

ElectraNet
Att: Steve Masters, Chief Executive Officer
via consultation@electranet.com.au

06 November 2018

South Australian Energy Transformation Project Assessment Draft Report (PADR) – Supplementary Submission

Dear Steve,

Please accept this letter as a supplementary submission to the South Australian Energy Transformation PADR that should be considered in conjunction with The Energy Project's original submission of 31 August 2018.

This supplementary submission follows statements made by ElectraNet at the October 2016 meeting of your Consumer Advisory Panel (CAP) that referred to errors in the analysis presented in my original submission of 31 August.

This submission outlines why I am of the view that the issues alluded to at the CAP are not material to the conclusions reached in the original submission and I would welcome the opportunity to present to the next CAP meeting to respond the issues raised.

This supplementary submission has been financially supported by Energy Consumers Australia (ECA) as part of its grants process for consumer advocacy projects for the benefit of consumers of electricity in the National Electricity Market. The views expressed in this document are our own and do not necessarily reflect the views of ECA.

1 Background

The author of this submission, Dr Andrew Nance, was also a member of the Australian Energy Regulator's (AER) Consumer Challenge Panel for ElectraNet's 2018-23 Regulatory Determination. However, the original submission and this supplementary submission were prepared separately from that role.

The Energy Project is an independent energy consultancy that provides a range of services to electricity consumers. These submissions have prepared from the perspective of our clients – we are often engaged to assess capital expenditure proposals and to engage with the competitive energy markets on their behalf.

The original submission of 31 August 2018 had been prepared in discussion with a number of consumer organisations and several of these also referenced it in their own submissions¹. ECA's submission to the PADR neatly summarised the issues I raised as:

- Timing risk
- Risk of over-estimation of the costs of the non-interconnector (Option A)
- Allocation of risks and costs between regions.

At the ElectraNet CAP on 16 October 2018, in response to questions, ElectraNet stated that they had identified errors in my submission². Once I was made aware of these statements I contacted ElectraNet's Stakeholder Relations team and was subsequently afforded a meeting with relevant staff on 18 October 2018.

Following the 18 October 2018 meeting with ElectraNet I have been able to better understand the operation of the published spreadsheets and I accept that I made some errors in interpreting them. A further opportunity to discuss my revised analysis was also provided on 1 November. Section 4 of this letter revisits the analysis behind the Timing Risk issue based on feedback from ElectraNet on how the published spreadsheets should be interpreted.

However, as illustrated in more detail below, I am of the view that this does not change the findings or recommendations of the original submission nor the interpretation and support of my submission by others. Nor does it have any bearing on the substantive issue raised at the CAP (see Table 1 below, 18 October 2018) of the costs of Option A (the non-interconnector option).

No direct feedback was received on the allocation of risks and costs between regions.

2 Stakeholder engagement experience

In total, stakeholders were provided only eight days to interrogate and analyse the published data, draft a report, get feedback from signatories and finalise a submission to this process. My records below show that the time from when I first requested the numbers behind the figures in the PADR (9 July) through to ElectraNet publishing the spreadsheets (22 August) equates to 44 days or just over 6 weeks.

This form of information asymmetry is a well recognised challenge for energy consumers and ElectraNet has provided consumer advocates with another case study.

As an illustration, the table below summarises my experience in obtaining additional information from ElectraNet since publication of the PADR on 29 June 2018:

29 June ElectraNet publishes a "a draft report on its investigation of options to support South Australia's energy transformation".

¹ These organisations include The Public Interest Advocacy Centre (PIAC), The Total Environment Centre (TEC), The South Australian Council of Social Service (SACOSS) and Energy Consumers Australia (ECA)

² I was not at the meeting having only received an invitation the evening prior. The feedback received from meeting participants was anecdotal, not recorded.

