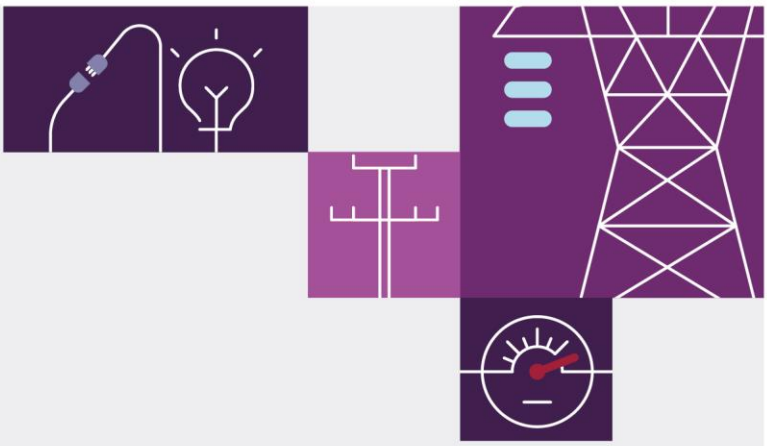
AEMO
AUSTRALIAN ENERGY MARKET OPERATOR

Interconnector Capabilities

April 2024

A report for the National Electricity Market.



Important notice

Purpose

This publication has been prepared by AEMO for the purposes of rule 3.13.3(p) of the National Electricity Rules to provide information about the normal capability of interconnectors and planned projects to increase this capability, as at the date of publication.

Disclaimer

This document or the information in it may be subsequently updated or amended. This document does not constitute legal or business advice, and should not be relied on as a substitute for obtaining detailed advice about the National Electricity Law, the National Electricity Rules, or any other applicable laws, procedures or policies. AEMO has made every effort to ensure the quality of the information in this document but cannot guarantee its accuracy or completeness.

Accordingly, to the maximum extent permitted by law, AEMO and its officers, employees and consultants involved in the preparation of this document:

- make no representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of the information in this document; and
- are not liable (whether by reason of negligence or otherwise) for any statements or representations in this document, or any omissions from it, or for any use or reliance on the information in it.

Copyright

AEMO acknowledges the Traditional Owners of country throughout Australia and recognises their continuing connection to land, waters and culture. We pay respect to Elders past and present.

Version control

Version	Release date	Changes
4	April 2024	Update to latest AEMO template and complete review. Updated QNI and Vic-SA changes. Added new interconnector upgrade proposals (VNI West, QNI minor, Project EnergyConnect, Project Marinus, Hume Link). Reviewed list of limits on each interconnector and updated constraint equation IDs. Added destructive wind limits for Heywood.
3	3 November 2017	Updated Heywood upgrade limits and augmentations in SA near Murraylink and western Victoria, updated to latest AEMO template, fixed links to new AEMO website, updated disclaimer.
2	September 2015	Updated information about interconnector augmentations. Minor changes to text elsewhere.
1	July 2014	Initial version

Contents

Tables

1 Introduction

This document provides participants, prospective participants, and parties interested in the National Electricity Market (NEM), with information about the nominal capacity of the transmission lines that connect the various NEM regions (interconnectors), and information on planned or proposed upgrades to increase their capacity.

Specifically, it describes the nominal capacity of the interconnectors when there are no transmission outages. Nominal capacity can be defined as the optimal capacity for a particular interconnector.

The actual interconnector capacity, that is the achievable transfers at any point in time, may therefore differ from the nominal.

Care must be taken when reading the values in the tables in this document as the nominal capacity can be affected by adjacent transmission capability, peak loads, nearby generator outputs and availability of load or generation for control schemes. The issues affecting nominal capacity are detailed in the text following the table of nominal capacity.

1.1 Other AEMO publications

For actual interconnector capacity under system normal or outage conditions, AEMO also publishes information in:

- The MMS Data Model[1]. For each interconnector, the current values and constraint equations setting the limit are indicated in the DispatchInterconnectorRes table.
- The Monthly Constraint Report[2]. This report summarises the top ten constraint equations that set interconnector limits for the month.
- The Annual NEM Constraint Report[3]. This report analyses interconnector flow and binding level patterns for the calendar year

Together with the above references, this document satisfies the reporting requirements for National Electricity Rule clause 3.13.3(p).

