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September 15, 2023

Attachment 13: NCIPAP - Action Plan

13.1 Summary

As discussed in **Attachment 10** – Incentive Schemes, Basslink Pty Ltd proposes to apply the Network Capability Component (NCC) of the Electricity Transmission Service Target Performance Incentive Scheme (version 5) (STPIS) in the 2025-30 regulatory control period.[106]

The STPIS provides that TNSPs are required to submit a network capability incentive parameter action plan (NCIPAP) as part of their revenue proposals and TNSPs must consult AEMO in developing their NCIPAPs.[107]

A NCIPAP must identify network limits and proposed priority projects.

At this stage, we have not identified any priority projects for the 2025-25 regulatory period. As a result, this NCIPAP only identifies the network limits which apply and the areas in which future priority projects may be identified.

We note that we are currently investigating the merits of an Ambient Temperature Project which aims to increase the ambient temperature transfer capacity limits. We have included this project in forecast capex for the 2025-30 period; however, we note that it would also qualify as a priority project.

Throughout the 2025-30 period we will continue to engage AEMO and other stakeholders to identify and evaluate potential priority projects.

13.2 Network Capability Component

Objective

In 2012 the AER added the Network Capability Component (NCC) to the Transmission (STPIS). The objective of the scheme is to facilitate opex or minor capex which results in:[108]

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

The NCC is a discrete component of the STPIS which has a different objective and mechanism than the Service and Market Impact components.

Action Plan Requirements

Under the NCC a TNSP must submit, in its revenue proposal, a network capability incentive parameter action plan (NCIPAP).

[106] For completeness, as discussed in **Attachment 10** – Incentive Schemes, Basslink proposes to apply the other two components of the STPIS – the Service Component and Market Impact Component – over the 2030-35 period when sufficient data will be available to design appropriate incentives.
[107] STPIS, cl 5.2(b).
[108] STPIS clause 5.2(a)

The NCIPAP must:[109]

- identify for every transmission circuit and injection point on its network, the basis and cause for the limit for each transmission circuit and injection point.
- propose priority projects to be undertaken in the regulatory control period to improve the limit of the transmission circuits and injection points.

Where priority projects are proposed the NCIPAP must include:[110]

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 an outline of the key assumptions on which this result is based

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

Change in priority projects

Each year TNSPs are required to submit annual STPIS compliance reports. As part of these reports, priority projects can be proposed to be removed or added to the NCIPAP.

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13.3 Network Limits

Basslink is a bidirectional 400 kV direct current (DC) monopole electricity connector with a metallic return. It connects to AusNet's Transmission Network at Loy Yang and Tas Network's Transmission network at George Town.

Basslink is designed with a continuous rating of 500 MW in either direction.

In addition, Basslink is designed to operate with a dynamic rating transfer capacity from Tasmania to Victoria. This capacity can be within any 24 hour period:[111]

[109] STPIS clause 5.2(b)
[110] STPIS clause 5.2(b)(2)
[111] These are based on conservative operating assumptions these operating parameters will be updated with construction of the Cable Load Prediction System.

- 604MW for 10 hours, over which the remaining 14 hours is limited to 312MW in either direction.
- 630MW for 2 periods of 4 hours. These periods need to be separated by 2 hours and the remaining 16 hours has a transfer limited of 312MW in either direction.
- 630MW for 6 hours over a continuous period over which the remaining 18 hours is limited to 312 MW in either direction.

As an interim measure, dynamic rating transfer capacity is not currently available to ensure that thermal design limits are not exceeded. A project is currently underway to undertake the requisite engineering works and associated studies to ensure the thermal design limits are not exceeded and restore the dynamic rating transfer capacity functionality.

Transfer capacity is dependent on all redundant cooling being in service, AC system voltages and frequencies in normal range, operation below maximum ambient temperature limits as well as functional requirements and design conditions in place (e.g. maximum soil temperature on sea bottom etc.).

In practice, the primary limit which constrains Basslink's capacity is the maximum ambient temperature limits.

