EnergyCo

NSW GOVERNMENT

Energy hubs

New England Renewable Energy Zone

Fact sheet | October 2025

EnergyCo is delivering the New England Renewable Energy Zone (REZ) to provide a clean, affordable and reliable power supply for homes and businesses across NSW. This fact sheet explains energy hubs which are an important part of the new REZ energy network.

Overview

EnergyCo is leading the delivery of a new transmission network in the New England REZ which will help keep the lights on in NSW for decades to come. The REZ will connect renewable energy projects to new transmission lines and energy hubs to distribute electricity across the state.

Artists impression of an energy hub

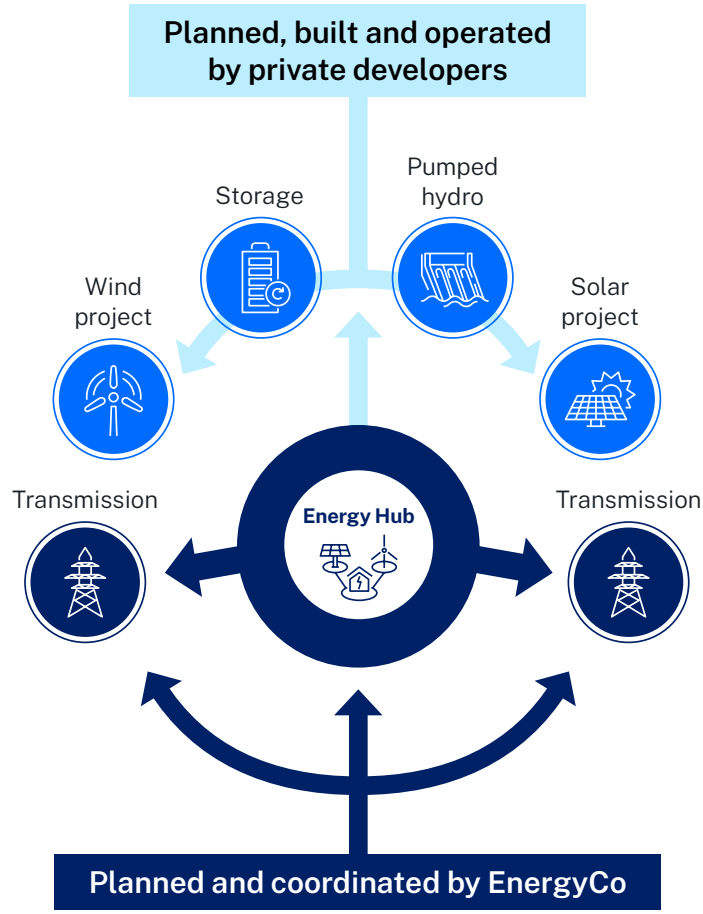
What is an energy hub?

Energy hubs will form an important part of the New England REZ transmission network. They are a type of substation that will act as a connection point between renewable energy projects and the wider REZ transmission network. Energy hubs collect electricity from solar, wind and storage projects and transfer it to the REZ transmission network and onto the NSW grid.