[1] Available at: https://www.aemo.com.au/energy-systems/market-it-systems/nem-guides/wholesale-it-systems-software. Viewed on: 26 April 2024

[2] AEMO. *Monthly Constraint Report.* Available at: https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource/statistical-reporting-streams. Viewed on: 26 April 2024.

[3] AEMO, *Annual NEM Constraint Report*. Available at: https://www.aemo.com.au/energy-systems/electricity/national-electricity-market-nem/system-operations/congestion-information-resource/statistical-reporting-streams. Viewed on: 26 April 2024.

2 Interconnector Capabilities

2.1 Terranora Interconnector (N-Q-MNSP1)

The Terranora Interconnector is defined as the flow across the two 110 kV lines from Mudgeeraba in Queensland to Terranora in New South Wales.

Terranora is connected to the rest of the electricity network in New South Wales via the direct current (DC) link known as Directlink. This was commissioned in 2000 and formed the first transmission connection between New South Wales and Queensland. Directlink has three pairs of bipolar DC transmission cables. Each pair has a 60 MW maximum capacity, giving Directlink a total rating of 180 MW. Due to local load connected around Terranora, the nominal capacity of Terranora differs from that of Directlink shown in the table below.

Table 1 Terranora Interconnector nominal capacity

From	To	Nominal Capacity
NSW	Queensland	107 MW
Queensland	NSW	210 MW

The Terranora Interconnector is usually constrained by thermal limits in northern New South Wales (such as constraint equation N>N-NIL_LSDU) or the maximum rate of change on Directlink (NQTE_ROC and QNTE_ROC).

2.2 Queensland to New South Wales Interconnector

The Queensland to New South Wales Interconnector (QNI) is defined as the flows across the two 330 kV lines between Dumaresq in New South Wales and Bulli Creek in Queensland. The alternating current (AC) interconnection between New South Wales and Queensland was commissioned in 2001 and consisted of:

- A new double-circuit 330 kV line between Armidale, Dumaresq, Bulli Creek and Braemar.
- A new double-circuit 275 kV line between Braemar and Tarong.
- Two 330/275 kV transformers at Braemar.

Since 2001, a number of generators (Millmerran, Braemar gas turbines and Kogan Creek) and transmission lines have been commissioned in south-west Queensland and connected to these new 275 or 330 kV lines. In 2018 the Sapphire wind farm was connected into a new substation on the Armidale to Dumaresq (8E) line.

In 2022 Transgrid and Powerlink commissioned an upgrade, called QNI minor, which consisted of:

- Uprating the Liddell to Muswellbrook (83), Liddell to Tamworth (84) and Muswellbrook to Tamworth (88) 330 kV lines
- Installation of SVCs at Dumaresq and Tamworth
- Installation of shunt capacitors at Armidale, Dumaresq and Tamworth

This upgrade is expected to increase QNI maximum transfer capacity to 1450 MW (NSW to QLD) and 950 MW (QLD to NSW) and is currently undergoing inter-network testing.

Table 2 QNI Interconnector nominal capacity

From	To	Nominal Capacity
NSW	Queensland	850 MW
Queensland	NSW	1300 MW

The transfer from New South Wales to Queensland is mainly limited by:

- Thermal overload limits on Bayswater to Liddell 330kV lines (N>>NIL_33_34)

Transfer from Queensland to New South Wales is mainly limited by:

- Voltage collapse for trip of Sapphire - Armidale (8E) 330 kV line (Q^^N_NIL_SRAR).
- Thermal overload limits on:
    - Port Macquarie to Herron Creek Tee (964/2) 132kV lines (N>>NIL_964_84_S)
    - Tamworth to Liddell (84) 330kV line (N>>NIL_84_88_S)
    - Tamworth to Muswellbrook (88) 330kV line (N>>NIL_88_84_S)

2.2.1 Historical limitations

Before July 2013, transfers could be limited by the oscillatory stability limit of 1,078 MW (Q:N_NIL_OSC). On 25 July 2013, this oscillatory stability limit was increased to 1,200 MW so it no longer limits transfers. The limit relies on the availability of Phasorpoint equipment. (This software determines if there is oscillatory stability in real time.) When Phasorpoint is out of service, the oscillatory stability limit is reduced to 1078 MW.

