ElectraNet

23 November 2018

Paula Conboy
Chair
Australian Energy Regulator
Level 17, Casselden
2 Lonsdale Street
MELBOURNE VIC 3000

Email: Blair.Burkitt@aer.gov.au

Dear Paula,

Re: Eyre Peninsula Electricity Supply Options RIT-T – Request for determination

The purpose of this letter is to request a determination from the Australian Energy Regulator (AER) that the preferred option[1] identified in our Eyre Peninsula Electricity Supply Options Regulatory Investment Test for Transmission (RIT-T) satisfies the requirements of the RIT-T.

The RIT-T explored options for providing a reliable electricity supply to the Eyre Peninsula most efficiently in the future, while also considering 'future proofing' to accommodate the commitment of new mining loads and renewable energy developments, and concluded with the release of a Project Assessment Conclusions Report (PACR) on 18 October 2018.

Background

In April 2018, the AER accepted our revenue proposal for the 2018-2023 regulatory period that included capital expenditure of approximately $80 million for reconductoring sections of the existing transmission line from Cultana to Yadnarie and Yadnarie to Port Lincoln and ongoing network support of around $8 to $9m per annum to provide backup supply to Port Lincoln[2].

At that time it was accepted that asset condition assessments had established that major components of the line had reached the end of their functional life and required replacement.

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1 The preferred option is defined in clause 5.16.1(b) of the Rules as the option that maximises the present value of net economic benefit to all those who produce, consume and transport electricity in the market.

2 AER, *ElectraNet Transmission Determination 2018 to 2023*, Final Decision, Attachment 6 – Capital Expenditure, April 2018, pp 11-15 and Overview pp 24-27.

However, it was also recognised that ElectraNet was continuing to explore broader alternatives that may deliver greater net benefits for customers, including full line replacement options, through a RIT-T assessment that was underway at that time.

The AER's final decision on our revenue proposal therefore included a contingent project that would allow the determination to be varied if a more efficient option was identified through this RIT-T assessment. This contingent project would allow ElectraNet to seek the incremental capital expenditure to deliver a full line replacement solution, subject to satisfying a number of specified trigger events which include:

1. Successful completion of a RIT-T including an assessment of credible options identifying the duplication or replacement of the existing Cultana to Yadnarie and/or Yadnarie to Port Lincoln transmission lines as the preferred option that maximises positive net economic benefits and/or addresses a reliability corrective action.

2. Determination by the AER that the proposed investment satisfies the RIT-T.

3. ElectraNet Board commitment to proceed with the project subject to the AER amending the revenue determination pursuant to the Rules.

The first of these trigger events is now satisfied, with the RIT-T having successfully concluded with the publication of the PACR on 18 October 2018. The RIT-T assessed a range of credible options and identified a solution involving the replacement of the Cultana to Yadnarie and Yadnarie to Port Lincoln transmission lines as the preferred option that maximises positive net economic benefits.

In relation to the second trigger event, we now seek a determination from the AER that the preferred option satisfies the RIT-T as no notice of dispute was raised within the required 30 day period following publication of the PACR[3].

In relation to the third trigger event, the ElectraNet Board approved the commitment to progress the preferred option on 28 June 2018, subject to the AER awarding incremental revenue commensurate with the capital and operating costs of the project.

The RIT-T outcome

On 18 October 2018, we published a PACR for this RIT-T which identified the preferred option as:

- a new double-circuit line from Cultana to Yadnarie that is initially energised at 132 kV, but which has the option to be energised ay 275 kV if required in the future; and

- a new 132 kV double-circuit line from Yadnarie to Port Lincoln.

The preferred option will replace the existing single-circuit 132 kV line serving the Eyre Peninsula since 1967 as the most cost effective solution which maximises net market benefits by:

- increasing reliability of electricity supply to customers on the Eyre Peninsula, reducing the frequency of outages;

3 Refer to National Electricity Rules clause 5.15.5(c).

- removing current network constraints, allowing the market to benefit from more low-cost energy from existing wind farms on the Eyre Peninsula;
- providing greater opportunities for new demand and renewable energy developments on the Eyre Peninsula compared to the current supply arrangement; and
- 'future proofing' for cost-effective expansion of network capacity when needed in the future to accommodate potential larger mining developments and renewable energy investment on the Eyre Peninsula.

The RIT-T assessment investigated five broad options for supplying the Eyre Peninsula, together with variants of these options, ranging from maintaining equivalent current capacity on the Eyre Peninsula, including a backup generation network support arrangement, through to upgrading the entire network to 275 kV with two completely divergent network paths. The PACR key modelling assumptions are generally aligned with those used by the Australian Energy Market Operator (AEMO) in its inaugural Integrated System Plan (ISP)[4].

