System strength project

Frequently Asked Questions

Who are Transgrid?

Transgrid owns and operates the high voltage transmission network in NSW and the ACT, with connections to Victoria and Queensland. Our network currently consists of over 13,000 km of high voltage transmission wires and 128 substations.

Transgrid is responsible for ensuring sufficient system strength services are available to maintain the stability of the NSW power system.

We are leading the transition to Australia's clean energy future. The traditional coal system that served our country for decades is nearing the end of its life, to be replaced by wind and solar generation.

Further information is available on our website:

https://www.transgrid.com.au/about-us

What is the 'System Strength Project'?

The 'System Strength Project' has been established in collaboration with the NSW Government to fast-track the deployment of synchronous condensers at five strategic locations on Transgrid's network.

What is a synchronous condenser?

Synchronous condensers have been used to stabilise power systems for more than a hundred years. They are large machines which rotate freely and produce reactive power to stabilise and strengthen a power system. Synchronous condensers provide fault current to the network, helping ensure protection systems can operate correctly. Synchronous condensers are deployed to boost system strength, inertia and voltage support. Synchronous condensers make the network robust to disturbances such as a sudden loss of a generating unit or transmission lines, without other generators or equipment 'tripping' incorrectly.

How do the synchronous condensers connect into the network?

The synchronous condensers operate at 15kV and are connected to the existing 330kV network through a 330kV/15kV transformer at existing Transgrid substations.

What are the project benefits?

The 'System Strength Project' is expected to deliver an additional $1 billion in net market benefits by maintaining a safe and reliable power system and reducing emissions from thermal generators.

When will construction works commence?

Synchronous condenser construction is planned to commence in mid-2026. Progressive energisation of synchronous condensers at the five sites is expected from early 2028 to early 2029.

Who is supplying the synchronous condensers?

Transgrid has engaged GE Vernova to supply the synchronous condensers after successfully completing a global tender process. GE Vernova has supplied dozens of synchronous condensers for customers in the UK, Europe, Australia and North America.

To fast-track delivery, GE Vernova will be deploying two smaller synchronous condensers at each of the five sites, rather than one larger synchronous condenser at each site.

Where are the synchronous condensers going to be installed?

The synchronous condensers will be operating from five existing Transgrid substations.

1. Kemps Creek 500kV substation, off Gurner Avenue, West Hoxton in Western Sydney
2. Newcastle 330kV substation, 101 Killingworth Road, Killingworth
3. Armidale 330kV substation, 452 Waterfall Way, Armidale
4. Wellington 330kV substation Gulgong Rd, Wellington
5. Darlington Point 330kV substation, 336 Donald Ross Drive, Darlington Point.

The NSW Department of Climate Change Energy, Environment and Water (DCCEEW) has deemed the project a Priority Network Infrastructure Project (PNIP). What does that mean?

A Priority Network Infrastructure Project is a project designated under the Electricity Infrastructure Investment Act 2020 that allows the Minister for Energy to fast-track critical network projects. Directing a project gives the state more control over how and when a project is delivered and helps streamline the cost recovery process.

What environmental assessment and approval pathway is required to approve the project?

The project's approval is being self-determined by Transgrid under Part 5, Division 5.1 of the Environmental Planning and Assessment Act 1979.

A Class 3 Summary Environmental Report (SER) was deemed the appropriate environmental assessment as the project impacts were assessed as minor with most of the work occurring within existing substation sites.

Who is responsible for building and operating the synchronous condensers?

Transgrid is responsible for building and operating the synchronous condensers once they are installed. Transgrid will engage specialist contractors to assist in delivering the project through the planning and construction phase.

Where are the synchronous condensers made? How do they get to the site?

The synchronous condensers will be manufactured in England and delivered by cargo ship to the nearest port. Vehicles will then transport the synchronous condensers to each site. Deliveries of synchronous condensers will comply with state and local road rules for large deliveries to reduce community impacts on the road network.

What specific activities will be carried out as part of this project? Transgrid, with the assistance of its delivery partners, will be installing synchronous condensers at five existing Transgrid substations. Works to enable the delivery and installation of the synchronous condensers will include:

- substation extension works
- earth grid extensions
- concreting
- cable trenching
- constructing the machine hall to house the synchronous condenser
- transformer installation
- reactive plant protection
- system control upgrades
- access road upgrades so construction and heavy vehicles can access sites
- environmental management including vegetation trimming and clearing make way for the synchronous condenser shed to safely house the machinery on flat ground.
- community and worker safety measures
- community consultation to both inform the community and manage/ mitigate community impacts
- minor transmission line augmentation works.

