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Attention Simon Appleby  
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**RE: Eyre Peninsula Electricity Supply Options - RIT-T Project Specification Consultation Report.**

Dear Simon,

Thank you for the opportunity to provide input to the Eyre Peninsula Electricity Supply Options. This region is critically important to the future of South Australia's electricity supply and potential major export of renewable energy to eastern states.

There are three important aspects to this Regulatory Investment Test for Transmission that should be properly taken into account.

1. Firstly, there is a need to renew aging infrastructure for reliability, noting that the current single 132 kV circuit by design is vulnerable to failure due to no transmission redundancy.
2. Secondly, there is a need to ensure that new demands on Eyre Peninsula such as mining and other activities can be supported
3. Thirdly there is a need to consider the energy transition towards renewable energy supply that is occurring across Australia. Whilst this transition is hampered by short term political constraints, the longer term trend is that Australia is transitioning towards renewable energy, and wind power provides the largest volume of renewable electricity for investment dollar. Eyre Peninsula has approximately 2000 MW of wind farm potential (SA Green Grid Study) and there is a high probability of market demand for this renewable energy to be developed with export capability to eastern states.

Taking these three aspects into account, the following ElectraNet Options have been considered.

**Table 1 Summary of potential credible options**

Option	Overview of option(s)	Indicative capital cost (\$ million, nominal)
Option 1 – Continue network support arrangement at Port Lincoln and component replacement works on the existing 132 kV single-circuit transmission line	132 kV line replacement works combined with a network support contract	80*
Option 2 – Double circuit 132 kV line†	Construction of a new double circuit 132 kV transmission line following a Cultana to Yadnarie and Yadnarie to Port Lincoln route^	200-300
Option 3 – two single circuit 132 kV lines†	Construction of two single circuit 132 kV transmission lines following separated routes between Cultana and Port Lincoln	200-350
Option 4 – double circuit 275 kV line†,‡	Construction of a double circuit 275 kV transmission line following a Cultana to Yadnarie and Yadnarie to Port Lincoln route^	280-380
Option 5 – two single circuit 275 kV lines†,‡	Construction of two single circuit 275 kV transmission lines following separated routes between Cultana and Port Lincoln	400-550

## **OPTION 1**

Option one is not acceptable as this does not address the transmission redundancy issue. It is understood that ESCOSA have been considering network reliability and have electricity companies about improving reliability on Eyre Peninsula, with options such as new/enhanced diesel generators at Port Lincoln.

Option one provides no additional capacity for demand growth or supply growth and is therefore likely to be a poor investment when these growth needs are demanded.

It is recommended that regardless of which transmission upgrade option is chosen, that Eyre Peninsula as a whole can operate as an islanded part of the grid if necessary (with a demand curtailment plan) This may require infrastructure necessary for controlling an islanded grid and the necessary (but not excessive) level of synchronous energy, inertia and fast re-start services.

## **OPTION 2**

Option 2 provides for a double circuit on a single set of towers. In events that may damage infrastructure such as extreme storms, impact damage or need to take the transmission infrastructure offline for maintenance and safety, Option 2 continues to be vulnerable to causing full region failure.

## **OPTION 3**

Option 3 provides for a dual transmission supply which offers a redundancy benefit but still does not provide for sufficient demand or generation growth on Eyre Peninsula. This option continues the risk of being capacity constrained in the future with no easy way to increase the capacity unless dual circuit towers were included for the single circuit lines such that an additional circuit could be added at a later date.