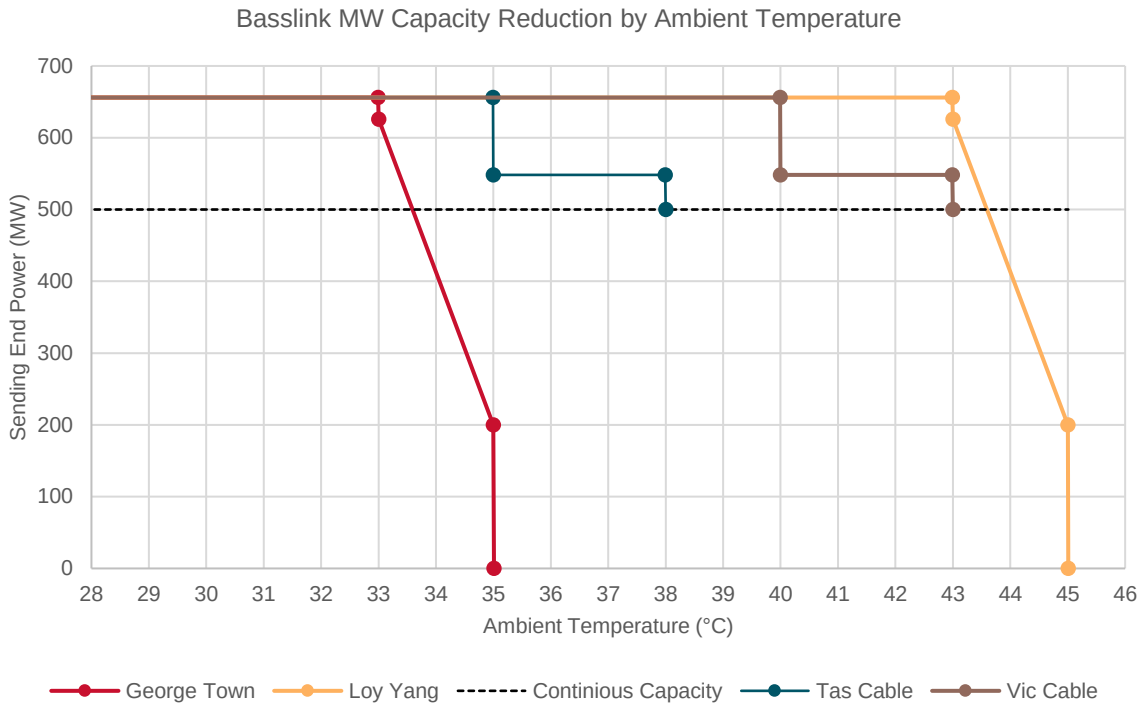
Ambient Temperature Limits

Basslink is rated to operate at a maximum dry bulb temperature of 30°C and 40°C at George Town and Loy Yang. If the ambient temperature exceeds these thresholds the control and protection system automatically reduces or blocks power transfer, as shown in Figure 3.1.

Since commissioning, Basslink has experienced two 100% loss of capacity events (average duration of 1.55 hours) and seven partial loss of capacity events (average duration of 2.82 hours).[112]

[112] Excluding an additional event caused by a temperature sensor being placed in an inappropriate location (which has been subsequently rectified).

Figure 13.1 Current Ambient Temperature Limitations



13.4 Priority Projects

Basslink Pty Ltd is not currently proposing to include any NCIPAP priority projects. We note that a project to address the Ambient Temperature Limit has been included in forecast capex.

We will continue to work with AEMO and other key stakeholders to identify opportunities for opex or minor capex to improve the capability of Basslink and deliver material benefits. If this occurs, as part of our annual compliance report to the AER, we will propose additional projects to be included.

