



**South Australia Energy
Transformation (Riverlink) RIT-T
Total Environment Centre
Submission**

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Total Environment Centre's National Electricity Market advocacy

Established in 1972 by pioneers of the Australian environmental movement, Total Environment Centre (TEC) is a veteran of more than 100 successful campaigns. For nearly 40 years, we have been working to protect this country's natural and urban environments: flagging the issues, driving debate, supporting community activism and pushing for better environmental policy and practice.

TEC has been involved in National Electricity Market (NEM) advocacy for 14 years, arguing above all for greater utilisation of demand side participation — energy conservation and efficiency, demand management and decentralised generation, storage and trading — to meet Australia's electricity needs. By reforming the NEM we are working to contribute to climate change mitigation and improve other environmental outcomes of Australia's energy sector, while also constraining retail prices and improving the economic efficiency of the NEM — all in the long term interest of consumers, pursuant to the National Electricity Objective (NEO). TEC's energy market advocacy is funded by Energy Consumers Australia.

Introduction and summary

TEC welcomes the opportunity to respond to ElectraNet's Project Assessment Draft Report (PADR) for the proposed Riverlink interconnector between SA and NSW. Our submission is informed by the analysis done by The Energy Project (TEP), which was funded by Energy Consumers Australia. In general, we support the conclusions reached by TEP and PIAC; that is, that

- The argument that a new interconnector would be a no regrets solution is based upon economic modelling which would imply a quite different solution if the timeframe was 15 instead of 20 years.
- There appears to be a disconnect between the benefits of the project, which flow mainly to consumers in SA, and the costs, which would be borne mainly by consumers in NSW.
- The purported costs of the non-interconnector option appeared to be overstated, and this option maybe the most economically efficient in the short to medium term.
- The long-term benefits of the project appear to be dependant largely on the value of a new 330kV in transmission line in southwest NSW to potential new renewable energy generators in that region, pursuant to AEMO's Integrated System Plan (ISP); nevertheless, these benefits cannot be properly measured and assigned in the current RIT-T framework.

However, in this short submission TEC wishes to focus on some other implications of the proposed project.

Identified need

TEC strongly supports new infrastructure investment where it is required to facilitate the integration of new renewable energy projects at every scale—as long as the costs and benefits are distributed equitably. However, in view of our environmental mandate we have two major concerns with this proposed project:

1. The emissions implications.
2. The implications for more distributed energy resources (DER).

While emissions and the related energy transition are not formally a part of the RIT-T assessment process, ElectraNet has made them an important part of the project's justification. The identified need for this project is stated in the PADR as follows:

to deliver net market benefits and support energy market transition through:

- lowering dispatch costs, initially in South Australia, through increasing access to supply options across regions.
- facilitating the transition to a lower carbon emissions future and the adoption of new technologies, through improving access to high quality renewable resources across regions.
- enhancing security of electricity supply, including management of inertia, frequency response and system strength in South Australia.

With respect to the third identified need, TEP's submission observes that

The third [need], broadly capturing the need to improve security of supply in SA has been largely dealt with via a number of initiatives that have been, or will soon be, implemented. To be clear, while the timing of the RIT has coincided with the South Australian System Black event of September 2016, many of the system security issues were known and the RIT investigations had already commenced and actions since will address these needs before an Interconnector can be delivered.

This leaves the first two identified needs to justify the project. Unfortunately, in reality they are mutually exclusive. The 'lower dispatch costs' referred to boil down to the short term displacement of SA gas with NSW coal to meet peak demand in SA. Given that gas has around half the emissions intensity of black coal, this potential increase in overall (NEM-wide) emissions represents an unacceptable unintended outcome of this project.

Further, it is not clear to us that even if Riverlink is built and coal generation from NSW displaces peaking gas generation in SA, this will lead to the early closure of gas plants in SA and a net saving to SA consumers. As the TEP report makes clear, such a scenario depends upon a number of factors which may change in the interim. The SA Government's decision to pay the owners of Pelican Point to reopen it after the blackout in 2016 to increase system security is just one example of the potential for political as well as economic interventions which may have profound market impacts.

We accept that in the long term, a new 330kV transmission line in southwest NSW may be valuable in assisting the supply of output from new wind and solar farms in that region to eastern NSW, especially with the progressive closure of coal plants in that region. However, that possibility is outside the scope of the current RIT-T, and in any case does not justify the immediate construction of this new interconnector.

Non-interconnector option

This brings us to Option A, which includes a combination of technologies as an alternative to increasing supply from NSW to meet peak demand in SA, namely:

- Two grid scale battery storages.
- Solar thermal power station.
- Augmentation of Murraylink to allow transmission of Frequency Control Ancillary Services.
- Pumped Hydro storage.
- Grid support with existing gas fired generation.
- Minimum load control.

The lack of detail in the PADR concerning the economic viability of this alternative makes it extremely difficult for consumer advocates to properly evaluate. We are therefore reliant on TEP's analysis, which argues that the estimated network support payments required to deliver this solution as opex are too high, and that

An open tender for the network support services required and/or the further development of system security markets would plausibly deliver the identified need at even lower cost.

In summary, publicly available information suggests that the cost of Option A has been overstated in the RIT-T analysis.