09 July	I emailed a series of questions to ElectraNet. I also identified some labelling errors in Figure 6 and highlighted that the ISP and other ElectraNet commissioned modelling reports had not yet been published. I explicitly asked: "Section 9 of the PADR presents the results of the NPV analysis of options. <u>Are you able to provide the data behind the various charts?</u> " (emphasis added).
10 July	v1.1 of the PADR is released online, correcting the labelling errors in Figure 6 and extending the submission date to 24 August (was 10 August). No email received notifying of the change, unclear if any stakeholders were notified.
17 July	I received an emailed response from ElectraNet to the questions sent on 09 July. In this email, ElectraNet referred to a proposed deep dive and asked me to "... please let us know what information you would find useful if you will attend ...". I responded requesting "... the different components of the benefits and how they vary between options".
17 July	Additional Reports Published on ElectraNet website (Modeling and Assumptions, ACIL Allen Report).
18 July	Public Forum in Adelaide. ElectraNet agreed to host a similar forum in Sydney for NSW consumers.
10 Aug	Emailed ElectraNet to notify of being funded by ECA to prepare a report and attend the planned 'deep dives'. Included a further set of questions including, "Most of the results presented in the PADR are in chart form and no table of values is provided. This makes interrogation very difficult. As requested in my email of 9 July 2018, can you <u>please publish the data behind the tables</u> ." (emphasis added)
16 Aug	ElectraNet hosts a public forum and deep dive in Sydney.
17 Aug	ElectraNet hosts a deep dive in Adelaide. The lack of any detailed data is raised by multiple participants. I highlighted my repeated email requests for data.
17 Aug	Later that day, ElectraNet advises stakeholders via email that "In response to feedback received, we will be publishing further information on our analysis early next week". Submission deadline extended by one week to 31 August.
22 Aug	ElectraNet publishes additional information including the numbers behind the NPV charts and the spreadsheets that calculate them. Confirms submission deadline of 31 August.
23 Aug	I emailed ElectraNet to advise of a data entry error in the spreadsheets that affects Option C2 in particular (but not the overall result). No response received except verbal acknowledgement on 1 November 2018 that a data entry error had occurred.
31 Aug	The Energy Project submission is emailed to ElectraNet.
08 Oct	ElectraNet publish submissions and copies of the presentations at the public forums and deep dives.
07 Sep	ElectraNet requested copies of the analysis I had performed to illustrate the net present value of options over 15 years. Emailed copies of the spreadsheets back to ElectraNet that day.

16 Oct	ElectraNet advises CAP of “errors” in my analysis without any attempt to discuss with me prior.
18 Oct	Opportunity to discuss the identified issues (myself and three ElectraNet employees). In an ElectraNet email received prior to the meeting, it was stated: <i>“It was not my intent to make any comment on your submission at the CAP or before we had discussed it with you. However, I did feel the need to point out that we do not agree with aspects of your submission because the panel discussion kept coming back multiple times to the idea that we may have undervalued the non-network option.”</i>
25 Oct	Revised analysis sent to ElectraNet for review.
1 Nov	Meeting at ElectraNet to discuss the revised analysis and some of the likely changes from the PADR to the Conclusions Report (PACR) planned for later 2018.

Table 1 – Chronology of information exchange

3 A Response

ElectraNet has provided the following dot points as written guidance of the matters of disagreement referred to at the CAP and I feel I should respond to each:

“As discussed – here are a couple of high-level points where our analysts have discovered anomalies in your submission into the SAET PADR:

1. *Rapid depreciation of capital costs*
2. *Adoption of ‘Low’ scenario capital and operating costs*
3. *Adoption of ‘Low’ scenario REZ benefits*
4. *Truncating the benefit horizon”*

In relation to points 2 and 3, it has been explained to me that my use of the time series of cost and benefit cashflows in sheet ‘C0 Calculation’ for the Net Present Value (NPV) calculations under each scenario (separate Microsoft Excel workbooks for Central, High and Low) automatically includes the ‘Low’ sensitivity results for capital costs (-30%). I have therefore revisited the analysis for this supplementary submission using the central values for costs rather than the sensitivities.

However, as illustrated below, this does not change the findings or conclusions in relation to the PADR’s preferred Option C3i – that it does not emerge as the option with the highest net market benefits when considered over a shorter timeframe.

In relation to points 1 and 4, this appears to refer to the original submission findings around the change in preferred option when the project is evaluated over 15 years (to 2033) compared to the published analysis to 2040 – the ‘Timing Risk’ issue. ElectraNet has since explained that the approach I had taken in the original submission does not account for the ‘terminal values’³ of the

³ ‘Terminal value’ refers to the un-depreciated value of long-lived assets at the end of the project evaluation horizon (i.e those assets of up to 40 year lives).

assets in each option in the same way as ElectraNet's approach and, in that respect, unfairly favored Option A as it is almost entirely Operating Costs (and hence has no Terminal Value regardless of the time horizon).

