Network Capability Incentive Parameter Action Plan

2024-2029 Regulatory Submission

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The network capability component (NCC) is a component of the transmission Service Target Performance Incentive Scheme (STPIS) which was introduced by the Australian Energy Regulator (AER) in December 2012. This component has applied to TasNetworks from 1 July 2014. This action plan is the submission for TasNetworks 2024-2029 regulatory period.

The details of the projects in this report in alignment with the AER's network capability incentive parameter action plan (NCIPAP) criteria and to be submitted for Australian Energy Market Operator (AEMO) for endorsement prior to submission to AER.

1 Overview of Network Capability Component

The NCC is set out in Section 5 of the Service Target Performance Incentive Scheme (STPIS) guideline and facilitates improvements in the capability of transmission assets through operational expenditure and minor capital expenditure on a transmission network that results in:

- improved capability of those elements of the transmission system most important to determining spot prices; or
- improved capability of the transmission system at times when Transmission Network Users place greatest value on the reliability of the transmission system.

As a regulated network service provider, TasNetworks is required to comply with the AER's service target performance incentive scheme. As part of the TasNetworks upcoming revenue proposal, a NCIPAP must be submitted to the AER following endorsement by the AEMO. The network capability incentive parameter has been designed to benefit both consumers and market participants as described in the AER's final decision to introduce the component.

1.1 Period of the Action Plan

TasNetworks intends to propose the identified NCIPAP priority projects as part of its full revenue proposal for the 2024-2029 regulatory control period. It is envisaged that the period of the plan will be reviewed in conjunction with the determination on the regulatory control period.

1.2 TasNetworks' existing NCIPAP program

TasNetworks has implemented a number low cost priority projects that were identified as part of the 2019-24 regulatory control period to improve network capability. Some of the completed projects are shown below in Table 1:

Table 1: NCIPAP projects completed between 2019-20 and 2023-24

Reason to undertake project	Completed project	Completion year
Application of dynamic ratings on transmission corridor	Weather stations on Burnie-Smithton 110 kV corridor	2020–21
Improvement to transmission corridor capacity by balancing line flows	Installation of double tee connection for Port Latta substation on Burnie-Smithton 110 kV corridor	2021–22

TasNetworks has also undertaken prudency checks prior to implementation of approved priority projects in 2019-2024 regulatory control period and revised its NCIPAP priority projects where there has been a change in circumstances and anticipated market benefits to spot market outcomes were no longer valid.

2 Approach

This section outlines the approach TasNetworks has used to identify and rank priority projects for the NCIPAP.

2.1 Requirement of the scheme

The AER's STPIS requires that a transmission network service provider (TNSP) must submit in its revenue proposal a NCIPAP:

1) Identifying for every transmission circuit and injection point on its network, the basis and cause for the limit for each transmission circuit and injection point.

2) Proposing the priority projects to be undertaken in the regulatory control period to improve the limit of the transmission circuits and injection points listed above through operational and/or minor capital expenditure projects. This proposal must include:

   i. the total operational and capital cost of each priority project;

   ii. the proposed value of the priority project improvement target in the limit for each priority project;

   iii. the current value of the limit for the transmission circuits and/or injection points which the priority project improvement target is seeking to improve;

iv. the ranking of the priority projects in descending order based on the likely benefit of the priority project to customers or on wholesale market outcomes;

v. for each priority project, how the achievement of the priority project improvement target would result in a material benefit being achieved, including outline of key assumption on which this result is based; and

vi. in which the average total expenditure of the priority projects outlined in each regulatory year must not be greater than 1 per cent of the TNSP's average annual maximum allowed revenue proposed in its revenue proposal for the regulatory control period.

2.2 Approach to identifying NCIPAP projects

TasNetworks' have systematically reviewed its proposed priority projects on merit and undertaken market benefit assessment for inclusion of identified projects in the 2019-2024 regulatory control period. In identifying NCIPAP projects, the reviews primarily considered the implementation of dynamic ratings on transmission circuit(s) that still are limited to work book ratings.

2.3 Consultation with AEMO

The STPIS requires that:

The TNSP must consult with AEMO prior to submitting the NCIPAP about its review of its transmission circuits and injection point in its network, and the potential priority projects which have been identified. This includes consultation with AEMO regarding:

i. the potential for co-ordinated projects with other TNSPs;

ii. whether achieving the proposed priority project improvement targets will result in proposed priority project having a material benefit;

iii. the classification of priority projects based on their likely benefit to consumers or wholesale market outcomes; and

iv. the ranking of the priority projects

As stated in the explanatory statement regarding AEMO's consultative role in the development of the NCIPAP, AEMO has requested a 'Draft' proposal of the TasNetworks capital works program for 2024-2029 regulatory control period. This is in line with the AER's STPIS guideline that TNSPs must provide AEMO with a copy of their capital expenditure program for the upcoming regulatory control period when consulting on their NCIPAP[1]. This will ensure AEMO has necessary information to access and provide advice on the projects a TNSP should undertake to ensure the objectives of the scheme are achieved.