We also note that the option value of deferral in relation to Option A has not been considered. That is, this option appears to have been considered only as a permanent alternative to the interconnector, rather than as a short to medium term option to defer this large and lumpy capital investment. If (following TEP's submission) we adopt a commercial discount rate of, say, 10% pa, that amounts to a potential saving to consumers of up to \$150 million pa minus the cost of network support payments.

Not considering the deferral value of Option A might make sense in the context of a project which would deliver net benefits from Year 1. However, TEP's analysis shows that a 15 rather than 20 year horizon for the economic analysis obliterates the supposed short to medium term benefits of the preferred option, and favours Option A instead.

Two other aspects of the Entura Option A report raise concerns. One is the discussion of minimum load control. The identified need in this case—ie, “A wide area control of embedded storage and/or rooftop solar such that SA demand does not fall below such a level that positive grid demand cannot be maintained when the SA network is islanded”—is additional to the three that are central to the rationale for the project. If we accept that is a real possibility after 2025, there are number of potential cost-effective solutions, including network tariff reform and the remote control of PV systems to reduce daytime peak supply (the “solar trough”). SAPN is making significant advances in both of these areas. It is not clear why ElectraNet considers that “the installation of minimum load control to enable the control of solar PV installations... would be directly invested in by ElectraNet” when the services could potentially be procured at relatively low cost either directly from consumers or via SAPN. This discussion appears also not to have considered how distributed battery storage could help to solve rather than create the problem.

The other issue of concern is demand response. The Entura report extols the virtues of this cost-effective way to reduce peak demand, but then summarily dismisses it on the basis that

Entura have determined that using batteries to inject power into the system, thus increasing supply, is likely to be more cost-effective than using demand response to reduce demand. Batteries are also more flexible in terms of providing other supports.

In the absence of any supporting evidence, we dispute this conclusion. As the rule change request submitted last week to the AEMC by TEC, PIAC and The Australia Institute makes clear, the amount of demand response in the NEM is low by global standards—an anomaly that is likely to be corrected by the introduction of a wholesale demand response mechanism as a result of our rule change request. Naturally, ElectraNet and its consultants cannot be expected to foresee every change in the market; but this particular change was flagged by the AEMC in its Reliability Frameworks Review Directions Paper early this year. It is just one of the many potential changes in the market that could occur over the next decade or two, emphasising the need to take a conservative approach where a large amount of consumers' money is involved.

DER

Finally, as strong supporters of DER for environmental as well as economic reasons, TEC wishes to remind ElectraNet and the AER that the \$1.5 billion cost of this project represents money that consumers would not have available to spend on their own energy solutions. ElectraNet's modelling shows very small net benefits to consumers in SA and NSW for this large investment. By contrast, rooftop PV systems have an internal rate of return of nearly 20%, and thereby are likely to be a much better investment for households, businesses and governments. Distributed batteries are also likely to achieve a positive payback within the warranty period in most cases in coming years.

Behind the meter batteries, smart inverters and even solar panels facing west can all contribute to reducing peak demand and peak supply while also lowering supply costs and “facilitating the transition to a lower carbon emissions future and the adoption of new technologies”. DER have been given short shrift in the PADR, which appears to have been designed around a new

interconnector as the default solution, with alternatives being required to prove that they can deliver the same services at lower cost, rather than the PADR being a genuine attempt to consider, on their merits, a range of potential solutions to the identified need.

Conclusions and recommendations

This project has received widespread tacit approval from renewable energy advocates largely on the assumption that it will allow excess solar and wind generation in SA to meet peak demand in NSW, with benefits to generators and consumers in SA and a reduction in the overall emissions intensity of generation in NSW. As the PADR makes clear, this will not be the case in the short to medium term. Indeed, the short term displacement of SA gas with NSW coal would lead to a net increase in NEM-wide emissions. This is unacceptable to anyone committed to working to resolve the energy trilemma.

TEC is not convinced that capital expenditure of \$1.5 billion, which would be added to ElectraNet's and TransGrid's asset bases and repaid by consumers for at least 30 years, is warranted at this time—especially in view of uncertainties around state and national energy policies, future fuel costs, planned and unplanned plant closures and the adoption of new technologies and services.

We suspect that it is far more likely that Option A will deliver the best economic and environmental outcomes in the short to medium term, while a new interconnector and transmission line may make sense in the long term—ie, after the RIT-T framework has been revised to accommodate AEMO's ISP, and when there is more certainty around fossil plant closures and the investment climate for new generation.

We therefore recommend that:

1. ElectraNet reconsider the economic case for the non-interconnector option, particularly in respect of its deferral value (ie, as a short to medium term solution) and the potential to work with SAPN to utilise DER to reduce peak demand and resolve peak supply issues.
2. Should ElectraNet and TransGrid consider that the market benefits of this proposal relate mostly to its potential long term role in facilitating a renewable energy zone (REZ) in southwest NSW, they should pursue changes to the RIT-T framework to ensure that these benefits can be adequately internalised.
3. The AER conduct or engage independent economic modelling of the project in order to reduce the likelihood of a third party lodging an objection to the project.
4. The AER reject the proposed project in its current form.

For more information please contact Mark Byrne, Energy Market Advocate, markb@tec.org.au.

Yours sincerely,



Jeff Angel
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