It has also been explained that the treatment of Option B1 (the Queensland Option) is somewhat different to the others (acknowledging a temporary deferral of a QNI upgrade) and that the results for this option should be treated with caution. Given this, and my understanding that ElectraNet is considering other submissions regarding Option B in more detail, I have removed Option B from the charts. Further, Option C5 (the 500kV option) represents a high-cost outlier that has also been removed to simplify the presentation of results.

The comments ElectraNet provided to the CAP seem to refer to the content of the original submission relating to the cost of the non-interconnector option (Option A). To be clear, this has nothing to do with the spreadsheets discussed above. In the original submission, public sources of information were presented as an alternate to ElectraNet's to illustrate that the assumed cost of elements of the non-interconnector option seemed materially high. I can accept that ElectraNet does not agree with the approach but do not accept that this constitutes an "error" as, reportedly, was how it was described at the CAP.

As such this supplementary submission does not change any of the analysis or conclusions presented in the original submission (31 August 2018) in relation to the cost of Option A. The sensitivity of results to lower costs for Option A are however presented in Section 4.4. Further, I draw your attention to the very recent announcement of the opening of the SA Government's Home Battery Scheme⁴ and suggest ElectraNet include this in the analysis as a committed project.

The following section (Section 4) revisits the analysis behind the 'Timing Risk' issue based on feedback from ElectraNet on how the published spreadsheets should be interpreted.

4 Timing Risk

The intent of the original analysis was to test the robustness of the findings for each Option over a shorter evaluation period (to 2033 instead of to 2040). This remains the intent here.

4.1 The Original Approach

The analysis presented in my 31 August submission had incorrectly interpreted the spreadsheets published by ElectraNet and had used cost figures from a 'Low' sensitivity assessment included in the spreadsheets rather than the central results.

This has been revisited for this submission using the correct data and, in this case, as before, simply truncates the NPV assessment at 2033. This has the effect of ignoring the 'Terminal Values' assigned

⁴ <https://homebatteryscheme.sa.gov.au/>

to long lived assets (i.e. the asset 'value' after depreciation at that point in time). As shown in Figure 1, this reveals Option A as the preferred option (as before) and illustrates that only Option A and Option C2 are NPV positive over this timeframe.

Also, as discussed above, I have removed Option B from the analysis. Further, Option C5 (the 500kV option) represents a high-cost outlier that has also been removed to simplify the presentation of results.



Figure 1 – NPV Results when truncated at 2033

However, ElectraNet has disagreed with this approach and suggested that such an assessment should consider the Terminal Values. In response, the analysis has been repeated by setting the 'Time horizon' for evaluation of each scenario to 15 years in order to include the terminal values (recalculated by the spreadsheets to reflect the depreciated value at that point in time – see Section 0) and, separately, by setting the 'Time horizon' to 15 years AND setting the 'asset life' to no more than 15 years so that the terminal values are \$0.00 at the end of the time horizon, reflecting 'full depreciation' over that same time horizon (see Section 4.3).

4.2 Inclusion of Terminal Values

In this case, the analysis has been repeated by setting the 'Time horizon' for each scenario to 15 years. This results in a proportionate inclusion of a Terminal Value for the assets in each Option under each scenario at the end of the 'Time horizon'. The results charts for this analysis are presented below (with Option B1 and C5 removed for simplicity and clarity) as Figure 2:



Figure 2 – NPV Results to 2033 with terminal values included

As can be seen in this case, Option C4 (bypass of Buronga) emerges as the preferred option with Option C2 (the 275kV option) and the Victorian options (D1 and D1i) also performing well.

4.3 Rapid Depreciation

In this case, the analysis has been repeated by setting the:

- 'Time horizon' for each scenario to 15 years; AND
- 'asset life' to no more than 15 years.

By implication, this ranks the options based on full capital recovery over 15 years – certainly a 'low regrets' (if not a 'no regrets') option for those consumers not inclined to rely on the policy and market environment greater than 15 years into the future⁵. These results are presented below as Figure 3:



Figure 3 – NPV Results to 2033 with full depreciation

As can be seen in this case, Option C2 (the 275kV option) emerges as the preferred option with Option C4 (Buronga bypass) also performing well.

