

Field investigations

Central-West Orana Renewable Energy Zone

September 2022

EnergyCo is delivering the Central-West Orana Renewable Energy Zone (REZ) to provide a clean, affordable and reliable power supply for energy consumers across NSW. The REZ will initially unlock at least three gigawatts of new transmission capacity from solar, wind and storage projects within the next decade, which is enough to power 1.4 million homes.

Overview

To enable renewable energy to be exported to electricity consumers across the State, EnergyCo is leading the delivery of new high capacity transmission infrastructure for the Central-West Orana REZ. This includes new energy hubs and overhead transmission lines.

We need to carry out on-site investigations to help inform the design for the transmission route. Field investigations help us better understand local land uses and allow us to confirm environmental conditions and engineering constraints. This is a key step in the project development process.

We will work closely with local landowners and communities to carry out these investigations, as some of the work needs to be carried out on private property.

Land access agreements

Before carrying out any field investigations, we will contact you to seek your permission and explain why we want to access your land. We will provide detailed information about the proposed activities, including duration and working hours, equipment to be used and any temporary impacts.

To confirm your agreement, we will ask you to sign a form allowing EnergyCo and its contractors to enter your property for the purposes of carrying out field investigation work. We will also ask you to outline any special conditions of entry we must adhere to, including biosecurity requirements, hazards to avoid and areas where access is restricted.

Providing access for field investigations is voluntary. You can contact us at any time if you have questions or concerns about access to your land.

Field investigation work

The table below outlines the types of field investigations we may need to carry out for the project.

Activity	Purpose
Ecological surveys	Study flora and fauna species and habitat.
Geotechnical and contamination investigations	Confirm underground rock and soil conditions and if any contaminants are present.
Land surveys	Survey existing ground levels, locations of features and infrastructure, and identify property boundaries.
Hydrological investigations	Assess the storage and flow of water on the land.
Heritage surveys	Locate evidence of Aboriginal and non-Aboriginal artefacts and heritage sites.
Noise monitoring	Measure background noise levels.
Utility investigations	Confirm the location of utilities including water, electricity, gas and telecommunications.

Ecological surveys

Ecological surveys involve studying plants and wildlife within the local environment. Most ecological survey activities are carried out during daytime hours by a small team of between two and four ecologists. This work generally needs to be carried in every season, meaning the team may return multiple times during the course of a year.

This work forms an essential part of our environmental planning process. The data collected will inform the project's Environmental Impact Statement, which is planned to be displayed for public exhibition in 2023.

The types of ecological surveys we need to carry out include:

- **Flora surveys** which involve studying and cataloguing local plant species and vegetation communities. In some cases, small plant samples may be taken for cataloguing purposes.
- **Fauna surveys** which involve studying local wildlife. The survey methodology can vary depending on the species being studied, however they typically involve gathering samples and making visual observations. Fauna studies may sometimes be carried out at night.
- **Aquatic surveys** which are carried out within and along rivers, streams and creeks to identify aquatic life.



Geotechnical and contamination investigations

This work allows us to understand the ground conditions along the transmission corridor. The data collected will inform the design of the foundations for transmission structures and energy hubs, as well as the project's Environmental Impact Statement.

Work typically involves taking soil and rock samples using low impact methods, such as small diameter borehole drilling and test pits. Work times vary according to the methodology, however most testing is completed in one day. There may be some noise associated with these activities.

The work area is usually about 15 metres by 10 metres in size but can vary depending on the local geography.

Boreholes

Boreholes involve drilling a narrow hole into the ground to collect a sample of rock and soil. They are also used to carry out groundwater sampling.

Boreholes are typically carried out using a truck mounted drill rig. The hole is about 10 to 15 centimetres in diameter and generally extends between 10 and 20 metres vertically into the ground. Once complete, the hole is backfilled, capped and covered and the area is restored to its original condition.

Borehole investigations are carried out by a team of around five workers, including a lead driller, drilling hand, engineering geologist, cultural heritage representative and an EnergyCo supervisor.

Test pits

Test pits are carried out with a small excavator or backhoe and involve digging a small pit about one metre in size. A small sample of material from the test pit will be taken off site for laboratory testing. Test pits will typically involve an additional two people including a lead excavator operator and an excavation hand.