Connecting the REZ to the grid

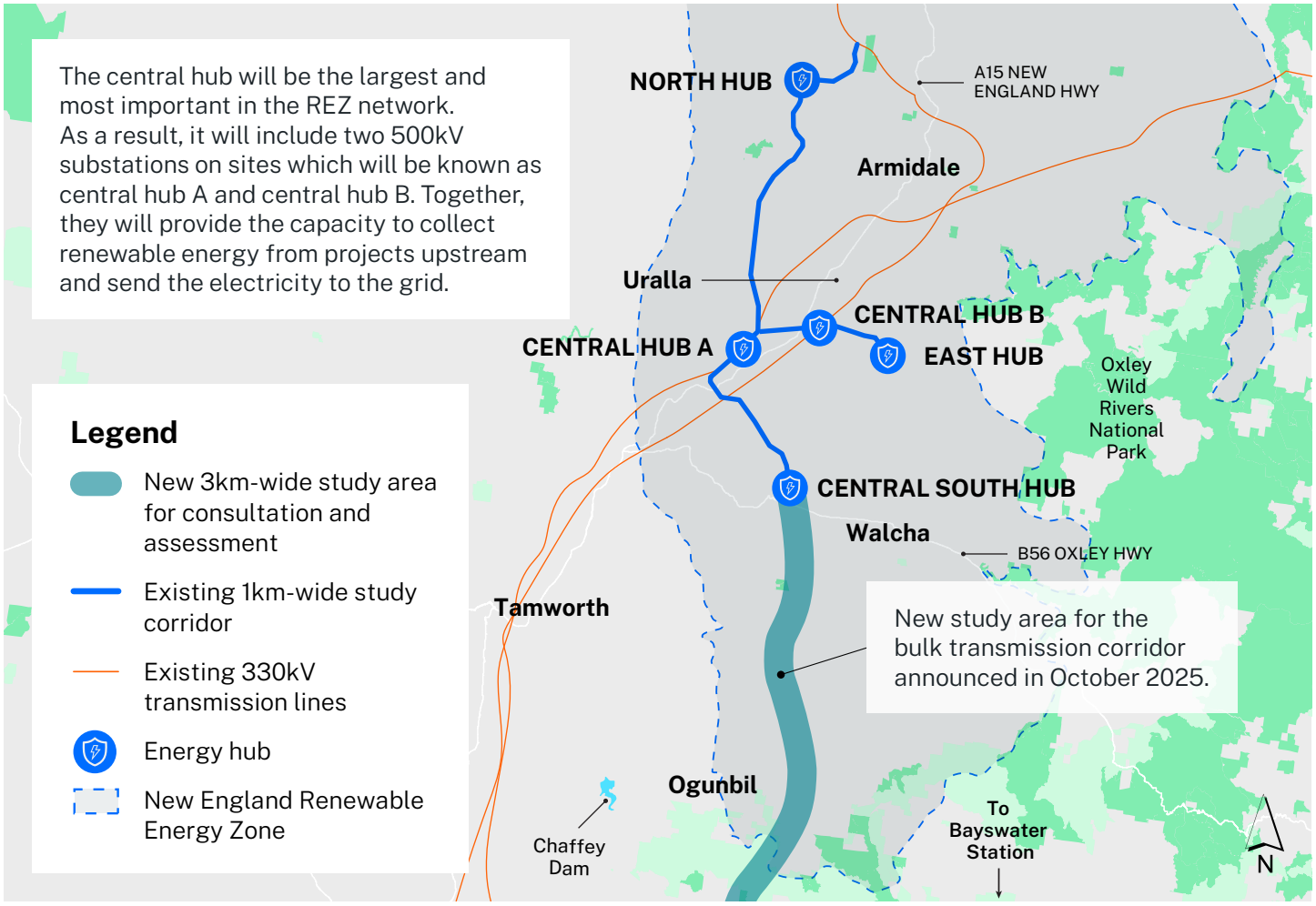
The existing NSW transmission network is operated by Transgrid and designed to distribute energy from existing energy generators which are mostly coal-fired power stations. EnergyCo is the NSW authority and infrastructure planner developing the new REZ transmission network to support our transition to renewable energy as coal-fired power stations retire. EnergyCo and Transgrid are working together to build connections between existing transmission lines and the new network to make sure our new energy system works in the best interests of NSW energy consumers.

Energy hubs in the REZ




Existing 330kV substation in Wollar

Energy hub locations in the REZ



Where will the energy hubs be located?

Energy hubs will be located close to planned major renewable energy projects. Positioning them close to these developments will help provide a central connection point and reduce the distance between generator connection lines and the transmission network. The following energy hubs are proposed for the New England REZ:

- North hub located north-west of Armidale
- Central hubs (A and B) located north of Kentucky
- East hub located south-east of Uralla
- Central south hub located west of Walcha

How will energy flow in the network?

1. Generation and storage projects distribute energy to the hubs.
2. Energy collected at the north and east hubs would join the energy collected at central hub A and B and be increased to 500kV for distribution to the broader network.
3. Energy from central hub A and B would then flow down the new 500kV lines to Bayswater, picking up energy from central south hub along the way.
4. Connections at the central and north hubs would allow additional energy to be collected from Transgrid's network and flow south.
5. Energy from the REZ will reach the existing high voltage network at Bayswater Power Station where it will continue on to NSW homes and businesses.

To view the energy hubs in more detail, visit EnergyCo's interactive map at caportal.com.au/energyco/rez.

Scan to view the map.