⁵ ElectraNet have referred to the PADR preferred Option C3i as a 'no regrets' solution – see PADR p7, p46 & p85

4.4 Rapid depreciation and lower costs for Option A

In this case, the analysis has been repeated by setting the:

- 'Time horizon' for each scenario to 15 years; AND
- 'asset life' to no more than 15 years; AND
- testing the sensitivity of the results by lowering the costs of Option A by 30% (the lower bound of the ElectraNet sensitivity analysis).

The results are shown below as Figure 4:

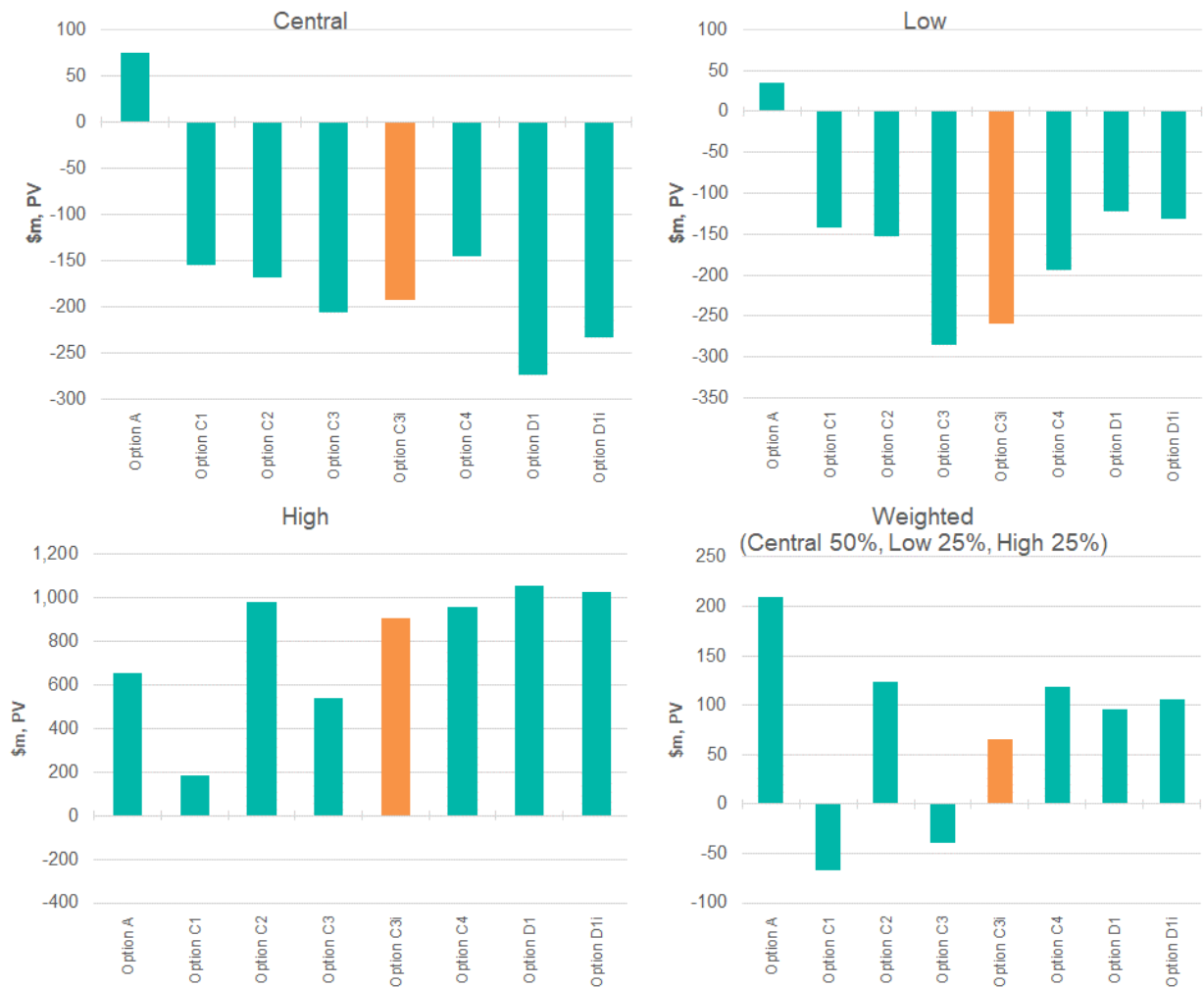


Figure 4 – NPV Results to 2033 with full depreciation and 30% lower network support payments for Option A

As can be seen, Option A re-emerges as the preferred option in this case – highlighting the sensitivity of the non-interconnector options to the assumptions made with respect to annualised network support payments for this option.