## **OPTION 4**

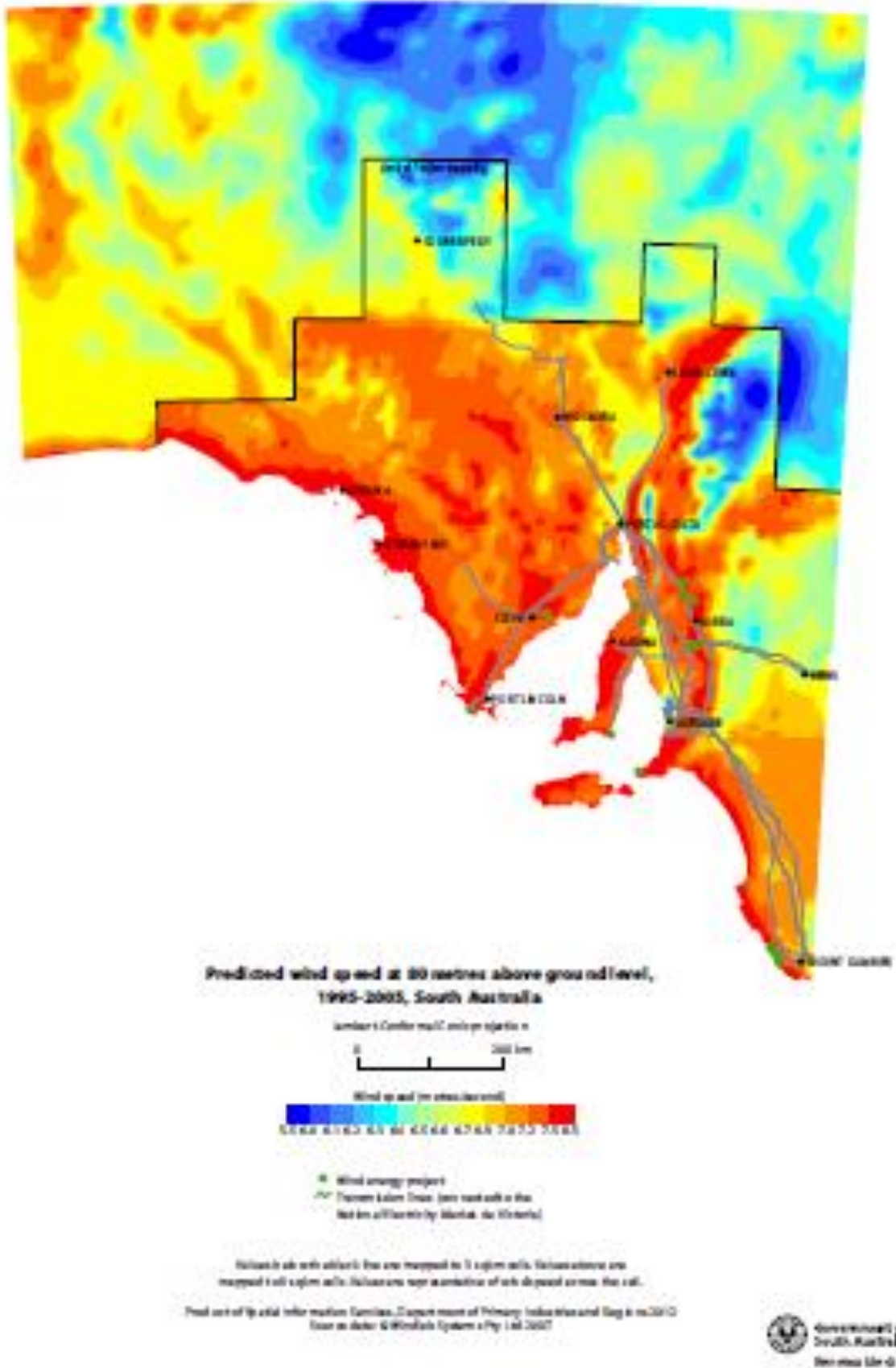
Option four provides for a transmission capacity expansion that could accommodate new demands and new wind generation on Eyre Peninsula. However, this option also continues the inherent risks of two lines on the same towers such that in certain situations such as physical damage, there is a risk of total region transmission failure. One additional dimension to this vulnerability is the greater level of dependency that could result from new demands and new generation on Eyre Peninsula. One could imagine that there could be significant financial losses if increased dependencies from mining activity and other economic growth and renewable exports to other states -suddenly failed without a separate line of redundancy.

## **OPTION 5**

Option 5 is therefore the only option that will meet the three aspects of regional transmission reliability, capacity for demand growth and capacity for generation growth towards 2000 MW of wind Power.

It is suggested that this transmission upgrade be modelled to provide for identified and plausible wind farm sites and any major solar PV array or solar thermal sites on Eyre Peninsula. It is also suggested that ElectraNet engage with the State Government on how Option 5 could support the implementation of South Australia's Green Grid as part of South Australia's Energy Plan and recognising related needs for state interconnector transmission infrastructure.

A map showing the abundant resources of wind energy on Eyre Peninsula is included below from the Renewables SA Website.



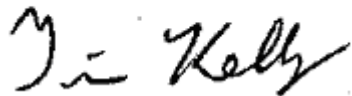
It may be that even option 5 may not provide for the full capacity to deliver 2000 MW of ultimate wind electricity. If there are options for dual circuit 275 kV lines or to provide towers that could become dual circuit at a later date then these should be described.

It is suggested that ElectraNet describes the capacity that options provide in relation to both increased demand and new wind generation development.

In summary, the opportunity improved investment in transmission infrastructure is important not only for Eyre Peninsula, but also for South Australia and the South East Australia Grid. The Regulatory Investment Test for Transmission infrastructure must take into account the transformational changes and opportunities for improving the capacity and reliability of the grid in transitioning to renewable energy. Anything less would be short term thinking and will result in the risk of inadequate reliability and capacity of this end of system region.

Yours sincerely

Tim Kelly

A handwritten signature in black ink that reads "Tim Kelly". The signature is written in a cursive style with a large initial "T" and a long, sweeping underline.

Nominated Conservation Council SA volunteer, serving on the ElectraNet Customer Advisory Council