Energy hub infrastructure

Energy hub sites typically include:

- **Electrical equipment including synchronous condensers, switchgear and transformers**
- **Small buildings for protection and control equipment**
- **Utilities and infrastructure like stormwater drainage and access roads**
- **Offices and amenities for maintenance staff**
- **Security and safety measures like fencing, closed-circuit television (CCTV) and other systems.**

How much land is needed?

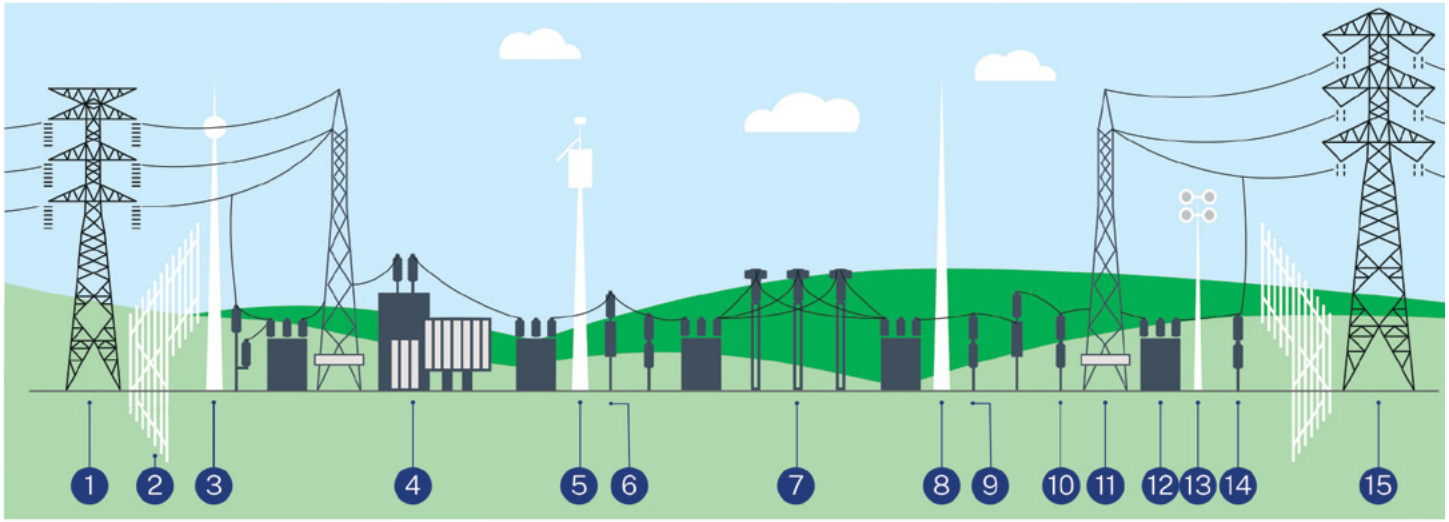
The size of each energy hub will depend on a number of factors, including the location of surrounding renewable energy projects, electrical equipment required for the energy hub and the layout of each site.

Each site will need enough land to house the electrical infrastructure and site facilities as well as a buffer around the perimeter of the site for safety purposes.

Based on preliminary estimates, a 500kV hub may occupy an area of around 75 to 150 hectares, while a 330kV hub may occupy a much smaller area of around 10 to 15 hectares.

This will be confirmed as we carry out further technical and environmental assessments of the hub sites. We will need to acquire private land for the energy hubs and we are working closely with landowners in the study corridor to confirm the extent of land required.

Indicative energy hub arrangement



1. 330kV transmission line tower which supplies renewable energy from solar, wind and storage projects, or provides a link to the existing transmission network
2. Fence
3. Communication tower
4. Power transformer
5. Weather station
6. Current transformer
7. Busbar
8. Lightning mast
9. Circuit breaker
10. Voltage transformer
11. Gantry
12. Line disconnector
13. Light pole
14. Surge arrestor
15. 500kV transmission tower which forms the backbone of the REZ transmission network


Existing substation near Armidale

Living near an energy hub

Once built, energy hubs are generally low impact for neighbouring landowners and residents. There may be restrictions on certain activities above energy hubs and within and nearby to transmission easements which connect to the hubs.

Further information about living and working near transmission easements can be found in our fact sheet at energyco.nsw.gov.au/ne.

