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18 December 2017

Mr. Wayne Tucker
General Manager, Strategic Asset Management
TasNetworks
1 – 7 Maria Street,
Lenah Valley 7008
Tasmania

Dear Wayne,

AEMO review of TasNetworks' Network Capability Incentive Parameter Action Plan (NCIPAP) for 1 July 2019 to 30 June 2024

I am writing to you regarding AEMO's review of TasNetworks' proposed NCIPAP projects for the regulatory period of 1 July 2019 to 30 June 2024. This review was required under clause 5.2 of AER's Service Target Performance Incentive Scheme (STPIS) Version 5.

TasNetworks proposed five NCIPAP projects with an estimated total capital cost of $6,012,841. AEMO's review is summarised in Attachment 1.

In reviewing TasNetworks' proposed NCIPAP projects, AEMO agrees with the assessment of project need, improvement targets, likely material benefits, and ranking of proposed projects. AEMO's assessment on how each of the projects results in material benefit is also included in Attachment 1 for your consideration.

If you have any questions or would like to seek any clarification, please contact Nadesan Pushparaj on (03) 9609 8384.

Yours sincerely

Elijah Pack
A/Group Manager, Power System Planning

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

Attachments:

(1) TasNetworks' NCIPAP proposal for the regulatory period 1 July 2019 – 30 June 2024 - AEMO Review.

Attachment: TasNetworks' NCIPAP proposal for the regulatory period 1 July 2019 – 30 June 2024 - AEMO Review