The preferred option is estimated to deliver net market benefits of around $150 million over the next 20 years relative to a 'do nothing' base case with a new SA-NSW interconnector in-place, or $140 million without a new interconnector[5]. The net market benefits are approximately $60 million and $50 million more than reconductoring the existing line and renewing a network support contract at Port Lincoln with and without the interconnector respectively.

The estimated capital cost of the preferred option is $240 million (around $160 million more than reconductoring sections of the existing transmission line) and can be constructed by the end of 2021, subject to obtaining necessary statutory approvals.

The preferred option provides the necessary flexibility to upgrade the network to operate at a higher capacity if needed and is robust to the assumed likelihood of new mining developments or other demand increases in the future.

The cost of the new transmission line is fully offset by avoiding the cost of replacement works on the existing line of $80 million and ongoing network support costs of $8 to $9 million per year, essentially resulting in a neutral price impact for the average residential electricity customer in South Australia.

Our consultation process

We formally commenced stakeholder consultation for this RIT-T with the publication of a Project Specification Consultation Report (PSCR) on 28 April 2017. We received 15 submissions to the PSCR, representing a range of views and interests, from local Eyre Peninsula representatives and individuals, customer representatives, wind farm developers and mining companies and parties offering network support at Port Lincoln.

4 AEMO, *Integrated System Plan*, July 2018.

5 The estimated net market benefits are calculated in present value terms with reference to a 'do nothing' base case reflecting reliance on increasing reactive maintenance and network support, with no reconductoring of the existing line.

As a result of engaging with parties to these submissions and taking their feedback into account, we published a Project Assessment Draft Report (PADR) on 16 November 2017[6].

We received 12 submissions to the PADR. A summary of the key issues raised in these submissions and how they were taken into account was provided in our PACR, published on 18 October 2018[7]. The PACR included two appendices in response to submissions requesting additional information on the wholesale market modelling undertaken – one clarifying our modelling approach and another addressing a number of detailed questions raised by Engie, which led to some revisions to the modelling in the PACR[8].

We also held several public forums to clarify understanding of our findings and invite feedback, which was considered in finalising our analysis. Public forums were held in both Adelaide and Port Lincoln following publication of both the PSCR and PADR. An additional round-table briefing for stakeholders was held in Port Lincoln shortly after publication of the PACR.

Key milestones of our stakeholder engagement for this project are outlined in Attachment 1.

A list of all material published during the course of this RIT-T assessment, as available on our website, is provided in Attachment 2.

Key issues raised in submissions

Key issues raised in submissions to the PADR relate to:

- the use of least cost modelling for RIT-T planning purposes;
- consideration of larger and smaller capacity options;
- the assumed uptake of wind on the Eyre Peninsula;
- constraints on existing wind farms on the Eyre Peninsula;
- mining developments on the Eyre Peninsula; and
- the current network support arrangement at Port Lincoln.

Of the 12 submissions received to the PADR, five parties supported the preferred option identified at the PADR stage, i.e. a 'set and forget' option comprising a double-circuit 275 kV line between Cultana and Yadnarie, and a double-circuit 132 kV line between Yadnarie and Port Lincoln (Option 4B). Four parties suggested that a larger capacity option be considered, while two parties expressed the view that a smaller capacity option could be optimal.

The PACR preferred option is a lower cost and more flexible solution compared to that identified in the PADR.

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6 A summary of the key issues raised in submissions to the PSCR and how these issues were addressed is provided in our PADR, pp. 35-42. Individual submissions are available from our website: www.electranet.com.au

7 See pages 29-33 of the PACR.

8 See appendices G & H of the PACR.

A number of parties requested additional transparency in relation to the wholesale market modelling undertaken in the PADR. In response, we prepared Appendix G of the PACR which provides further information clarifying our modelling approach.

In addition, Engie raised a number of detailed questions regarding the wholesale market modelling, which led to some revisions to the PACR modelling and were explicitly addressed in Appendix H of the PACR.

A summary of the key issues raised in response to the PADR and how we addressed them is provided in Attachment 3. Further details on the issues raised in these submissions and our response is provided within the PACR[9].

The PSCR, PADR and PACR also contain an appendix detailing how each fully complies with the requirements of the Rules for each stage of the RIT-T assessment process[10].

We look forward to progressing this application for a determination with the AER, and would be pleased to discuss any aspects further.

