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24 March 2017

Mr Hugo Klingenberg
Senior Manager Network Development
ElectraNet
52-55 East Terrace
Adelaide, SA 5000

Dear Hugo,

AEMO review of ElectraNet's Network Capability Incentive Parameter Action Plan (NCIPAP) for 1 July 2018 to 30 June 2023

I am writing to you regarding AEMO's review of proposed projects within ElectraNet's NCIPAP for the regulatory period 1 July 2018 to 30 June 2023. This review was undertaken as part of AEMO's role in the administration of the network capability component of the AER's transmission Service Target Performance Incentive Scheme (STPIS).[1]

For the next regulatory period, ElectraNet has proposed 7 priority projects for its NCIPAP with an estimated total capital cost of $15.7 million, as summarised in Attachment 1.

After reviewing the proposed action plan, AEMO has reached agreement with ElectraNet on its assessment of project need, improvement targets, likely material benefits, and ranking of priority projects. AEMO's assessment on how each of the projects in the proposed action plan results in material benefit is also included in Attachment 1 for your consideration.

ElectraNet is currently undertaking a Regulatory Investment Test for Transmission (RIT-T) exploring efficient options to enable South Australia's energy transformation and improve power system resilience. The conclusions outlined in this document are subject to change if this RIT-T delievers outcomes that overlap with any of the proposed NCIPAP projects.

If you have any questions or would like to seek any clarification please contact Mr Elijah Pack on (07) 3347 3995.

Yours sincerely

Christian Schaefer
Manager Network Planning

cc: Mr Chris Pattas, General Manager Networks (Investment and Pricing), AER.

Mr Marino Bolzon, Energy Markets and Programs Division, Resources and Energy Group, Department of State Development, South Australian Government.

Attachments: ElectraNet's NCIPAP proposal for the regulatory period 1 July 2018 – 30 June 2023 – AEMO Review.

[1] In accordance with Clause 5.2 of the AER's Service Target Performance Incentive Scheme (version 5).

Attachment

ElectraNet's NCIPAP proposal for the regulatory period 1 July 2018 – 30 June 2023 – AEMO Review

											AEMO Review		
ElectraNet Project ID	ElectraNet Project Ranking	Project name	Transmission circuit/Injection point	Scope of works	Project reason	Proposed timing	Capital cost estimate ($M)	Operating cost estimate ($M)	Market benefit per annum ($M)	Pay back period (years)	AEMO's ranking of projects	Review of material benefit	Benefit category
EC.14169	1	South East dynamic line ratings	Tailem Bend - Mobilong 132 kV, Tailem Bend - Tungkillo 275 kV, Tailem Bend - Cherry Gardens 275 kV, South East-Tailem Bend 275 kV No.1 and 2	Install weather stations along the Heywood interconnector transmission corridor to allow for dynamic ratings.	Increase the transfer capability of the South East - Tungkillo corridor to facilitate additional import from Victoria through the Heywood interconnector.	2018-19	0.00	0.10	0.80	< 1	1	The proposed dynamic line ratings improve the thermal capacity of transmission circuits under favourable climate conditions. Market benefits are based on improved access to low cost generation.	Improve transfer capability
EC.14041	2	Removal of plant limits on Robertstown to Davenport lines	Robertstown - Mokota - Belalie - Davenport 275 kV, Robertstown - Canowie - Mt Lock - Davenport 275 kV.	Remove and replace plant rated lower than the design capability of the conductors.	Improve transfer capability of the Roberstown - Davenport 275 kV lines to alleviate congestion on the transmission of Northern SA renewable generation.	2018-19	1.20	0.00	6.17	< 1	2	The proposed augmentation improves the thermal ratings of the Robertstown–Davenport 275 kV lines. Market benefits are based on improved access to low cost generation.	Improve transfer capability
EC.14065	3	Robertstown transformer management relay DR-E3 uprating program	Robertstown 275/132 kV transformers	Install DR-E3 transformer management relays and condition monitoring equipment to the two 275/132 kV transformers at Robertstown.	Uprate Robertstown 275/132 kV transformers in order to facilitate additional export through Murraylink.	2021-22	0.40	0.00	0.24	1–2	3	The proposed relay installation improves thermal ratings of Robertstown 275/132kV transformers. Market benefits are based on improved access to low cost generation and savings from life extension, reduced failure rate and restoration time after an outage.	Improve transfer capability and reduce operational cost
EG.06174	4	Constraint formulation investigation	Transient and voltage stability limits	Review existing network limit search program (AULimit) to support other power system analysis software packages and improve the accuracy of the limit derivation methodology.	Improve SA network transient and voltage stability limits by improving constraint formulation.	2022-23	0.20	0.10	0.25	1–2	4	The proposed project improves the accuracy of ElectraNet's limit calculation methodology to enable lower constraint equation margins, and therefore increases transfer limits. Market benefits are based on improved network utilisation.	Improve transfer capability

											AEMO Review		
ElectraNet Project ID	**ElectraNet Project Ranking**	**Project name**	**Transmission circuit/Injection point**	**Scope of works**	**Project reason**	**Proposed timing**	**Capital cost estimate ($M)**	**Operating cost estimate ($M)**	**Market benefit per annum ($M)**	**Pay back period (years)**	**AEMO's ranking of projects**	**Review of material benefit**	**Benefit category**
EC.14211	5	South East 275 kV capacitor bank	South East 275 kV substation	Install an additional 100 MVAr capacitor bank at South East substation.	Additional reactive support to address voltage and transient stability limits along the Heywood interconnector transmission corridor.	2020-21	3.30	0.00	1.01	3–4	5	The proposed capacitor bank is to increase the Vic to SA voltage and transient stability limits on the Heywood interconnector. Market benefits are based on improved access to low cost generation.	Improve transfer capability
EC.14168	6	Smart Wires Powerline Guardian trial (Waterloo - Templers)	Waterloo-Templers 132 kV, Robertstown - Tungkillo 275 kV, Robertstown - Para 275 kV	Install Smart Wires Powerline Guardian devices on the Waterloo - Templers 132 kV line. Uprate the Robertstown - Tungkillo and Robertstown - Para 275 kV lines as necessary.	Waterloo-Templers 132 kV line expected to be congested due to new generation connection. Increasing impedance of the Waterloo-Templers 132 kV line pushes power flows to 275 kV parallel circuits, thus increasing the transfer capability of the Northern SA - Adelaide transmission corridor.	2019-20	5.50	0.00	1.28	4–5	6	The proposal increases the transfer capability of the Northern SA to Adelaide transmission corridor. This is an exploratory project. Any increase in ratings and the application in real-time operation is yet to be proved. Market benefits are based on improved access to low cost generation.	Improve transfer capability
EC.11002	7	Tailem Bend to Cherry gardens tie in	Tailem Bend - Cherry Gardens 275 kV	Populate one additional diameter at Tungkillo by tying in the Tailem Bend - Cherry Gardens 275 kV line.	Improves transient (rotor angle) and voltage stability along the Heywood transmission corridor.	2019-20	4.90	0.00	0.76	6–7	7	The proposed tie in increases import and export capability across the Heywood interconnector. Market benefits are based on improved access to low cost generation, reduced losses and reliability improvements.	Improve transfer capability, reduced losses and reliability improvement

† Note that all prices and costs are in 2016–17 real dollars.