Summary of TasNetworks' project description											AEMO's Review		
TasNetworks Project Ranking	Project name	Transmission circuit/Injection point	Scope of works	Current limit	Target limit	Timing	Capital cost estimate ($)	Operating cost estimate ($)	Market benefit per annum ($)	Pay-back period (years)	Ranking of projects	Review of material benefit	Benefit category
1	Waratah Tee Switching Station Disconnector Motorisation	Farrell Que–Savage River–Hampshire–Burnie 110 kV transmission circuit	(1) Replace manually operated disconnectors A129, B129 and C129 at Waratah Tee Switching Station with remotely-operated, motorised disconnectors. (2) Provision of AC and DC supplies and telecommunications to Waratah Tee Switching Station.	Following an outage of the Farrell–Que–Waratah Tee 110 kV circuit, approximately 228 minutes is required to restore supply to Savage River and Que substations.	Immediate supply restoration to Savage River and Que substations following an outage of the Farrell–Que–Waratah Tee 110 kV circuit.	Jun-21	610,000	3,050	518,430	1.2	1	TasNetworks targets to reduce supply restoration time at Savage River Substation from an average of 228 min to approximately within 1 min, for sustained faults on the Farrell–Que–Savage River or Burnie–Hampshire–Savage River 110 kV transmission circuit. Market benefits based on a reduction in expected unserved energy (USE) due to reduced restoration time after an outage.	Reduce restoration time.
2	Weather Stations on Burnie–Smithton 110 kV corridor	Burnie–Smithton and Burnie–Port Latta–Smithton 110 kV transmission circuits	Install a new weather station near Smithton to enable dynamic rating of Burnie Smithton and Burnie–Port Latta–Smithton 110 kV transmission circuits	Thermal ratings of Burnie–Smithton and Burnie–Port Latta–Smithton 110 kV circuits are static for a given discrete ambient temperature.	Dynamic thermal ratings to the Burnie–Smithton and Burnie–Port Latta–Smithton 110 kV transmission circuits, resulting in an expected average 26 MVA increase to line thermal capacity. This increased rating would reduce congestion of new wind generation on this corridor.	Jun-22	364,927	1,825	124,415	3.0	2	TasNetworks has received connection applications for new wind generation up to 112 MW in the North-West Coast of Tasmania (not currently considered committed by AEMO). TasNetworks expects that some of this generation will connect prior to the 2019–24 regulatory period. AEMO calculated benefits under a range of generator connection scenarios, including 20 MW, 30 MW and 40 MW. This review found payback periods of 11.7, 3 and 1.2 years respectively. As a relatively conservative assumption, the 30 MW scenario was used to rank this project.	Improve transfer capability.
3	Lightning Withstand Capability Improvement on Norwood–Scottsdale–Derby 100 kV Transmission Corridor	Norwood–Scottsdale double circuit and Scottsdale–Derby 110 kV single circuit transmission lines	Improve footing resistance to the earth at selected towers on the Norwood–Scottsdale–Derby 110 kV transmission circuits.	(1) An average of 4.5 outages per year of both Norwood–Scottsdale 110 kV circuits due to lightning strikes, and (2) re-classification of non-credible contingency of both Norwood–Scottsdale circuits as credible contingency for an average of twice a month with an average of two hours.	With improved footing resistance, Norwood–Scottsdale 110 kV circuits will be able to withstand 98% of lightning strikes. This will result in (1) Reduced outage of Norwood–Scottsdale double circuit, and (2) removal of Norwood–Scottsdale 110 kV double transmission circuits from the re-classification list.	Jun-20	800,000	-	187,547	4.3	3	Proposed augmentation is to significantly reduce the probability of a double circuit outage of Norwood–Scottsdale 110 kV circuits and remove this non-credible contingency from the reclassification list. This project: (1) Allows Musselroe windfarm to deliver its full output to the market when there is lightning in the area. (2) Increases the reliability of supply to Derby and Scottsdale substations and reduces unserved energy (USE) at these substations. The market benefits for this project are based only on fuel cost savings.	Improve transfer capability.
4	Farrell Substation 220 kV Second Bus Coupler Installation	Farrell Substation	Install a second 220 kV bus coupler in series with the existing bus coupler (A752B) and modify protection and control schemes as required at Farrell 220 kV Substation.	A failure to open the circuit breaker of Farrell Substation 220 kV bus coupler (circuit breaker stuck condition) will disconnect all the 220 kV circuits connected at Farrell Substation. This will result in (1) loss of supply to Roseberry, Newton, Queenstown, Que and Savage River substation, (2) loss of generation from John Butters, Reece, Tribute, Bastyan and Mackintosh, and (3) potential full or partial system black. Restoration time of Farrell 220 kV substation and generation connected to this substation is 240 minutes.	Prevents loss of supply to west coast load, loss of generation, and possible full or partial system black following a failure to open a single bus-couple circuit breaker at Farrell 220 kV substation. No disconnection of Farrell 220 kV substation (equivalent to zero restoration time).	Jun-22	1,237,914	-	91,500	13.5	4	Farrell 220 kV substation No.1 and No. 2 busbars are connected by a single bus coupler circuit breaker. A failure to open this circuit breaker during a fault would result in the loss of supply to Roseberry, Newton, Queenstown, Que and Savage River substations, and loss of generation connected to Farrell substation. The proposed second bus coupler circuit breaker is to prevent loss of supply following this potential failed circuit breaker operation, and to reduce the risk of a wide-spread blackout due to load and generation imbalance. The market benefits for this assessment were based on a reduction in expected unserved energy (USE).	Improves reliability of supply.
5	Transmission Line Ground Clearances Improvement Program	Sheffield–Fisher 220 kV transmission line Farrell–Mackintosh 220 kV transmission line Sheffield–Devils Gate transmission line Tungatinah–Butlers Gorge 110 kV transmission lines Burnie–Smithton 110kV transmission line Farrell–Que–Waratah Tee 110 kV transmission line Sheffield–Railton 110 kV transmission line New Norfolk–Creek Rd 110 kV transmission line George Town–Starwood 110 kV transmission line	Improve ground clearances at identified sites on the 110 kV and 220 kV transmission lines by ground profiling, conductor tensioning, waist extension and raising tower heights.	Transfer limited due to ground clearances of transmission lines. This results in constrained flows with reduced thermal ratings, increased safety and environmental risks, and unmet transmission circuit clearance compliance along these lines.	Improved ground clearances to re-establish transmission circuit operation to its design temperature; thereby increasing transmission capacity, decreasing safety and environmental risks and meeting transmission circuit clearance compliance.	Dec-22	3,000,000	-	147,200	20.4	5	This project addresses potential de-rating of existing transmission capacity and generation congestion due to insufficient ground clearances. This project (1) reduces the safety and environmental risks presented by insufficient ground clearances (2) provides increased transfer levels of hydro generation and (3) reduces unserved energy. Market benefits include only reduced cost of generation rescheduling and does not include the value of reduced USE.	Improves safety, reliability of supply and transfer capability.