

Project EnergyConnect Connections

November 2023

Introduction

Project EnergyConnect (PEC), the new electricity interconnector between South Australia and New South Wales, also including a connection to North-West Victoria, is a highly anticipated infrastructure addition to the National Energy Market (NEM).

PEC is being delivered by Transmission Network Service Providers (TNSPs) ElectraNet in South Australia and Transgrid in New South Wales, and by AusNet Services in Victoria¹.

The project has secured final regulatory approval and financial commitments from all TNSPs. Updates are shared regularly by ElectraNet and Transgrid on the Project EnergyConnect website². Physical on-the-ground construction commenced in South Australia in February 2022 and New South Wales in May 2022.

The connection to North-West Victoria obtained the required development and environmental approvals in June 2023, and physical on-the-ground construction commenced in August 2023.

We are aware of the significant interest in PEC among potential renewable energy and storage proponents keen to take advantage of the increased transmission capacity that will be enabled by the interconnection.

So, what do you need to know?

If you are a proponent interested in connecting to PEC, in many cases the connection process will be similar to current processes for connection to the transmission network. However, proponents interested in connecting to certain sections of PEC in NSW will need to take into account access arrangements relating to the South-West Renewable Energy Zone. You can read more about these access arrangements below.

Now that PEC has reached “Considered Project” status, new Connection Enquiries (including direct cut-ins to PEC) can be formally lodged and progressed, subject to information available at the time – to submit a connection enquiry within South Australia please follow ElectraNet’s defined [connection process](#) and for connection enquiries in NSW please follow Transgrid’s defined connection process.

¹ AusNet Services are delivering the connection to Red Cliffs Terminal Station, Transgrid is delivering the transmission line from Buronga Substation to Red Cliffs Terminal Station

² <https://www.projectenergyconnect.com.au/>

Considered Project – what is it?

This is the term under the National Electricity Rules (NER) which greenlights an infrastructure project as an approved addition to the National Electricity Market (NEM).

To be classed as a Considered Project, the following conditions must be met:

- + necessary land and easements have to be acquired;
- + all necessary planning and development approvals have to be obtained;
- + the project has passed the Regulatory Investment Test for Transmission (RIT-T); and
- + construction has either commenced or a firm date is set for it to commence.

There are several key milestones in relation to PEC that must be met before your connection can be progressed from Connection Enquiry to Connection Application, and to commencement of construction and commissioning of the proposed facility.

Principally, the PEC project design must be completed before load flow and other dynamic simulations can be undertaken in relation to a proponent's project. PEC consists of several components, and for some of these the detailed design is still ongoing. As such, the maturity of the modelling information available for PEC is still under development.

As a proponent, you need this modelling and information to prepare a formal Connection Application. Further information on the phased approach to progressing connections to PEC, including key pre-requisites for connection application submission, application approval, registration and commissioning is available on the [Project EnergyConnect website](#). This includes a status tracker of current progress, and expected timeframe, for the connection application submission pre-requisites being fulfilled and will be updated as pre-requisites are fulfilled for each key connection stage.

What if I want to connect to the existing ElectraNet or Transgrid networks before PEC is constructed and fully operational?

Both ElectraNet and Transgrid will continue to accept Connection Enquiries and Connection Applications for generation and load connection projects to their respective existing transmission networks.

Now that PEC has achieved Considered Project status, all Connection Applicants will need to explicitly take PEC into consideration in their Connection Applications. PEC models have reached

sufficient maturity to be used for planning purposes. PEC models are now available to proponents via the AEMO Data Request³ process.

Why do connections to PEC have to wait?

We want to see this landmark infrastructure project of some 900 km in length across three states constructed and commissioned as soon as possible. However, completion of construction, energisation and commissioning is expected to take until the end of 2024. Full transfer capability will follow successful inter-network testing.

Connections to PEC must follow the same process as any other connection project to high voltage transmission networks. Detailed modelling and associated information must be complete before this occurs.

When can a new cut-in connection along PEC happen?

The primary purpose of PEC is to increase transfer capability between NEM regions. While Connection Enquiries for proposed connections directly to PEC (cut-ins) can be lodged and processed utilising available information, connections can only be physically facilitated once 500 MW of transfer capacity has been released across PEC. This is expected to be well into 2025.

A South Australian Interconnector Trip Remedial Action Scheme (SAIT RAS) is being developed to cater for a non-credible trip of either the PEC interconnector or the Heywood interconnector under high power transfer conditions to prevent separation of South Australia from the NEM. Any cut-in along PEC will likely require a significant amount of analysis and consequential redesign of the SAIT RAS.

