

Building a new transmission line



Building for the future



Key Points

- Prior to the construction of a new transmission line, we complete a State Government-approved process under the *Sustainable Planning Act 2009 (SPA)*, which includes comprehensive environmental impact assessments and associated community consultation.
- During construction, Powerlink works closely with affected landowners and keeps them informed of the work being undertaken on the transmission line, particularly on the easement on their land, to help minimise any impacts.
- Powerlink is committed to meeting our environmental obligations. All construction activities are carried out in accordance with an Environmental Impact Statement (EIS) and an Environmental Management Plan (EMP) which outlines strategies and actions to manage any potential environmental and community impacts.

What is a transmission line?

Transmission lines are high voltage powerlines that form the State's transmission grid, transporting electricity from power stations to industrial users and the local electricity distribution system (operated locally by Energex and Ergon Energy).

Planning a new transmission line

Powerlink follows a State Government-approved process under the *Sustainable Planning Act 2009 (SPA)* when planning a new transmission line. Under this process, a large body of work and consultation is completed as part of the Environmental Impact Assessment (EIA) process and development of the Environmental Impact Statement (EIS), prior to obtaining approval to build a new transmission line.

A comprehensive environmental study is undertaken once a preliminary alignment or site is selected. Community members and interest groups are invited to be involved with this process at an early stage.

The EIA process ensures any potential environmental, community or economic impacts associated with the project are identified and managed. It includes desktop studies, field studies, consultation and the preparation of an EIS. The EIS is a formal report that examines the environmental, community and economic aspects of a project and identifies ways to manage any impacts. A Draft EIS is released for community and stakeholder feedback prior to the Final EIS being developed. The Final EIS recommends the final transmission line alignment and includes an Environmental Management Plan (EMP), which outlines the actions we will take to reduce any impacts identified in the EIS.

For detailed information about this process, please see our information sheet – *Consultation and Environmental Impact Assessments*.

This information sheet refers to building a new transmission line, however similar activities may be undertaken to rebuild or refurbish existing transmission lines. The information provided is intended as a guide only.



Acquiring an easement

Following the release of the Final EIS, we start work on acquiring easements and seeking State Government planning approval for the project. Powerlink acquires easements so that we can construct and maintain our transmission lines. Easements provide a legal 'right of way' over a portion of land, while the landowner continues to retain the rights and responsibilities of ownership. Planning approval involves having the easements designated for community infrastructure by a State Government Minister (usually we submit our application to the Minister responsible for Energy) under the *SPA 2009*.

Compensation

Landowners who have new easements acquired over their property or an existing easement widened are entitled to claim compensation.

Construction and the settlement of compensation are separate processes. Once an easement has been officially registered (gazetted), Powerlink has the right to access the easement for construction. Following easement gazettal, construction can legally proceed before compensation has been paid. Landowners have three years from the date of easement gazettal to make a compensation claim. All landowners are entitled to be paid interest on their compensation, which applies from the date of the gazettal of the easement until the date payment is made.

Powerlink and our contractors make every effort to minimise any impact to property during construction and work closely with landowners to achieve this. If any damage is caused to your property, we will either undertake repairs or compensate the landowner for any damage which cannot be repaired or replaced (e.g. crop damage).

For more information about this process, please see our information sheet – *Easement compensation*.

Working with landowners and stakeholders

Following the planning and design stages for the new transmission line, and before construction starts, a Powerlink representative will contact affected landowners and stakeholders. The representative will discuss proposed timings and any special arrangements required for accessing the easement and properties. This may include keeping gates closed, using existing access routes, limiting the use of heavy machinery where possible, using quieter equipment after-hours and taking steps to reduce dust generated during construction.

We also provide advance notice of the start date to allow you enough time to take necessary steps to minimise potential disruption (e.g. moving noise-sensitive livestock). Powerlink's Project Manager is also available during construction to answer any enquiries you may have.

Landowners will be provided with the contact details for the Project Manager and will be kept up-to-date during construction, so any questions or concerns can be promptly answered.

Minimising environmental impacts

All construction works are carried out in accordance with the EIS and EMP to mitigate and manage any potential environmental or community impacts.

An Environmental Officer is also appointed to every project to ensure that we meet our environmental obligations. For more information on this, please refer to our information sheet – *Consultation and Environmental Impact Assessments*.



Constructing a transmission line

Building a high voltage electricity transmission line is a major construction project involving various stages.

The level of construction activity may vary from day-to-day with differing quantities, types of vehicles and heavy machinery used. Construction time is also dependent on the size of the project, the terrain, type of structures required, weather and local conditions, but normally takes between six months and two years. Sometimes there may be a gap of several weeks or longer in work activity at a particular site as crews move progressively along the entire length of the line.

Construction will normally take place between the hours of 6.30am and 6.30pm, Monday to Saturday. Work outside of these standard hours may also be required.

Work is normally carried out by contractors and Powerlink Construction Inspectors will be on-site to ensure it is performed to contract specifications.

The contractor's Site Supervisor is in charge of the construction work and safety on-site. For safety reasons, only authorised Powerlink people and our contractors are allowed to enter the site.

The construction process involves:

1. Preparing the site

Site preparation includes:

- Marking the exact position for each transmission structure (e.g. steel lattice tower or pole).
- Removing any vegetation as necessary.
- Preparing the tower site and nearby work area.
- Creating any tracks required to access the construction site.

