development projects.

The remaining seven augmentations were not captured in the NTNDP as these projects either relate to:

- Substantial demand growth predicted in the industrial zones or
- Capacity requirements arising from joint planning activities between Powerlink and the Distribution Network Service Providers (DNSPs).

Four of the seven proposed projects that are in the NTNDP do not align with respect to the project requirement dates. These projects are:

- Calvale-Larcom Creek 275 kV double circuit line
- Stanwell-Broadsound 275 kV stringing of an additional circuit
- Stanwell-Broadsound Series Capacitors
- Western Downs-Halys 500 kV double circuit line operating at 275 kV (circuits 5 and 6)

The reasons for this misalignment could be attributed to different load growth assumptions[4], new generation assumptions in South East Queensland or Powerlink's considerations of potential market benefits. We would note from our planning work that new gas fired generation in south-east Queensland has the effect of reducing or deferring the need for transmission investment. A more detailed comparison of the Revenue Proposal and Revenue Cap alignment can be found at Attachment 1.

Powerlink has also proposed 13 contingent projects. The majority of these projects relate to investment drivers such as substantial additional demand growth in major development zones. These projects were not included in the NTNDP. The contingent projects also include three NTNDP developments, namely NEMLink, QNI upgrade and Calvale to Larcom Creek development. A more detailed comparison of the Revenue Proposal and Revenue Cap alignment can be found at Attachment 2.

[4] Because of the development time required, the load growth in the NTNDP scenarios was based on information broadly consistent with the 2009 Powerlink APR.

**Triggers for large or single customer and Contingent Projects**

We note that the Revenue Proposal contains some augmentations which are triggered by one large customer or a small number of customers such as the Bowen industrial estate augmentation. Others are generation driven, for example the Western Downs to Columboola 275kV 3rd Circuit. It is feasible for some of these augmentations to be classified as a negotiated service. The AER should assure itself that the classification of these services as prescribed services is appropriate.

For the single or multiple customer driven augmentations if the AER is assured that these augmentations will provide prescribed services, the AER may wish to consider the nature and certainty of the development, and whether additional assurances or financial guarantees should be provided by the parties planning to connect to signal their commitment. This will ensure that Queensland consumers do not underwrite the risk of other proposed customers not proceeding or proceeding in a different manner or at a different time.

It is less clear how generation driven augmentations can be classified as providing prescribed services unless they can demonstrate 'system-side benefits. Therefore all projects driven by generator connections should be included as contingent projects and must demonstrate net-positive benefits under RIT-T assessment. This approach would result in projects such as the Western Downs to Halys 500kV DCST Operating at 275kV, which is not currently specified as a contingent project, to be removed from the ex-ante allowance and re-classified as a contingent project.

Powerlink has proposed two contingent projects which relate to the backbone of the national grid; namely NEMLink and the QNI upgrade. The trigger for these projects is not simple to define as it can be expected to link to demand growth and new generation investment across the whole NEM. A potential trigger might be for AEMO to conduct the RIT-T assessment. This will ensure that these augmentations can be considered impartially and from a national, rather than regional, perspective. .

**Powerlink's Planning Criteria**

We note that most of Powerlink's proposed augmentations are demand driven. As a result, it will be subject to the Transmission Authority - No. T01/98 which requires Powerlink to

> "Plan and develop its transmission grid in accordance with good electricity practice such that:
> ....
>
> (c) The power transfer available through the power system will be adequate to supply the forecast peak demand during the most critical single network element outage.
>
> The obligations imposed on the transmission entity by clause 6.2 will apply unless otherwise varied by a connection or other agreement made by the transmission entity with a person who receives or wishes to receive transmission services."

Powerlink's planning criteria also note:

> The connection agreements generally require that capacity is required to be provided to a supply point or area such that forecast peak demand can be supplied with the most critical element out of service, without the necessity to interrupt customer load (i.e. N-l).

We have not undertaken an analysis of Powerlink's network to confirm that the proposed augmentations are needed to comply with the standard. We would also note that redundancy standards, when applied strictly, can lead to the development of projects which initially have a very high ratio of costs to benefits. This can be ameliorated in a number of ways, but two which could be appropriate for consideration in this case include:

- Embedded generation of demand side options (purchasing interruptibility) could be used to defer some augmentations; and
- Negotiation with customers – There is provision in the standard for Powerlink to negotiate lower power system standards for particular connection points in agreements with users.

These options would allow Powerlink and its customers to consider the cost implications of its proposed augmentations against the benefits they would deliver. The submission does not outline the extent to which the redundancy standard is breached when investment is triggered. Without such information, it is not possible to understand the potential value of these alternative options.

If you have any questions please do not hesitate to contact me on (08) 8201 7371.