Auger drilling

Geotechnical drilling using an auger is carried out in a similar way to boreholes. The main difference is that augers are used to drill holes with a larger diameter of about 30 centimetres, but they have a shallower depth of two to five metres.

Cone penetration tests

These tests are carried out with a specialised rig, similar in size to a small truck. They consist of a cone sensor attached to a steel rod pushed to a depth of 10 to 20 metres under the ground. Testing is carried out by up to four people including a rig operator, engineering geologist, cultural heritage representative and an EnergyCo supervisor.

Site tests

Site tests include surface water sampling, groundwater monitoring and soil resistivity testing. All of these are conducted to confirm ground conditions and give us a better idea of the existing properties of the land. These tests are unintrusive, take half a day to conduct and will usually involve one or two workers with an accompanying light vehicle.



Land surveys

Survey work will be carried out to identify and measure existing features of the land. This will allow us to accurately plan and design the infrastructure required for the REZ transmission network.

Key features we will need to survey include:

- Property boundaries
- Geographical features of the terrain
- Roads, access tracks, fences and gates
- Utilities, pipelines, power poles and maintenance holes
- Water courses, bridges and culverts.

Land survey work will be carried out by small teams of surveyors and usually takes around one to two days to complete at each location. Land surveying causes minimal disruption as it only involves handheld, tripod or vehicle mounted devices.

This work will also involve taking photos to inform the visual impact and land use assessments to be carried out for the project's Environmental Impact Statement.

Hydrological investigations

Hydrology studies will involve assessing the storage and flow of water within the investigation area, including flooding and drainage. This work will be carried out by hydrology specialists and will involve visual inspections of bodies of water and drainage systems.

Heritage surveys

Investigation work will be carried out by suitably qualified heritage specialists to identify and assess any items of potential heritage significance. This includes documenting any Aboriginal and non-Aboriginal heritage items and sites.

Noise monitoring

We will carry out noise monitoring to determine the existing background levels before any work is carried out to build the REZ network infrastructure. The monitoring data will inform the project's environmental assessment and will help determine the expected future impacts from the construction and operation of the project.

Noise monitoring will be carried out by a small team of environmental specialists using specialised monitoring equipment. In some cases, monitoring equipment may be left unattended while data is collected over a given period of time.

Utility investigations

Utility investigations will be carried out to confirm the location of existing underground services including power, gas, water and telecommunications. This is an essential part of the design process for the REZ network infrastructure.

This work typically involves non-destructive digging which uses high pressure water to break up soil and a vacuum to safely remove the soil from around underground utility. Non-destructive digging uses small trucks mounted with specialised water and vacuum equipment. Once the location of the utility has been verified, the disturbed surface will be restored to its original condition.

Ground-penetrating radar may also be used as an unobtrusive method of locating underground utilities, however non-destructive digging is the preferred method since it is more accurate.

Utility investigations are generally carried out in one day by a small crew of about one or two workers. There may be some temporary noise impacts while this work is carried out.



Timing and work hours

Field investigations will be carried out from mid-2022 until mid-2023. In some cases, we may need to enter properties multiple times over this period. We may need to carry out further investigations as part of the detailed design process for the REZ transmission network.

Most field investigation work will be carried out within standard daytime hours which are 7am to 6pm, Monday to Friday and 8am to 1pm on Saturdays. We will only work at night if needed for specific activities, such as fauna surveys.

We will consult with you about working hours prior to carrying out any field investigations on your land.

Protecting your property

We will make every effort to ensure investigation work is carried out safely and with minimal disruption to your property. We will speak with you beforehand to understand any special requirements for accessing your land, such as avoiding sensitive areas and buildings.

EnergyCo and our contractors have appropriate insurances in place to cover any incidents which may occur as a result of our work.



About EnergyCo

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

✉ cwo@energyco.nsw.gov.au

☎ 1800 032 101

🌐 energyco.nsw.gov.au

🗣️ If you need help understanding this information, please contact the Translating and Interpreting Service on **131 450** and ask them to call us on **1800 032 101**.

EnergyCo wants to hear what you think about our plans. If you have questions or want to give feedback, please get in touch with our team. You can find more information on our website by scanning the QR code or by visiting energyco.nsw.gov.au.