Prior to the QNI minor upgrade in 2022 transfer from New South Wales to Queensland were mainly limited by:

- Voltage collapse on loss of the largest Queensland unit (N^^Q_NIL_B1, 2, 3, 4, 5, 6 & N^Q_NIL_B).
- Voltage collapse for trip of the Liddell to Muswellbrook (83) 330 kV line (N^Q_NIL_A).

Transfers from Queensland to New South Wales were mainly limited by:

- Voltage collapse for a trip of Armidale to Sapphire (8E) 330 kV line (Q^^NIL_QNI_SRAR)
- Transient stability limit for fault on either a Bulli Creek to Dumaresq or an Armidale to Dumaresq line (Q:N_NIL_AR_2L-G).

2.3 Victoria to New South Wales (VIC1-NSW1)

The Victoria to New South Wales interconnector is defined as the flow across:

- The 330 kV line between Murray and Upper Tumut (65).
- The 330 kV line between Murray and Lower Tumut (66).

- The 330 kV line between Jindera and Wodonga (060).
- The 220 kV line between Buronga and Red Cliffs (0X1).
- The 132 kV bus tie at Guthega (which is normally open).

This interconnector came into operation on 1 July 2008 as part of the Snowy region abolition and replaced the previous "SNOWY1" and "V-SN" interconnectors[4]. The interconnection between NSW and Victoria was commissioned at the same time as the Snowy Hydro scheme. The Wodonga and Buronga lines were added later as a part of strengthening the electricity supply to western NSW and north-west Victoria.

In March 2023 Ausnet and Transgrid commissioned an upgrade, known as VNI Minor, which consisted of:

- a second 500/330 kV transformer at South Morang.
- re-tensioning the Dederang to South Morang 330 kV lines to increase the thermal rating.
- installation of modular power flow controllers on the Stockdill to Upper Tumut (1) and Ravine to Yass (2) 330 kV lines.

Table 3 VIC1-NSW1 Interconnector nominal capacity

From	To	Nominal Capacity
Victoria	NSW	400 to 1700 MW
NSW	Victoria	400 to 1450 MW

The nominal capacity of VIC1-NSW1 is highly dependent on the output of Murray generators (for New South Wales to Victoria) and Lower/Upper Tumut generators (for Victoria to New South Wales). VIC1–NSW1 can bind in either direction for high demand in New South Wales or Victoria.

Transfer from Victoria to New South Wales is mainly limited by:

- Voltage collapse for trip of a 220kV line in north-west Victoria (N^^N_NIL_X5_BEKG and N^^N_NIL_X5_BESH)
- Voltage collapse for the trip of both APD potlines (V^^N_NIL_1)
- Thermal overload limits on:
    - Burrinjuck to Yass 132 kV line (N>>NIL_970_051)
    - Yass 330/132 kV transformers (N>>NIL_YSTX_051)
    - Wagga to Yass 132 kV line (N>>NIL_990_051)
- Transient stability limit for a fault and trip of a Hazelwood to South Morang line (V::N_NILxxx).

Transfer from New South Wales to Victoria is mainly limited by:

- Voltage collapse for loss of the largest Victorian generator or Basslink (N^^V_NIL_1) or loss of generation in north-west Victoria (N^^V_NIL_ARWBBA).
- Thermal overload limits on the Elaine to Moorabool 220 kV line (V>>NIL_ELML_BAML2)

[4] The present Victoria to New South Wales interconnector is equal to the previous V-SN interconnector, plus or minus the output of Murray Power Station, for northwards or southwards flow respectively.