Please direct any queries in relation to this request to Simon Appleby in the first instance on (08) 8404 7324.

Yours sincerely

Rainer Korte
Group Executive Asset Management

[9] PACR, pp. 29-33 and Appendices G and H.

[10] A compliance checklist is presented as Appendix A in each of the three RIT-T consultation documents.

Attachment 1 - Stakeholder engagement chronology

Milestone	Date
Project Specification Consultation Report (PSCR) published	**28 April 2017**
Port Lincoln public forum for PSCR	26 June 2017
Adelaide public forum for PSCR	29 June 2017
Close of submissions on PSCR	21 July 2017
ESCOSA public forum	14 September 2017
Project Assessment Draft Report (PADR) published	**16 November 2017**
Port Lincoln public forum for PADR	20 November 2017
Adelaide public forum for PADR	27 November 2017
Close of submissions on PADR	19 January 2018
Project Assessment Conclusions Report (PACR) published	**18 October 2018**
Port Lincoln roundtable briefing on PACR	31 October 2018
Close of dispute notification period	19 November 2018

ElectraNet also provided regular ongoing briefings to its Consumer Advisory Panel throughout the course of the RIT-T assessment, as detailed further in Attachment 2.

Attachment 2 – Stakeholder engagement publications

The following material was published during the course of this RIT-T assessment and is available from the RIT-T section of our website.[11]

Project Specification Consultation Report (PSCR)	
PSCR	• Project Specification Consultation Report
Submissions	• Business SA • Australian Energy Regulator (AER) • District Council of Lower Eyre Peninsula • Energy Security for South Australia Working Party (ESSAWP) • Engie • Fred Gerschwitz • Geoff Rayson • Iron Road • Meridian • South Australian Chamber of Mines & Energy (SACOME) • Conservation Council • Regional Development Australia
Public forum material	• Port Lincoln & Adelaide public forums (June 2017) • ESCOSA public forum (14 September 2017)
Project Assessment Draft Report (PADR)	
PADR	• Project Assessment Draft Report (including Appendices A - F)
PADR appendices published separately	• Appendices G & H – NPV results and summary of wholesale market benefits
Submissions	• Business SA • District Council of Elliston • District Council of Lower Eyre Peninsula • Engie • Eyre Security for South Australia Working Party (ESSAWP) • Eyre Peninsula Minerals & Energy Resources Community Development Taskforce • Iron Road • Meridian Energy • Regional Development Australia Whyalla and Eyre Peninsula (RDAWEP) and Eyre Peninsula Local Government Association (EPLGA) • South Australian Chamber of Mines & Energy (SACOME) • Simon Bartlett
Public forum material	• Port Lincoln & Adelaide public forums (November 2017) • Overview of the RIT-T economic assessment

[11] https://www.electranet.com.au/what-we-do/network/regulatory-investment-test/

Project Assessment Conclusions Report (PACR)	
PACR	• Project Assessment Conclusions Report (including Appendices A - I)
PACR appendices published separately	• Appendices J & K – NPV results and summary of wholesale market benefits • Appendix L – AME report on Eyre Peninsula mining loads • Appendix M – Market modelling assumptions book
Stakeholder briefing material	• Port Lincoln round-table briefing (31 October 2018) • Public forum summary
Additional material	• Key NPV results with annual profile for costs and benefits (to be published shortly)

We also provided ongoing updates on this RIT-T to the Consumer Advisory Panel (CAP). Presentation material and notes from relevant CAP meetings, available from the CAP section of our website[12], are listed below:

Meeting	Item
CAP Meeting 7 - 17 January 2017	• Meeting notes • Presentation
CAP Meeting 8 - 10 April 2017	• Meeting notes
CAP Meeting 9 - 18 July 2017	• Major projects and developments • Adelaide Public Forum (29 June 2017) • Meeting notes
CAP Meeting 10 - 8 November 2017	• Major projects and developments • Meeting notes
CAP Meeting 11 - 23 January 2018	• Major projects update presentation • Meeting notes
CAP Meeting 12 - 19 June 2018	• Major projects update presentation
CAP Meeting 13 - 16 October 2018	• Major projects update presentation