NSW South-West Renewable Energy Zone Access Arrangements

Connection proponents should note that Transgrid's response to a Connection Enquiry regarding connection to PEC network infrastructure will need to consider the access arrangements for the South-West Renewable Energy Zone (SW REZ), which may affect a proponent's ability to connect to PEC network infrastructure in NSW. Connection Applicants should familiarise themselves with the regulatory and access arrangements for the SW REZ.

³ <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/data-nem/network-data/policy-on-provision-of-network-data>

Further information can be found on the EnergyCo Renewable Energy Zones website⁴.

Proposed connections to Buronga substation, Dinawan substation or PEC transmission lines within the SW REZ

Connection proponents should note that these proposed connection points into existing, planned or new Transgrid network infrastructure located within the SW REZ geographic area that has been declared by the NSW Government may be impacted by REZ regulatory changes.

Currently, the 'open access' principles under the National Electricity Rules apply to this Transgrid network infrastructure and projects may submit a Connection Enquiry. Depending on the terms of the REZ access scheme declaration that applies to the SW REZ, EnergyCo, as the Infrastructure Planner for this REZ, may be given powers to control connections to Transgrid's existing, planned or new transmission infrastructure specified in the final REZ declaration. EnergyCo is currently consulting on a draft access scheme that is open to submissions from 2 March to 15 May 2023. There is the possibility that once the access scheme is approved by the NSW Minister for Energy, it is likely to disapply 'open access' to the part of PEC that is east of and including Buronga and within the SW REZ.

Proposed connections to PEC transmission lines outside the SW REZ

Connection proponents should note that these proposed connection points into planned or new Transgrid network infrastructure located outside the SW REZ geographic area that has been declared by the NSW Government may be impacted by REZ regulatory changes.

Currently, the 'open access' principles under the National Electricity Rules apply to this Transgrid network infrastructure and projects may submit a Connection Enquiry. Depending on the terms of the REZ access scheme declaration that applies to the SW REZ, EnergyCo, as the Infrastructure Planner for this REZ, may be given powers to control connections to existing, planned and new transmission infrastructure specified in the final REZ declaration, which may include PEC network infrastructure located outside the SW REZ. EnergyCo is currently consulting on a draft access scheme that is open to submissions from 2 March to 15 May 2023. There is the possibility that once the access scheme is approved by the NSW Minister for Energy, it is likely to disapply 'open access' to the part of PEC that is east of and including Buronga and outside the SW REZ.

What can happen now?

New Connection Enquiries (including direct cut-ins to PEC) can be formally lodged and progressed with both ElectraNet and Transgrid.

⁴ <https://www.energyco.nsw.gov.au/sw-rez>

PEC models have reached sufficient maturity to be used for planning purposes. PEC models are now available to proponents via the AEMO Data Request⁵ process.

Register your interest with either ElectraNet or Transgrid for more information and updates and engage with the relevant connection teams.

Project EnergyConnect – key facts

- + 330 kV double-circuit line from proposed Bunday Substation, north of Adelaide, to new substation (Dinawan), located between Coleambally and Jerilderie in New South Wales, via the existing Buronga Substation. The 330 kV double-circuit line will continue from Dinawan substation through to existing Wagga Wagga Substation, in New South Wales (Note this line will be built with a line rating of 500 kV but initially operated at 330 kV, until full 500 kV capability is built at substation receiving ends – separate to PEC).
- + New 220 kV double circuit connection from existing Buronga Substation in New South Wales to existing Red Cliffs Substation, in north-west Victoria (replacing existing connection).
- + Existing substations will be expanded and/or augmented for the new PEC transmission lines.
- + Approximately 210 km in South Australia, 690 km in New South Wales and 1.4 km in Victoria
- + Eventual transfer capacity of 800 MW under favourable operating conditions.
- + PEC will provide the first direct connection between SA and NSW, enabling sharing of renewable generation between the two states and increasing system security.
- + When combined with the Heywood Interconnector, a fully tested PEC will import 1300 MW into South Australia and export 1450 MW to New South Wales and Victoria.
- + It will also reduce system strength limitations around Buronga and Red Cliffs

⁵ <https://aemo.com.au/en/energy-systems/electricity/national-electricity-market-nem/data-nem/network-data/policy-on-provision-of-network-data>