- Thermal overload limits on the Buronga to Red Cliffs line (N>>V_NIL_0X1_60)

2.3.1 Historical limitations

Prior to VNI minor the transfer from Victoria to New South Wales was mainly limited by:

- Thermal overload limits on:
    - South Morang F2 transformer (V>>V_NIL_2A_R, V>>V_NIL_2B_R & V>>V_NIL_2_P).
    - South Morang to Dederang 330 kV line (V>>V_NIL1A_R).

Prior to VNI minor the transfer from New South Wales to Victoria was mainly limited by:

- Thermal overload limits on the Murray to Dederang 330 kV lines (V>>V_NIL_1A & V>>V_NIL_1B).

2.3.2 Proposed Augmentations

AEMO and TransGrid are jointly investigating several options to increase the Victoria to NSW interconnector transfers:

- New transmission options (called VNI West) to further increase capacity in the medium term[5].
- Transgrid is also investigating options (HumeLink) to increase the capacity of the southern NSW network[6].

2.4 Basslink (T-V-MNSP1)

Basslink is defined as the flow across the DC cable between George Town in Tasmania and Loy Yang in Victoria. It was commissioned in early 2006 after Tasmania joined the NEM. The commissioning included the undersea DC cable, converter stations and several control schemes in Tasmania. Unlike the other DC lines in the NEM, Basslink has a frequency controller and is able to transfer frequency control ancillary services (FCAS) between Victoria and Tasmania.

Table 4 Basslink nominal capacity

From	To	Nominal Capacity
Tasmania	Victoria	594 MW
Victoria	Tasmania	478 MW

Most of the limitations on Basslink transfers (in both directions of flow) are due to FCAS constraint equations for both mainland and Tasmanian contingency events. The capacity values in Table 4 can be reduced when there is reduced load or generation available for tripping via the frequency control special protection scheme (FCSPS) in Tasmania (T_V_NIL_FCSPS, V_T_NIL_FCSPS).

Basslink has a maximum capability for flows from Tasmania to Victoria transfers is 594 MW (measured at the Loy Yang end). Transfers are mainly limited by:

[5] AEMO, *Victoria to NSW Interconnector West RIT-T,* https://www.aemo.com.au/initiatives/major-programs/western-victorian-regulatory-investment-test-for-transmission. Viewed on 27 March 2024.

[6] Transgrid, *HumeLink RI-T*, https://www.transgrid.com.au/projects-innovation/humelink. Viewed on 27 March 2024.

- low fault level management at George Town to avoid low reactive margin at George Town (T^V_NIL_9)

The maximum capability of Basslink for flows from Victoria to Tasmania is 478MW (measured at George Town). Transfers are mainly limited by the transient stability limit for a fault and trip of a Hazelwood to South Morang line (V::N_NILxxx).

For the last several years Basslink has often operated below the Nominal Capacity listed in Table 4, to manage thermal loading of the undersea DC cable.

A new Basslink Cable Loading Prediction System (CLPS) is planned for service by mid-2024. This is expected to allow operation up to the Nominal Capacity listed above, subject to suitable pre-loading conditions on the cable.

2.4.1 Historical limitations

Prior to the VNI minor in the transfer from Tasmania to Victoria was mainly limited by:

- Thermal overload limits on South Morang F2 transformer (V>>V_NIL_2A_R, V>>V_NIL_2B_R & V>>V_NIL_2_P).

2.5 Heywood Interconnector (V-SA)

The Victoria to South Australia interconnector (Heywood Interconnector) is defined as the flow across the 275 kV lines between Heywood substation in Victoria and South East substation in South Australia (SA). This interconnector was originally commissioned in 1989 as a connection from the western 500 kV network in Victoria (at Heywood near the Portland smelters) to the nearest 275 kV substation at Para, South Australia. It includes a number of connections to the parallel 132 kV network in south-eastern South Australia.

In 2015/16 the Heywood Interconnector was upgraded[7] to include a third transformer at Heywood, series capacitors at Black Range and de-energising 132 kV lines between Snuggery, Keith and Tailem Bend. The nominal design limit is up to 650 MW in either direction of flow. To realise this capacity, AEMO, AEMO Victorian Planning and ElectraNet must complete an inter-network testing program[8] to verify stability limits. Testing has been completed to verify stability under certain conditions for 600 MW flow from Victoria to SA and 550 MW flow from SA to Victoria. The testing limits[9] remain in place due to:

- Victoria to SA – following the SA black system[10] and identification of potential stability issues above 600 MW, AEMO and ElectraNet are working on reviewing the transfer limits.
- SA to Victoria depends on certain operating conditions and completion of the test program.