2. Installing foundations

Usually, a large boring machine is used to excavate foundations. The foundations can be up to 6m deep and 900mm in diameter. In sensitive areas, special methods are used to minimise any impact. Concrete is poured, the necessary steelwork inserted and the foundation is completed.

3. Assembling the structures

Powerlink generally uses steel lattice towers, or steel or concrete poles. Up to 15 tonnes of steel is used when constructing a steel tower. Steel poles can weigh up to 5 tonnes, while concrete poles typically weigh up to 13 tonnes. The towers or poles are normally assembled on-site using a large mobile crane.

4. Stringing the transmission line

Normally, lines are strung in 5 to 10km sections at a time. Prior to stringing, large drums of conductor (powerline wires) are delivered to strategic locations along the line route.

A draw wire is run between the towers and used to pull the conductor along the section of line being strung. The draw wire may be run using helicopters. The conductor is fed through the line section and tensioned from the ground using winches.

5. Installing security

The towers are marked with identification plates, "earthed" for electrical safety, and anti-climbing devices are also installed for safety and security.

6. Energising the transmission line

When a new transmission line is ready for energising, a series of comprehensive inspections and commissioning tests are carried out before the line is put into service.

7. Reinstating the surrounding environment

The easement and surrounding areas will be left tidy and reinstated where necessary. Access tracks are maintained to allow easy access.

Further rehabilitation or vegetation planting may also be completed at this time.

8. Maintaining the line

Powerlink maintains the transmission line to ensure its reliability and safety. An annual review is generally conducted and any maintenance is carried out by 4WD or helicopter.

Vegetation control and weed management will also be completed as necessary.



Explanations and frequently used terms

Transmission line

A transmission line is a powerline which is capable of carrying large amounts of electricity at high voltages. Transmission lines are larger and taller than the everyday distribution powerlines which deliver electricity to your home and business. Transmission lines are normally built on tall steel towers or concrete and steel poles.

Substation

The role of a substation is to monitor and control the flow, stability, quality and voltage of electricity on the transmission lines connected to the facility. Equipment located within the substation is used to transform the voltage of electricity, protect the network, measure the flow of the electricity, and switch electricity between the different transmission lines and transformers on the grid. A substation is not a power station – it does not generate electricity.

Environmental Impact Assessment (EIA)

An Environmental Impact Assessment (EIA) is the process to ensure any potential environmental, community or economic impacts associated with the project are identified and managed.

Environmental Impact Statement (EIS)

The written report that is produced as part of the EIA process. An Environmental Impact Statement (EIS) examines the environmental, community and economic aspects of proposed projects and identifies ways to manage any impacts. The EIS is an important part of Powerlink's consultation process and is advertised for public comment. Included in the EIS is an Environmental Management Plan (EMP).

Environmental Management Plan (EMP)

An Environmental Management Plan (EMP) documents the actions Powerlink will take to manage and minimise environmental and social impacts that might result from the design, construction or operation of the transmission line. The EMP is developed as part of the Environmental Impact Statement (EIS).

Gazette

A gazette notice is the official notification of the Governor-in-Council regarding the resumption of land. The legal rights arising from the acquisition process do not take effect until the relevant notice of the taking of those rights appears in the *Government Gazette*.

Study Area

Identifying a Study Area is the first step in selecting an alignment for a proposed transmission line. A Study Area is normally a broad area of land between the proposed end points for the transmission line. It is the area within which various corridors are identified and one is selected for further investigations.

Sustainable Planning Act 2009 (SPA)

The *Sustainable Planning Act 2009 (SPA)* is legislation which seeks to manage the process and effects of developments and ensure coordination and integration of local, regional and state planning.



About Us

Powerlink Queensland is a State Government Owned Corporation which owns, develops, operates and maintains the high voltage transmission network in Queensland.

Our network of high voltage substations and transmission lines extends 1,700km from Cairns to the New South Wales border – approximately half of Australia's eastern seaboard.

Powerlink's transmission network is the central link in the electricity supply chain, transporting electricity from power stations where it is generated, to distributors Energex, Ergon Energy and Essential Energy that deliver electricity to around two million customers.

Powerlink also transports electricity directly to industrial customers and to New South Wales via the Queensland/New South Wales Interconnector transmission line.

Powerlink does not generate or buy or sell electricity – we simply transport it 'in bulk' from wherever it is generated across our high voltage transmission network to where it is needed. For more information see our *About Powerlink Queensland* information sheet.

Important note: The contents of this information sheet are current at the time of print and are indicative only. Powerlink reserves the right to change its policies and procedures from time to time. Before relying on this information you should contact Powerlink to check whether it is still current.

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More Information

Other useful guides can be accessed from www.powerlink.com.au including:

- *Consultation and Environmental Impact Assessments*
- *Selecting new transmission line routes*
- *Understanding designation for transmission line infrastructure*
- *Understanding resumptions for transmission line infrastructure*

Contact Us

- Call FREECALL 1800 635 369 (during business hours)
- Email us at website.enquiries@powerlink.com.au
- Visit www.powerlink.com.au, or write to:

Network Property
Powerlink Queensland
PO Box 1193
VIRGINIA QLD 4014