[1] The AER Final Decision, Electricity transmission network service providers, Service Target Performance Incentive Scheme, December 2012, page 26

2.4 Approach to Ranking Projects

The STPIS requires proposed projects to be ranked in descending order based on the likely benefit of the project to consumers and wholesale market outcomes (i.e. payback period). Table 2 summarises the ranking of TasNetworks' proposed NCIPAP for 2024-2029 regulatory control period. TasNetworks will undertake consultation with AEMO and receive feedback and comments to support market benefit outcomes for each identified priority project. Accordingly, the ranking of priority projects may be altered on the basis of a mutually agreed methodology for market benefit calculation.

The identified NCIPAP projects are limited to a combined expenditure limit of 1% of maximum allowable revenue (MAR), in this case approx. $8m for the 2024-2029 regulatory control period.

Table 2: TasNetworks proposed 2024-2029 NCIPAP Projects

TasNetworks Project Ranking	Project Name	Scope of Works	Payback period in years	Annual Market Benefits ($)	Project Cost Level 1 estimate ($)	Project Drivers and Material benefit
1	Palmerston Substation terminal equipment upgrade	Upgrade terminal equipment at Palmerston Substation for Waddamana–Palmerston 220 kV transmission line	2.32	1,628,912	3,769,706	Upgrade terminal equipment limitation at Palmerston Substation on the Waddamana–Palmerston 220 kV transmission circuits, releasing available transmission capacity to support initial development of the Central Highlands Renewable Energy Zone (**REZ**). This increased rating would eliminate the congestion in the network allowing increased output of generation in the region.

3 The Action Plan

As part of the revenue proposal for 2024-2029 regulatory control period, TasNetworks is required to comply with the AER's STPIS. TasNetworks has identified one priority project with a total project cost of $3.77 million. The proposed NCIPAP has been developed in accordance with the requirement of the STPIS guidelines.

3.1 Priority Project - Palmerston Substation terminal equipment upgrade

Reason to undertake the project:

Terminal equipment rating at Palmerston Substation heavily constrains the thermal capacity of the Waddamana–Palmerston 220 kV transmission circuits. TasNetworks operates transmission lines in Tasmania with real-time ratings, accounting for measured ambient temperature and wind speed. However this rating capability in the Waddamana–Palmerston transmission corridor is not available given the low rating of the Palmerston Substation terminal equipment.

The Waddamana–Palmerston transmission corridor (2x 220 kV circuits and 1x 110 kV circuit) provides the connection between the northern and southern transmission networks. Power flows may either be northward or southward, dictated by the load–generation balance in from Waddamana Substation and south (when generation in this region exceeds the load demand, power flows north through the Waddamana–Palmerston transmission corridor). The existing northward power flow capability (thermal) of the corridor is approximately 1,000 MVA, constrained by the terminal equipment.

The Waddamana–Palmerston transmission corridor is the boundary point for the Central Highlands REZ identified as part of the 2022 Integrated System Plan (ISP). The ISP forecasts significant new wind energy to be built in Central Highlands REZ within the next 10 years. This means northward power flow in the Waddamana–Palmerston transmission corridor will increase significantly in both time and magnitude.

Error! Reference source not found. presents the Waddamana–Palmerston transmission corridor, broader network, and identified wind resource areas in the Central Highlands REZ.