[7] AEMO, Heywood Interconnector RIT-T. Available at: http://www.aemo.com.au/Electricity/National-Electricity-Market-NEM/Planning-and-forecasting/Victorian-transmission-network-service-provider-role/Regulatory-investment-tests-for-transmission. Viewed on: 26 April 2024.

[8] Published inter-network test program for Heywood interconnector - https://aemo.com.au/-/media/archive/files/electricity/consultations/2015/hyts-interconnector-upgrade-internetwork.pdf Viewed on: 26 April 2024

[9] AEMO. Update to inter-network testing and transfer limit – Heywood interconnector. Available at: http://www.aemo.com.au/Market-Notices?currentFilter=&sortOrder=&searchString=56893. Viewed on: 26 April 2024.

[10] AEMO. Black System South Australia – Final Integrated Report. Available at: http://www.aemo.com.au/-/media/Files/Electricity/NEM/Market_Notices_and_Events/Power_System_Incident_Reports/2017/Integrated-Final-Report-SA-Black-System-28-September-2016.pdf. Viewed on: 26 April 2024.

Table 5 Heywood Interconnector nominal capacity

From	To	Nominal Capacity
Victoria	South Australia	600 MW
South Australia	Victoria	550 MW

The maximum transfer on Heywood from Victoria to South Australia is 600 MW. This is the current testing limit. Transfers can be limited lower than this due to:

- Transient stability for loss of the largest South Australian generator (V::S_NIL_MAXG_xxx) or loss of a South East to Tailem Bend 275 kV line (V::S_NIL_TBSE_xxx).
- Limiting rate of change of frequency to 3 Hz/second for loss of both Heywood to South East 275 kV lines (V_S_NIL_ROCOF).
- Low under-frequency load shedding available for loss of both Heywood to South East 275 kV lines (V_S_HEYWOOD_UFLS)
- Transient stability for fault and trip of a Hazelwood to South Morang 500 kV line (V::N_NILxxx).

South Australia to Victoria transfers on Heywood have an upper limit of 550 MW (current testing limit). Lower transfer levels are due to:

- Voltage collapse for loss of Haunted Gully to Moorabool 500kV line and both APD potlines (V^^V_NIL_SWVIC)

The combined Heywood and Murraylink limit from South Australia to Victoria was increased to 580 MW in January 2011. This limit is based on oscillatory stability and relies on the availability of Phasorpoint equipment, which monitors power system oscillatory stability in real time. When Phasorpoint is out of service, the total transfer on both interconnectors is limited to 420 MW.

2.5.1 Destructive wind limits

In 2019, a South Australia protected event was declared[11] to manage "The loss of multiple transmission elements causing generation disconnection in the South Australia region during periods where destructive wind conditions are forecast by the Bureau of Meteorology". To mitigate the risk that generation disconnection during destructive wind conditions causes the Heywood interconnector to trip (islanding South Australia from the NEM), the South Australia protected event required AEMO to apply a pre-contingent import limit of 250 MW import (Victoria to South Australia) on the Heywood Interconnector during forecast destructive wind conditions.

The Reliability Panel revoked the South Australia protected event[12] (in response to AEMO's request) in 2023 as:

- The Panel was satisfied that the revised contingency reclassification framework would be sufficient for AEMO to manage the risks to the security of the power system, in the absence of the protected event.