Glossary

A	Amps (measurement of current)
AARR	Aggregate Annual Revenue Requirement
AC	Alternating Current
ACCC	Australian Competition and Consumer Commission
AEMC	Australian Energy Market Commission
ASIC	Australian Securities and Investment Commission
ASRR	Annual Service Revenue Requirement
AUD	Australian Dollar
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
Basslink Pty Ltd	Basslink
BOA	Basslink Operations Agreement
Capex	Capital Expenditure
CAPM	Capital Asset Pricing Model
CCGT	Combined-Cycle Gas Turbine
CESS	Capital Expenditure Sharing Scheme
CO_2	Carbon Dioxide
COTA	Council of Aging Tasmania
CPI	Consumer Price Index
CRNP	Cost Reflective Network Pricing
DAC	Depreciated Actual Cost
DC	Direct Current
DMIAM	Demand Management Innovation Allowance Mechanism
DORC	Depreciated Optimised Replacement Cost
DSP	Demand side participation
EBSS	Efficiency Benefits Sharing Scheme
EPC	Engineer, Procure, and Construct
ESOO	Electricity Statement of Opportunities
ESOO	Electricity Statement of Opportunities
FACTS	Flexible AC Transmission Systems (includes SVCs and STATCOMs)
FCSPS	Frequency Control SPS
FEED	Front End Engineering and Design

FLLLF	Forward Looking Loss Factor
FOM	Fixed Operation and Maintenance
GW	Gigawatt
GW	Gigawatt
GWh	Gigawatt hours
GWh	Gigawatt-hour
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
IASR	Inputs, Assumptions and Scenarios Report
IEC	International Electrotechnical Commission
IGBT	Insulated Gate Bipolar Transistor
ISAR	Inputs, Assumptions and Scenarios Report
ISP	Integrated System Plan
ISP	Integrated System Plan
kV	Kilovolt
LCC	Line Commutated Converter
MNSP	Market Network Service Provider
MCE	Ministerial Council on Energy
MI	Mass Impregnated
MIC	Market Impact Component
MMC VSC	Modular Multi-level Voltage Source Converters
MR	Metallic Return
Mt	Mega Ton
MVA	Mega-Volt-Ampere
MVAr	Mega-Volt-Ampere reactive
MW	Megawatt
MWh	Megawatt-hour
NEL	National Electricity Law
NEM	National Electricity Market
NEO	National Electricity Objective
NER (Rules)	National Electricity Rules
NCC	Network Capability Component
NCIPAP	Network Capability Incentive Parameter Action Plan
NCSPS	Network Control SPS
NEM	National Electricity Market

NPV	Net Present Value
NPV	Net Present Value
NSP	Network Service Provider
NSW	New South Wales
NTDC	Northern Tasmanian Development Council
OCGT	Open-Cycle Gas Turbine
ODV	Optimal Deprival Value
OHTL	Overhead Transmission Line
Opex	Operational Expenditure
ORC	Optimised Replacement Cost
PACR	Project Assessment Conclusion Report
PHES	Pumped Hydro Energy Storage
PPI	Producer Price Index
PSL	Prudent Storage level
PTRM	Post Tax Revenue model
PV	Photovoltaic
QLD	Queensland
QNI	Queensland-New South Wales interconnector
QNI Connect 1	NSW to QLD Interconnector Upgrade
QRET	Queensland Renewable Energy Target
RAB	Regulatory Asset Base
RAB RFM	Asset Base Roll Forward Model
RBA	Reserve Bank of Australia
REZ	Renewable Energy Zones
RIT - T	Regulatory Investment Test Transmission
SA	South Australia
SAT	Single Axis Tracking
SC	Service Component
SPS	System Protection Scheme
SRMC	Short Run Marginal Cost
STATCOM	Static Compensator
STPIS	Service Target Performance Incentive Scheme
SVC	Static Var Compensator
TAS	Tasmania
TAS	Tasmania

TMEC	Tasmanian Mineral, Manufacturing and Energy Council
TNSP	Transmission Network Service Provider
TRET	Tasmanian Renewable Energy Target
TRET	Tasmanian Renewable Energy Target
TSIRP	Time-sequential integrated resource planner
TUOS	Transmission Use of System
TWh	Terawatt hours
USE	Unserved Energy
VCR	Value of Customer Reliability
VIC	Victoria
VNI	Victoria-New South Wales Interconnector
VOM	Variable Operation and Maintenance
VPP	Virtual Power Plant
VRET	Victoria Renewable Energy Target
WACC	Weighted Average Cost of Capital