Yours sincerely

David Swift

**Executive General Manager Corporate Development**

**Attachment 1** Comparison of Augmentations with NTNDP

**Attachment 2** Comparison of Contingent Projects with NTNDP

## Attachment 1 Comparison of Augmentations with NTNDP

| Powerlink Dev No | Transmission development | Project Status as in the Revenue Proposal | NTNDP Status (Dev No) | Comments |
|---|---|---|---|---|
| CP.01875 | Halys to Blackwall 500kV operating at 275kV | Committed | Committed | Assumed in the base case |
| CP.01705 | New Calvale-Stanwell 275 kV double circuit line | Committed | Preparatory work (Q4) | NTNDP Development was triggered in the period from 2015-2020. The difference in timing is due to different assumptions of new NQ generation. |
| CP.01477.2 | Western Downs to Halys 500kV DCST operating at 275kV | Early Attention / Preparatory work (Median Commissioning date 2015) | Preparatory work (Q11) | NTNDP Development was triggered in the period from 2015-2020, NTNDP Project timing will depend on new generation development in the region |
| CP.01470 | New Halys-Greenbank 500 kV double circuit line (initially operating at 275 kV) | Preparatory Work (Median Commissioning date 2018) | Preparatory work (Q10) | NTNDP Development was triggered in the period from 2015-2020 |
| CP.02271.2 | Stanwell to Broadsound Series Capacitors (70% and 65% Compensation) | Early Attention (Median Commissioning date 2016) | Monitoring (Q3) | The corresponding NTNDP development is series capacitors from Broadsound to Nebo triggered in the first or second five-year period in some scenarios. Powerlink is advancing the project based on market benefits of avoiding high cost NQ generation. |
| CP.01423 | Western Downs to Halys 500kV Easement Acquisition | Early Attention / Preparatory work (Median Commissioning date 2014) | Preparatory work (Q11) | Easement Acquisition for NTNDP development, Q11 |
| CP.02477.3 | Western Downs to Halys 500 kV double circuit line operating at 275 kV (circuits 5 and 6) | Preparatory work (Median Commissioning date 2017) | Outside the first 10 year period (Q13) | The NTNDP identified the trigger for action subsequent to the first 500 kV circuits (CP.01477.2) on the second 10-year period. The NTNDP Development, however, involved upgrading the first 500 kV circuits to 500 kV operation. NTNDP Project timing depends on new generation development in the SEQ zone |
| CP.01156.2 | Stanwell-Broadsound 275 kV stringing of an additional circuit | Early Attention (Median Commissioning date 2013) | Monitoring (Q2) | NTNDP development was triggered in the first or second five-year period in some scenarios. Powerlink is advancing the project based on market benefits of avoiding high cost NQ generation |

| Powerlink Dev No | Transmission development | Project Status as in the Revenue Proposal | NTNDP Status (Dev No) | Comments |
|---|---|---|---|---|
| CP.01957 | Calvale-Larcom Creek 275 kV double circuit line | Early Attention (Median Commissioning date 2016) | Outside 10 year period (Q7) | Appeared in some scenarios beyond 10 year forecast period. Powerlink is advancing the project based on anticipated substantial load growth in the Gladstone area |

## Attachment 2 Comparison of Contingent Projects with NTNDP

| Contingent Transmission development | Total Project Costs | Alignment with the NTNDP | Comments |
|---|---|---|---|
| Western Downs to Columboola 275kV 3rd circuit | $58m | Demand growth not captured in the NTNDP forecast and/or supply of local loads | Only required when net export/import from the Surat area exceeds 850 MW due to a rapid load or generation growth in the area - Such demand not captured in the NTNDP |
| Columboola to Wandoan South 275kV 3rd circuit | $61.7m | Demand growth not captured in the NTNDP forecast and/or supply of local loads | Only required when net export/import from the Surat area exceeds 850 MW due to a rapid load or generation growth in the area - Such demand not captured in the NTNDP |
| Mt Isa connection shared network works | $72.5m | Demand growth not captured in the NTNDP forecast and/or supply of local loads | Pre-requisite: CopperString project proceeds and load connected to a new substation at Woodstock exceeds 200 MW |
| Galilee Basin connection shared network works | $86.2m | Demand growth not captured in the NTNDP forecast and/or supply of local loads | This is subject to the demand in Galilee Basin increasing substantially and additional load in excess of 175 MW connected to Lilyvale 275 kV substation |
| Moranbah area | $53.5m | Demand growth not captured in the NTNDP forecast and/or supply of local loads | This is subject to the demand in Northern Bowen Basin and Moranbah area increasing rapidly and committed connection causing the peak demand in the North zone to exceed 870 MW |
| Bowen industrial estate | $78.7m | Demand growth not captured in the NTNDP forecast and/or supply of local loads | This is subject to the demand in Bowen industrial estate growing substantially and supply of additional loads causing network limitations |
| NEMLink (Queensland component) | $768.2m | NTNDP conceptual project | Feasible if the application of RIT-T demonstrates that the project delivers positive net market benefits |
| QNI upgrade (Queensland component) | $59.1m | NTNDP project for Early Attention | Feasible if the application of RIT-T demonstrates that the project delivers positive net market benefits |
| Gladstone State Development Area connection shared network works | $112.8m | NTNDP project appeared in some scenarios | Subject to the demand in the Gladstone zone increases in excess of 575 MW |
| Callide to Moura transmission line and Calvale transformer | $49.5m | Outside the scope of NTNDP/supply of local loads | Subject to the load in excess of 80 MW on the 132kv network supplying Moura |
| N-2 security to essential loads (CBD) | $112m | Outside the scope of NTNDP/supply of local loads | Subject to change in reliability standard for supply to essential loads |
| Ebenezer 330/275/110kV establishment | $61.1m | Outside the scope of NTNDP/supply of local loads | Subject to regional industrial development |
| FNQ 275kV energisation | $85.7m | Outside the scope of NTNDP/supply of local loads | Subject to change in reliability standard for supply to Far North Queensland |