12 https://www.electranet.com.au/our-approach/community/consumer-advisory-panel/

Attachment 3 – Key issues raised in submissions to PADR

Issue raised in submission	Our response
Use of least cost modelling for RIT-T planning purposes	
Engie queried the use of our least cost modelling approach and stated that the difference between the adopted least cost model and an 'actual competitive electricity market' will distort the calculated costs and benefits[13].	Least cost modelling is commonplace for electricity network planning exercises and is a requirement of the RIT-T.[14] The least cost modelling used in the RIT-T assessment draws on the same inputs (e.g. generator cost assumptions) as that used by AEMO in the ISP. Appendix G to the PACR provides greater detail on our modelling approach. We also held a number of teleconferences with Engie to expand on and further understand the queries in its submission. Appendix H to the PACR summarises each point raised in Engie's submission and provides our detailed response.
Consideration of larger and smaller capacity options	
A number of parties considered that Option 4B only goes part of the way to realising the total renewable energy potential on the Eyre Peninsula and that a larger capacity option should be pursued (e.g. a 500 kV option)[15]. Other parties considered that a lower capacity option than Option 4B is preferred, including options that make use of the existing line[16].	The significant additional cost of 500 kV network options are not justified in terms of the additional market benefits such an option can be expected to deliver over and above the 132 kV and 275 kV options. Our detailed cost estimate for building a 500 kV transmission network on the Eyre Peninsula exceeds $2 billion, and this option is not expected to deliver commensurate additional market benefits. The PACR did include two new lower capacity options that involve reconductoring sections of the existing line and building a new 132 kV line on a separate easement (Options 2B and 3B).
Assumed uptake of wind on the Eyre Peninsula	
A number of parties queried the assumed uptake of wind generation on the Eyre Peninsula following an upgrade[17].	The ISP found no material difference in wind capacity factors between the Eyre Peninsula and the Mid North region of South Australia. This was reflected in our updated PACR modelling which showed there is limited new wind generation forecast to be built on the Eyre Peninsula. Nevertheless, all options (except Option 1) relieve constraints on existing wind farms and reduce losses and create opportunities for new renewable developments on the Eyre Peninsula.

13 Engie submission to the PADR, p. 2.

14 AER, *Regulatory Investment Test for Transmission*, June 2010, pp. 8-9.

15 The Energy Security for SA Working Party, the District Council of Elliston and the Regional Development Australia Whyalla and Eyre Peninsula and the Eyre Peninsula Local Government Association.

16 Business SA and Simon Bartlett.

17 Business SA, Simon Bartlett, Engie and RDAWEP.

Issue raised in submission	Our response
Constraints on existing wind farms on the Eyre Peninsula	
Meridian Energy, which owns and operates the Mount Millar wind farm on the Eyre Peninsula, stated that the existing thermal limitations of the current transmission line means that the transfer capacity for existing wind farms is limited due to stability and voltage constraints. Meridian Energy noted that voltage stability constraints imposed on the two existing wind farms require them to 'spill' significant quantities of energy.	The impact on existing wind farms has been explicitly considered in the PACR wholesale market modelling. The PADR used a simplified static assumption that an additional 5 MW of wind generation from the two existing wind farms on the Eyre Peninsula would be available to be dispatched each year under all options (besides Option 1). In light of existing wind farms becoming the predominant driver of whole market benefits in the PACR, we updated our modelling assumptions relating to the benefit from relieving existing constraints to assume approximately 3.6 MW of average additional output in total from the two existing wind farms.
Mining developments on the Eyre Peninsula	
The South Australian Chamber of Mines and Energy (SACOME) noted that two graphite mining projects on the Eyre Peninsula have had approvals either recently granted or are in the process of approval. If ultimately commissioned, these would likely require connection to the Eyre Peninsula electricity network. SACOME notes that these recent developments support a 275 kV solution being pursued for the Eyre Peninsula.	We engaged AME Research to independently assess the likelihood of potential mining developments on the Eyre Peninsula. While AME is of the view that there is a greater than 50 per cent chance of the Iron Road mine coming online over the next 15 years, it considers that other potential mining loads on the Eyre Peninsula are not expected to come online over this period. The PACR results are robust to the assumed likelihood of new mining developments on the Eyre Peninsula over the next 20 years. The PACR (section 9.5) includes sensitivity analysis in relation to these assumptions.
Current network support arrangement at Port Lincoln	
A number of parties expressed dissatisfaction with the existing network support arrangement at Port Lincoln, with many commenting on its cost to South Australian customers[18].	The existing network support has been a feature of supplying electricity to Port Lincoln under the South Australian Electricity Transmission Code (ETC) reliability requirements to date. However, the PACR modelling demonstrates that continuing such an arrangement is expected to have a higher net cost than pursuing an alternative network option. In particular, the modelling demonstrates that the preferred option (Option 4D) which removes the need for ongoing network support is preferable to Option 1, which includes ongoing network support, under all scenarios and sensitivities investigated.

[18] Business SA, Engie and ESSAWP.