Safety and security measures

Energy hubs will have multi-layered security and safety measures in place to protect the safety of people and equipment, and to ensure the reliability of the REZ network. While it is safe to view, pass by or live near an energy hub, it can be very dangerous for a person to enter without the appropriate training and equipment.

Maintenance

Regular maintenance will be carried out at each energy hub, including routine equipment inspections and repair work. Generally, energy sites will not be staffed except during planned maintenance activities. Fault and emergency crews may occasionally attend the energy hubs to respond to unplanned events to make the equipment safe until repairs are completed, or to restore power supply.

Access roads

Access to energy hubs and transmission line easements for operational maintenance would use existing public and private roads and access tracks where possible and be used by heavy and light vehicles. Improvements to existing access tracks and new access tracks (on private land) may be required to provide appropriate access to construction areas and some may be retained for operational maintenance. We will consult with landowners about access requirements for transmission easements and energy hub sites.

Operational noise

Once the New England REZ transmission network is operational, noise emissions from the energy hubs are generally expected to be low.

Energy hubs and switching stations are typically quiet during operation as they act as connection points and not as generators of electricity. Some intermittent noise may occur from equipment such as synchronous condensers, fan units or circuit breaker switches, however these will be subject to detailed assessment and mitigation if required.

Transmission lines can sometimes cause corona noise (a crackling sound). Corona noise is typically only noticeable in wet, misty or humid conditions if you are in close proximity to the lines. During dry conditions, transmission line noise is barely audible to most people.

We are preparing a noise and vibration assessment for the project's environmental impact statement (EIS) which will include detailed assessment of expected noise emissions from the project, as well as measures to help minimise noise impacts for nearby landowners and residents.

Visual impacts

The main visual impacts from the project around energy hubs would be from structures such as transmission towers and substation equipment. Energy hub infrastructure may also emit low-level lighting at night for security, maintenance and emergency lighting.

We will seek to avoid visual impacts of the hubs where possible and implement mitigation measures such as landscape screening at the hubs to minimise impacts. In some locations, we may also investigate additional visual screening for private dwellings in consultation with landowners. This may include vegetation planting where appropriate. Lighting will be designed to minimise obtrusive impacts.

We are preparing a landscape character and visual assessment for the EIS which will include detailed assessment of the visual impacts of the project.

This will include photomontages (photorealistic images) to help demonstrate the expected visual impact of the project.

Generator connections

Transmission lines between energy hubs and generation projects will generally be 330kV and either single or double circuit. Each transmission line will be located within an easement, and agricultural activities can generally continue within an easement. The 330kV transmission line would connect to the generation or storage project at a connection point (switching station) within the developer's project boundary.

For more information about transmission lines and easements, view the living and working around transmission line easements fact sheet on our website at energyco.nsw.gov.au/ne.

The energy hubs aim to help consolidate generator connection lines within the REZ to help minimise impacts to existing land use and the environment. We are working to optimise the placement of the hubs to reduce the overall length of transmission lines required to connect projects to the network.

We are also working with developers to coordinate transmission line connections into the hubs. In addition to the transmission lines connecting the energy hubs, the generator connections will typically result in a number of transmission lines joining at each hub.

We are proposing a model for generator connections where EnergyCo would plan the layout and design of connection lines from projects to energy hubs. EnergyCo would also manage the planning, environmental approvals and land acquisition for these connections, while each developer would pay for and build the connection lines to their projects.

Generator connections would be subject to a separate planning approval process and community consultation. We expect to provide further updates on this work in 2026 and will keep the community updated on opportunities to provide feedback. You can read more about this work in the fact sheet on our website at energyco.nsw.gov.au/ne.

When will the community learn more about the hubs?

We appreciate there is strong interest in the energy hub sites and their potential impacts. As a priority, we are working with directly impacted landowners in the first instance before we share information with the wider community about the hubs.

We are working as quickly as we can to provide further updates.

Detailed assessments of the proposed energy hub sites will be included in an environmental impact statement for the new network, which is planned for public exhibition in the second half of 2026.

About EnergyCo

The Energy Corporation of NSW (EnergyCo) is a statutory authority responsible for leading the delivery of Renewable Energy Zones (REZs) as part of the NSW Government's Electricity Infrastructure Roadmap.

EnergyCo is working closely with communities, investors and industry to deliver the state's first five REZs.

For more information about EnergyCo, visit our website at **energyco.nsw.gov.au/about-energyco**.

Contact us

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