Summary of Project Assessment Draft Report

Maintaining a Reliable Electricity Supply to the Bowen Basin coal mining area

24 January 2013

Introduction

The Bowen Basin's coal mining production and transportation systems currently deliver over half of the metallurgical coal traded in the world market. Electricity demand in the Bowen Basin area is expected to grow in the near to medium term due to a combination of underlying load growth and new development in mining and rail electrification.

In April 2012, Powerlink published a Project Specification Consultation Report (PSCR) which set out forecast increases from connection applications and enquiries for new coal mining development within the next five years.

Following several recent announcements of coal mining operation closures and delays to previously announced new developments in the Bowen Basin area, information on the underlying load growth as well as ramp up profile of committed and new developments was updated by Ergon Energy and coal mining proponents. Based on the updated information, Powerlink revised the load forecast to reflect the latest load development in the area. This has resulted in a reduced forecast growth in electricity demand with consequential deferral in the timing of a number of potential network projects.

The revised forecast growth in electricity demand will increase loadings on the electricity backbone supply network into the Bowen Basin area. This is expected to result in the need to augment the supply network, specifically the network supplying the Moranbah area, from summer 2013/14. Potential future projects which would progressively increase capacity to the area have also been identified and considered in determining the long run cost for supply to the area. No commitment to these potential projects is required at this time.

In response to current economic imperatives to reduce network costs, and strong signals to take the costs and benefits to consumers into account in network development, Powerlink, along with other network service providers, has been investigating the merits of alternative approaches to setting planning standards. Powerlink has been active in developing options through a wide range of State and national review processes. While regulatory frameworks have not as yet been changed as a result of these reviews, Powerlink has taken the step during this particular augmentation study to consider an alternative reliability of supply standard for the Bowen Basin area.

In November 2012, the Independent Review Panel on Network Costs published an Interim Report. The Panel made a number of draft recommendations on planning and reliability standards for the transmission network. In particular, the need for greater emphasis on customer expectations in terms of reliability and cost of supply. While the recommendations of this review are still to be acted upon by government, variation of the transmission reliability standard is consistent with the Panel's interim position.

To facilitate the application of a variation to the reliability standard Powerlink has proposed a small amendment to its Transmission Authority to allow variation of the applicable standard by agreement of the Queensland Energy Regulator. The variation to the reliability standard for this area partially incorporates consideration of costs and benefits to consumers as proposed in the Energy White Paper 2012 and a number of national and Queensland reviews. As a result some demand will be at risk during single network contingencies. Powerlink has provided an assessment of the potential impact of this variation to the reliability standard and invites comment on the proposed variation as part of the consultation on this Project Assessment Draft Report (PADR).

This Project Assessment Draft Report has been prepared as part of a prescribed process under the National Electricity Rules (NER). It contains the results of the planning investigation and cost benefit analysis of credible options. In accordance with the AER's Regulatory Investment Test for Transmission (RIT-T), the credible option that maximises the present value of net economic benefit is recommended for implementation.

Options Considered

Powerlink published a Project Specification Consultation Report in April 2012, which invited submissions from registered participants, AEMO and interested parties on credible options (network and non-network) to address the future supply requirements in the Bowen Basin coal mining area.

Material submissions were received from six (6) parties including a potential embedded generation proposal by Energy Developments Limited (EDL). Energy Developments Limited (EDL) proposed a non-network solution based on the upgrade of an existing waste coal mines gas (WCMG) abatement facility to a generation facility in the Moranbah area and establishment of new WCSG generation facility also in the Moranbah area.

Discussions were undertaken with EDL to better understand its network support proposal. The proposal was subsequently revised to provide up to 57MW of embedded generation by upgrading an existing waste coal mines gas (WCMG) facility, and establishing new embedded WCMG generation facility also in the Moranbah area. The proposed upgrade is to be operational by summer 2014/15. Powerlink has reached in-principle agreement with EDL on the key terms and conditions for the provision of network support services. This network support proposal is considered as part of three new options, Options 5, 5(a) and 6 in the cost-benefit analysis.

Powerlink carried out planning studies to evaluate credible options to meet the future supply requirements in the Bowen Basin area. The following eight credible options were evaluated in detail to compare the net economic benefit to all those who produce, consume, and transport electricity in the (NEM), in accordance with the RIT-T:

Option 1	Strathmore Second 275/132kV Transformer followed by future Nebo to Broadlea 132kV line via Moorvale.
Option 1(a)	Strathmore Second 275/132kV Transformer followed by future Nebo to Broadlea 132kV line via Moorvale under the 'N-1' supply standard timing.
Option 2	Collinsville SVC followed by future Nebo to Broadlea 132kV line and Moranbah to Northern Hub 132kV line.
Option 3	Strathmore Second 275/132kV Transformer followed by future Lilyvale to Broadlea via Moorvale 275kV line and Moorvale 275kV Substation.
Option 4	Strathmore to Northern Hub 275kV line and Northern Hub Substation.
Option 5	Network support 2014-2016 followed by future Strathmore Second 275/132kV Transformer and Nebo to Broadlea 132kV line via Moorvale.
Option 5(a)	Network support 2014-2016 followed by Strathmore Second 275/132kV Transformer and future Nebo to Broadlea 132kV line via Moorvale under the 'N-1' supply standard timing.
Option 6	Network support 2015-2016 followed by future Strathmore Second 275/132kV Transformer and Nebo to Broadlea 132kV line via Moorvale.

Evaluation and Conclusion

The RIT-T requires that the proposed preferred option maximise the present value of net economic benefit to all those who produce, consume and transport electricity in the NEM compared to other credible options.

To allow comparison of options on an equivalent basis, the economic analysis was carried out over 15 years and included consideration of anticipated/modelled projects expected to be required in this period to meet forecast growth in electricity demand in the Bowen Basin coal mining area. Load development scenarios and other analytical techniques were used to check the sensitivity of the outcome to changes in the underlying assumptions.

The cost-benefit analysis outlined in this PADR identifies the option that maximises the net economic benefit over the 15-year analysis timeframe. This is Option 5 under the varied standard and Option 5(a) under the 'N-1' standard for reliability of supply requirements in Powerlink's Transmission Authority.

Option 5 relies on variation of the reliability standard in Powerlink's Transmission Authority. In the event that variation of the standard is not agreed, Option 5(a) is the option that maximises the net economic benefit under the 'N-1' reliability standard in Powerlink's Transmission Authority.

For the varied reliability of supply standard, Option 5 satisfies the RIT-T based on the cost benefit analysis and sensitivity testing. Consequently, this PADR contains a draft recommendation to implement Option 5 to meet the varied future supply requirements within the Bowen Basin area.

The proposed preferred option comprises the following works:

- installation of two 132kV capacitors at Dysart Substation, and one 132kV capacitor at Moranbah and Newlands substations by summer 2013/14; and

- network support between 2014 and 2016.

The estimated capital cost of the proposed preferred option is $12.3 million as well as network support service costs of $11.5 million, in 2011/12 prices. Annual operating and maintenance costs are anticipated to be around 2% of the capital cost. Powerlink is the proponent of the proposed network project and Energy Developments Limited is the proponent of the network support service.

Powerlink invites submissions from registered participants, AEMO and interested parties on this Project Assessment Draft Report. The closing date for submissions is **Friday 8 March 2013**.