[11] Full details of the declaration of the South Australia protected event can be found here - https://www.aemc.gov.au/sites/default/files/2019-06/Final%20determination%20-%20AEMO%20request%20for%20declaration%20of%20protected%20event.pdf Viewed on 26 April 2024

[12] The Reliability Panel's final determination on AEMO's request to revoke the South Australia protected event can be found here - https://www.aemc.gov.au/sites/default/files/2023-09/REL0088%20-%20Final%20Determination%20-%20Revoking%20the%20SA%20protected%20event.pdf Viewed on: 26 April 2024

- This would allow AEMO to adapt its operational arrangements to reflect the changing technical envelope of the power system following the connection of PEC Stage 1.
- This would avoid excessive costs associated with the application of constraints that are beyond what is necessary to maintain the system in a secure operating state when PEC Stage 1 is in service.
- This would provide AEMO with increased flexibility in meeting future operational arrangements.

As outlined in the Reliability Panel's final determination, AEMO will continue to manage future operational risk of destructive wind conditions through the contingency reclassification framework[13]. As such, AEMO will continue to limit the Heywood Interconnector transfer during destructive wind conditions to a maximum of 250 MW import (Victoria to South Australia) under the contingency reclassification framework. This limit be reviewed by AEMO following PEC Stage 1 commissioning and inter-network testing[14].

2.5.2 Historical limitations

Prior to the VNI minor augmentation the transfer from South Australia to Victoria was mainly limited by:

- Thermal overload limits on South Morang F2 transformer (V>>V_NIL_2A_R, V>>V_NIL_2B_R & V>>V_NIL_2_P).

Before 2015, the maximum transfer on Heywood from Victoria to South Australia was 460 MW, this was due to the thermal rating on a Heywood 500/275 kV transformer. Transfers could be limited to lower values due to:

- Thermal overloads on the Snuggery to Keith 132 kV line.
- Voltage collapse limit for loss of the largest South Australian generator.

In March 2010, the limit from South Australia to Victoria on Heywood was increased from 300 MW (an oscillatory stability limit) to 460 MW. The 460 MW limit is due to the thermal rating on a Heywood 500/275 kV transformer (S>V_NIL_HYTX_HYTX).

2.6 Murraylink (V-S-MNSP1)

Murraylink is defined as the flow across the DC cable between Red Cliffs in Victoria and Monash in South Australia. It is a 220 MW DC cable that was commissioned in 2002. Runback schemes in South Australia and Victoria were commissioned along with Murraylink, and these handle many of the thermal issues in the Riverland of South Australia and western Victorian 220 kV.

In 2016/17 ElectraNet increased the thermal capacity of Robertstown to North West Bend No. 2 and North West Bend to Monash No. 2 132 kV lines.

[13] AEMC, SA protected event revocation. Available at https://www.aemc.gov.au/market-reviews-advice/revoking-south-australian-protected-event. Viewed on: 26 April 2024.

[14] AEMO, 2024 GPSRR Approach Paper. Available at: https://aemo.com.au/-/media/files/stakeholder_consultation/consultations/nem-consultations/2023/2024-gpsrr/final-document/2024-gpsrr-approach-paper---final.pdf?la=en. Viewed on: 26 April 2024.

Table 6 Murraylink nominal capacity

From	To	Nominal Capacity at the receiving end
Victoria	South Australia	220 MW
South Australia	Victoria	200 MW

Transfers from Victoria to South Australia on Murraylink are mainly limited by:

- Thermal overloads on:
    - Monash to North West Bend #2 132kV line (S>NIL_MHNW1_MHNW2).
    - North West Bend to Robertstown #1 132kV line (S>NIL_NWRB2_NWRB1).
- Voltage collapse for loss of the Darlington Point to Buronga (X5) 220 kV line for an outage of the NSW Murraylink runback scheme (V^SML_NSWRB_2[15]).

2.6.1 Historical Limitations

Prior to the VNI minor augmentation the transfer from South Australia to Victoria was mainly limited by:

- Thermal overload limits on South Morang F2 transformer (V>>V_NIL_2A_R, V>>V_NIL_2B_R & V>>V_NIL_2_P).

ElectraNet has upgraded the Robertstown to North West Bend 132 kV linewhich has reduced the binding hours for constraint equation S>V_NIL_NIL_RBNW. The upgrades included:

- Increase thermal capacities of Robertstown to North West Bend No. 2 and North West Bend to Monash No. 2 132 kV lines. This is part of ElectraNet's Network Capability Incentive Parameter Action Plan[16] approved by the AER in May 2015. The work is scheduled for the year 2016-17.
- In addition to the thermal upgrade, ElectraNet is looking to introduce dynamic line rating of both Robertstown to North West Bend 132 kV lines. This may at times increase the interconnector capability.