4.5 Implications for consumers

The preceding charts illustrate that alternate methods of evaluating the project over 15 years yields other options with higher NPV than the PADR identified preference for Option C3i.

The implication is that C3i only emerges as the preferred option if the analysis includes costs and benefits that appear in the model greater than 15 years into the future (beyond 2033). As stated in the original submission, this uncertainty in benefits should be reflected in both the timing of the **elements** of these investments and how these investments are funded. The question of alternate funding approaches is beyond the scope of this submission, but project timing is very relevant.

As noted in the original submission, the allocation of costs and benefits seems imbalanced between SA and NSW consumers. Combined with the observations above regarding the benefits modelled over 15 years compared to 22 years, there is a clear implication that expenditure in NSW (and hence costs) is perhaps too far in advance of the need (i.e. the benefits accrue well after the initial investment).

It is understood that ElectraNet have obtained advice from Economists Houston Kemp as to 'Selecting the assessment period for a RIT-T' (dated 05 November 2018). This advice states:

"To the extent that there is considered to be uncertainty relating to these longer-term benefits (due, for example, to uncertainty in the timing of NSW coal plant retirement, or the extent of future REZ transmission requirements), this should be reflected in the RIT-T analysis via scenarios or sensitivity testing, rather than through truncating the assessment period."

To be clear, this submission is not advocating that the project should necessarily be evaluated over 15 years but is making the case that the PADR preferred option relies heavily on outcomes that are a long way into the future and come with significant uncertainty and hence risk for consumers. It is not clear that, "...uncertainty in the timing of NSW coal plant retirement, or the extent of future REZ transmission requirements..." has been considered in the scenarios used in the RIT-T.

Paragraph 14 of the RIT-T specifies that:

The discount rate in the RIT-T must be appropriate for the analysis of a private enterprise investment in the electricity sector and must be consistent with the cash flows that the RIT-T proponent is discounting. The lower boundary should be the regulated cost of capital.

Further, the choice of 6% real as the central estimate of a "private enterprise investment" should be revisited as it is **not** reflective of the hurdle rate a business customer would apply to an energy investment. We note that ElectraNet has referred to testing boundary values but we were unable to find this in the analysis of discount rates:

PADR p70: "We have identified the key factors driving the outcome of this RIT-T, and sought to identify the 'threshold value' for these factors, beyond which the outcome of the analysis would change."

Further, the lower bound of the regulated cost of capital should be based not on current settings – as this is clearly at a low point in the interest rate cycle – but at an estimate of the WACC over the investment time horizon (22 years as applied by ElectraNet).

5 Conclusion

Following a revisit of the analysis with a better understanding of the workings of the ElectraNet published spreadsheets, I have not found any reasonable cause to revise the conclusions presented in the original submission. Further, there does not appear to be a case for any of the other organisations that referenced my original submission to revise their submissions either.

The PADR claims Option C3i is a “no regrets” solution and my original submission and this supplementary submission have sought to challenge that assertion. Evaluating the options over a time-frame of 15 years to 2033 is still considered a reasonable approach to testing this claim.

To repeat the summary from the original submission;

The PADR and associated documents have not convinced us beyond reasonable doubt that the preferred option is in the long-term interests of consumers. The key findings from our analysis of the modelling results and NPV analysis are:

- *The costs of the non-interconnector option appear to be materially overestimated.*
- *The allocation of costs and benefits between SA and NSW consumers appears materially unbalanced.*
- *From the analysis performed for this project, a prima-facie case exists for tuning the scale and timing of increased interconnection between SA and NSW in order to optimize the cost to consumers.*
- *Further, given the apparent imbalance between costs and benefits of the preferred option between SA and NSW consumers, a more strategically timed approach to the NSW elements may better align costs and benefits for NSW consumers.*
- *By implication, ElectraNet and TransGrid are encouraged to explore options that include elements of Option A (the non-interconnector option) with staged investment in the NSW elements of the project. This could include elements of Option C2, C3 and C3i. Perhaps a C2i option (C2 + Series Compensation) would be an appropriate initial investment that could be considered.*

I look forward to participating further in ElectraNet’s ongoing engagement program on this important project and would welcome the opportunity to present to the next CAP meeting to respond the issues raised.

Sincerely,



Dr Andrew Nance

Director

The Energy Project Pty Ltd