How will the environment be considered and protected during the process?

Transgrid staff and contractors delivering the project will be required to comply with all environmental management conditions outlined in the Summary Environmental Report. As part of these conditions, a Construction Environment Management Plan will detail how the contractor must manage impacts during construction, such as traffic, noise, dust, biosecurity and hours of work.

On each Transgrid project, we ensure our activities and services minimise environmental impacts. We do this to protect communities, to achieve sustainable growth and to comply with legislation.

Protecting the habitats of native species is a key priority.

Transgrid's controlled environmental measures include:

- avoiding clearing vegetation and mature trees where possible
- minimising habitat disturbance
- revegetation with local plants
- providing escape routes for fauna

Will new transmission lines or structures need to be built as part of this project?

The synchronous condensers will be situated within existing Transgrid property with no new infrastructure required outside of substation boundaries.

Would a new easement be needed for the project?

No, there are no plans to establish a new easement or increase the size of an existing easement to allow for the project to proceed.

How is the NSW Government supporting system strength?

The NSW Government has entered into an agreement to support Transgrid's acceleration of its procurement of five synchronous condensers and directed it to deliver them at five of its substation sites across NSW as a Priority Network Infrastructure Project.

Who from the community has Transgrid consulted with in preparing for this project?

Transgrid also supported DCCEEW in consulting with local councils, relevant Ministers and NSW Government departments to seek feedback on the planned installation of the synchronous condensers.

As a landowner, will I be compensated for financial loss from disturbances to land from the project and if it impacts my farm operations?

As synchronous condensers are being installed at existing Transgrid sites, potential impact to neighbouring land is expected to be low. Transgrid will work with neighbouring property owners to minimise impacts.

Transgrid is committed to undertaking repair works of any tracks and watercourses damaged during construction in consultation with the landholder.

If you are an affected landowner, please call our community team on **1800 222 537** or email **network.solutions@transgrid.com.au**

Has Transgrid accounted for possible housing shortages in areas where workers will live during construction?

Transgrid will implement mitigation strategies such as utilising the local workforce where possible. The anticipated number of non-local workers is expected to be less than 50 workers per site.

I am concerned about bio-security risks, pests and diseases. How is this managed?

Accessing property has the potential to spread pests, diseases, weeds and contaminants.

Minimising biosecurity risks is a shared responsibility between Transgrid, our delivery partners, local and state government bodies, industries, landholders and the community.

Transgrid is committed to ensuring the risk of weed and pathogen infestation into agricultural areas is minimised as much as practicable. Transgrid will consult directly with landholders as required prior to the commencement of construction to understand any specific biosecurity risks/issues on the land surrounding the construction site and incorporate any specific mitigation measures into the Construction Environment Management Plan.

We work closely with all these parties to identify the best ways to reduce these risks, like using wash down bays to reduce the chance of our vehicles taking biosecurity risk from one property to another.

Please contact our community team on **1800 222 537** or email **network.solutions@transgrid.com.au** and we will confirm/record your bio-security requirements in our access database.

How will the project protect indigenous cultural heritage and support indigenous employment?

Transgrid's Stretch Reconciliation Action Plan outlines our approach to cultural heritage and can be found at the below link:

https://www.transgrid.com.au/community/cultural-heritage-and-reconciliation/

As part of our project approvals process, Transgrid has written and will execute an Aboriginal Participation Plan. This outlines our commitment to supporting Aboriginal businesses.

Is there any risk of power outages as part of the project works?

Power outages are unlikely to occur during construction of the project. The network will be reconfigured to allow works to proceed and power to be maintained.

I am concerned about a potential increase in Electric and Magnetic Fields (EMF) in my community because of the project. Our EMF fact sheet provides general information on electric and magnetic fields in relation to our network as well as resources for further information.

Go to: **www.transgrid.com.au/media/1nrfxwtf/emf-fact-sheet.pdf**

The Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has advised: "The scientific evidence does not establish that exposure to the electric and magnetic fields found around the home, the office or near powerlines causes health effects."

How do I give my feedback or get further information about the project? Transgrid recognises the vital role that landowners and the community play in the planning and delivery of our projects. We are committed to ensuring all stakeholders can have their say in the development of this project.

We encourage you to:

- share your feedback and ideas via email to **network.solutions@transgrid.com.au**
- call our community team on **1800 222 537**
- visit our webpage for project updates and to subscribe to receive the latest news.

Transgrid