3 Future Interconnectors

3.1 Project Energy Connect

Project Energy Connect (PEC) is a new interconnector between NSW and South Australia[17] currently under construction. PEC will be delivered in two stages.

[15] The NSW Murraylink runback scheme has not yet been commissioned so this constraint equation is currently part of the Victorian system normal constraint set. See further Section 2.6.1.

[16] ElectraNet SA, Network Capability Incentive Parameter Action Plan, Available at: https://www.electranet.com.au/wp-content/uploads/resource/2016/06/20150327-Report-NetworkCapabilityIncentiveParameterActionPlan.pdf. Viewed on 26 April 2024

[17] Electranet, Project Energy Connect, https://www.electranet.com.au/projects/project-energyconnect/, Viewed on 26 April 2024.

This interconnector will consist of:

- New double-circuit 275kV lines between Bundey and Robertstown
- New substation at Bundey in South Australia
- New double-circuit 330 kV lines between Bundey and Buronga in NSW, Buronga and Dinawan and Dinawan and Wagga Wagga
- Replacing the single 220 kV line between Buronga and Red Cliffs with a new double-circuit 220kV line
- Five Phase-Shifting transformers at Buronga
- Two synchronous condensers at Buronga
- Transformers and reactive plant

Stage 1 (both 275kV lines from Bundey to Robertstown, a single circuit from Bundey to Buronga, a one phase shifting transformer and the lines from Buronga to Red Cliffs) is planned for completion in late 2024 with the Stage 2 following in 2026.

PEC stage 1 will have a nominal capacity of 150 MW. PEC stage 2 will have a nominal capacity of 800 MW in both directions. It will also increase the Heywood interconnector to 750 MW in both directions and will reduce the congestion on the lines (on both sides) to Murraylink.

Transfers on PEC stage 1 (in both directions) will be limited by the thermal overload on the Buronga phase shifting transformer for loss of Murraylink.

3.2 MarinusLink

Tas Networks has proposed a second DC interconnector between Victoria and Tasmania called Marinus Link[18]. This proposal would be built in two stages:

- Stage 1 – a 750 MW HVDC link with a planned commissioning date of 2028 and the following network changes in Tasmania:
    - a HVDC link between Heybridge, near Burnie in Tasmania, and either Driffield or Hazelwood in Victoria
    - a double-circuit 220 kV line from Burnie to Sheffield and decommissioning the existing single circuit 220 kV line
    - a double circuit 220 kV line from Palmerston to Sheffield, replacing the existing single circuit line
    - a new switching station at Staverton – cut into existing 220 kV lines between Sheffield and the hydro generators at Cethana, Wilmot, Lemonthyme and Fisher.
    - a double circuit 220 kV line from Staverton to Burnie via Hampshire
- Stage 2 – a second 750 MW HVDC link with a notional commissioning date of 2032

[18] Tas Networks, Marinus Link RIT-T. Available at: https://www.marinuslink.com.au/rit-t-process/. Viewed on: 24 April 2024

Glossary

This document uses many terms that have meanings defined in the National Electricity Rules (NER). The NER meanings are adopted unless otherwise specified.

Term	Definition
AC	Alternating Current
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
Constraint equation	These are the mathematical representations that AEMO uses to model power system limitations and FCAS requirements in the National Electricity Market Dispatch Engine (NEMDE).
DC	Direct Current
FCAS	Frequency Control Ancillary Services
GPSRR	General Power System Risk Report published by AEMO.
NEM	National Electricity Market
Phasorpoint	Application that analyses the PMU data to monitor oscillatory stability in real-time.
PMU	Phasor measurement unit. (Used by AEMO to monitor the oscillatory stability in the NEM.)
RIT-T	Regulatory investments tests for transmission.
System normal	The configuration of the power system where: • All transmission elements are in service, or • The network is operating in its normal network configuration.