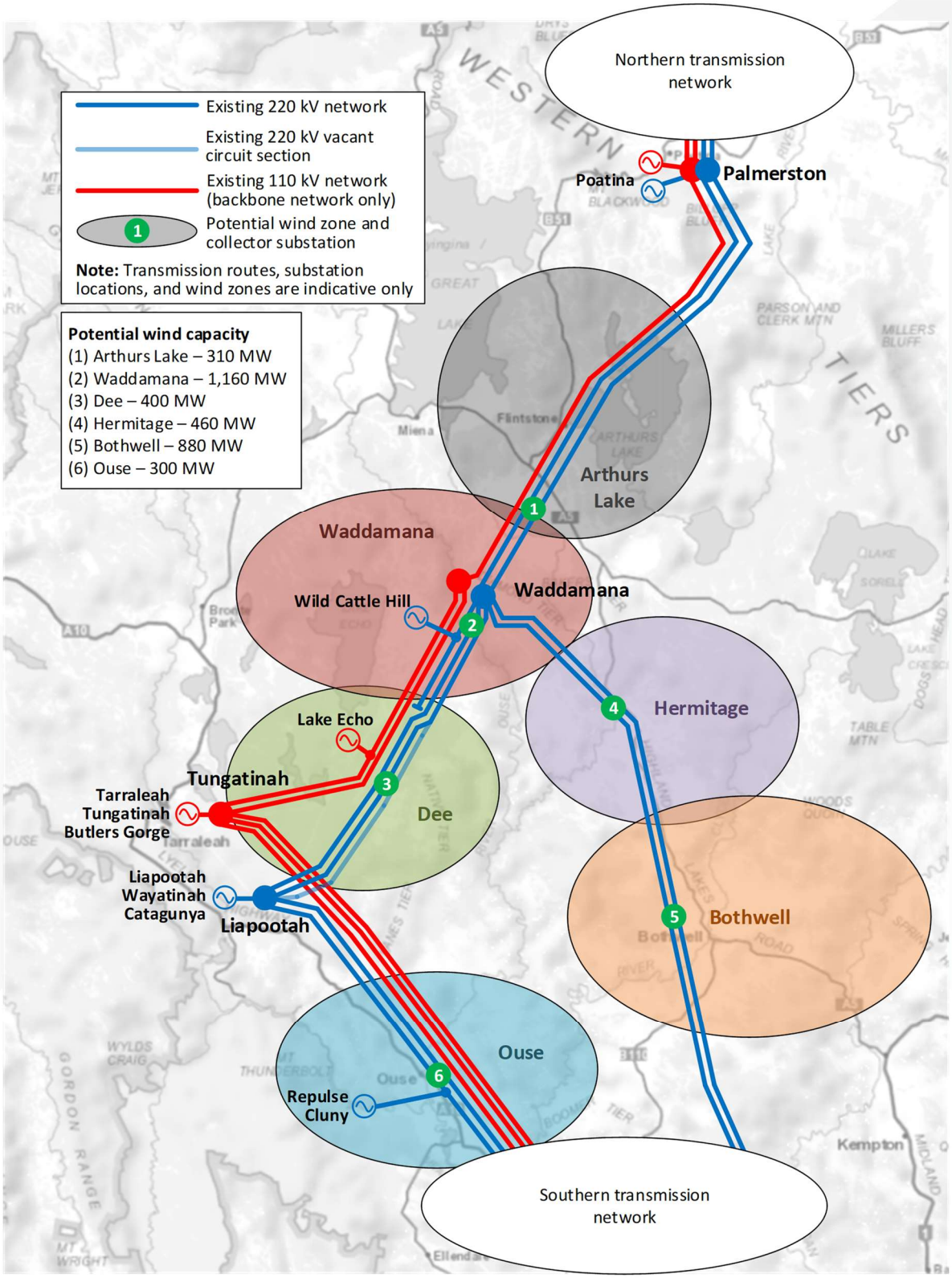

Figure 1: Central Highlands Renewable Energy Zone

The ISP forecasts 530 MW of new wind by 2025–26 in the Central Highlands REZ, and 1,030 MW by 2029–30. These forecasts are credible, given current connection activity in the Central Highlands REZ (and broader southern transmission network) of approximately 480 MW of new wind, with a further 300+ MW in pre-enquiry discussions. The resultant power flows northward though the Waddamana–Palmerston transmission corridor would significantly exceed its existing thermal capability. To maintain corridor flow within limits, there would be resultant significant generation constraint in Central Highlands REZ and southern Tasmania (expected from both new wind generation and existing hydropower generation).

Upgrading the terminal equipment at Palmerston Substation for the two Waddamana–Palmerston 220 kV transmission circuits (rating increase) will release significant thermal capability from the transmission line and mitigate the significant constraints on generation that would otherwise occur.

Project description:

Transmission circuit/injection point	Palmerston Substation (Waddamana–Palmerston 220 kV transmission line)
Project	Palmerston Substation terminal equipment upgrade
Scope of Works	Upgrade terminal equipment at Palmerston Substation for Waddamana–Palmerston 220 kV transmission line
Current value of the limit	1,000 MVA thermal capacity limit of Waddamana–Palmerston 220 kV transmission corridor
Target limit	Remove thermal capacity limit of corridor to allow forecast 530 MW of new wind generation in Central Highlands REZ
Completion date	2025–26
Capital cost (inclusive of 15% accuracy, 10% contingency and capitalised overheads (30%))	$3,769,706
Operational cost	$0 no additional opex incurred through asset replacement
Annual Market benefit	$1,628,912 average market benefit, across varying generation dispatch patterns
Payback period	2.31 years