



# Salt Creek Wind Farm

## Transmission Line Frequently Asked Questions

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Transmission  
Line FAQs

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May  
2018

The Salt Creek Wind Farm, located near Woorndoo, is currently under construction and expected to begin generating power in the third quarter of 2018.

The wind farm will utilise 15 Vestas V126-3.6 MW wind turbines and produce about 172GWh of clean energy each year, which has the potential to power more than 30,000 homes, or more than double the number of homes in Warnambool.

It will also reduce greenhouse gas emissions and contribute to Victoria's renewable energy ambitions and the Federal Government's 2020 renewable energy target.

The power generated will be connected into the national electricity grid via a 66kV transmission line that runs between the wind farm and Terang Terminal Station. The transmission line will be completed in late May 2018.

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### What is the transmission line?

The Salt Creek Wind Farm transmission line is a 66kV (66,000 volt) overhead power line that runs from the wind farm near Woorndoo to the Terang Terminal Station.

The transmission line will allow the energy generated from the wind farm to be distributed through the National Electricity Market.



### How long is the line?

The transmission line is 50.5 kilometres long. About half of the transmission line is located on private property and the other half is within road reserves.

### Why does it zigzag instead of going in a straight line?

There are many factors that need to be considered during the planning of a transmission line. These include availability of land access (both public and private), infrastructure constraints, native vegetation, areas of cultural heritage significance, property configurations and dwelling locations, just to name a few. The transmission line design and corridor were chosen after consideration of these and other factors.

### How many poles are there?

There are 267 steel poles over the 50.5 kilometres.

### How big are they and are they all the same?

The types of poles installed along the transmission line can generally be split into two categories – strain poles and intermediate poles. Less than 20 per cent of the 267 poles (47 in total) are the larger strain poles. These have a maximum base width of 1.6 metres and the largest strain poles (just three along the line) will measure up to 28 metres above ground level. The average height of these strain poles is 22.3 metres. The strain poles are generally installed where the transmission line changes direction and/or crosses major road and/or rail infrastructure.

The height of the other 220 intermediate poles ranges between 18 and 26 metres above ground level. The intermediate poles are generally utilised on the straight sections of the transmission line and have a base width more than half a metre less than the larger strain poles.

The average height of the poles along the entire line route is about 21 metres above ground level.

All the poles are designed to be free-standing and so do not require guy wires for support. This reduces the overall disturbance footprint of the transmission line, improves public safety around poles and reduces ongoing maintenance requirements.

### What influences the design of the transmission line?

The design of the transmission line (including the size of the poles) is influenced by numerous factors, some of which include:

- Voltage (e.g. 22kV, 66kV, 132kV), number of circuits, conductor (the wires) type/size, security level and design life requirements;
- Line length, spans between poles, changes in direction and topography;
- Structural loads due to the weight, wind, earthquake, ground water and other factors;
- Electrical safety requirements;
- Communication and earthing requirements;
- Temperature limits and fluctuations;
- Existing infrastructure constraints;
- Native vegetation, planning requirements, areas of cultural heritage significance, property configurations and dwelling locations;
- Road and traffic safety;
- Fire safety.

### What standards has this line been designed to?

The transmission line has been designed and constructed in accordance with (but not limited to) the following standards and regulations:

1. Australian Standard AS/NZS 7000:2016 – Overhead line design;
2. Electricity Safety (Installation) Regulations 2009 (Victoria);
3. Electricity Safety (Electric Line Clearance) Regulations 2015 (Victoria); and;
4. The road Management Act 2004.

### Why steel poles?

The Salt Creek Wind Farm transmission line utilises steel poles. The steel poles meet all the required standards and are typically lighter in weight and can be installed in a manner which minimises environmental impacts. Each of the 267 steel poles consists of three individual sections which fit together on site. Delivering the poles in sections means they can be transported using conventional trucks and trailers, rather than more complicated over-dimensional transport methods.

### Why can't it be underground?

Typically, it is cost prohibitive to install transmission or distribution lines underground for the distances contemplated by many projects of this nature. There could also be a significantly greater environmental impact installing a transmission line underground, as laying cables could impact a far greater area of native vegetation or other environmentally sensitive areas due to trenching and the process of undergrounding the lines.



### Why does it go to Terang instead of Mortlake?

Due to the size of the connection. Terang connects into the National Energy Market at 66kV, which is significantly lower voltage than Mortlake's 500kV. As Salt Creek Wind Farm is only a 54MW project, economies of scale do not support connection into the 500kV network.

### Can more than one wind farm share the same transmission line?

In theory, more than one wind farm can share the same transmission line. This would however require both wind farm proponents to be fully committed to construction of these projects at or around the same time, including full coordination and agreement on the transmission line contractor(s), design, construction and operational contracts.

There are a significant number of commercial, technical and regulatory considerations associated with these types of arrangements which add to the complexity and difficulty in facilitating the sharing of infrastructure.

There is currently no mechanism (i.e. across planning, environment and network planning regulatory systems) which facilitates the coordinated network planning of transmission infrastructure required to connect energy generation projects (renewable or non-renewable) to the National Electricity Market.

The Minister for Planning is responsible for assessing all planning permit applications associated with a wind farm, including native vegetation removal to construct a transmission line.

### How long will it take to build?

The transmission line will take about nine to 12 months to build and is scheduled for completion by mid 2018.

### Who is building and will be responsible for the transmission line?

The new transmission line will be designed, built, owned and operated by AusNet Services. You can read more about them at [www.ausnetservices.com.au](http://www.ausnetservices.com.au).

Broadspectrum is the contractor responsible for the construction of the transmission line – you can read more about them at [www.broadspectrum.com](http://www.broadspectrum.com).

### What provides AusNet Services with the right to design, build, own and operate 'private' transmission lines?

AusNet Services holds an electricity transmission licence granted by the Essential Services Commission. If available and suitable for the specific projects, road reserves can be used by utilities for the installation of transmission lines.

### How many people are working on the transmission line?

On average, there are 45 people working on the line's construction on a daily basis.



### Who pays for the transmission line?

While the transmission line will be designed, built, owned and operated by AusNet Services, Tilt Renewables will pay for the installation and ongoing operation and maintenance. The transmission line is a 'private' connection funded entirely by the Salt Creek Wind Farm project, as is the case for the wind farm itself.

### What can I expect during the remainder of construction?

During construction you can expect traffic management initiatives in place at the location where the work is focused. Construction will be completed in many areas simultaneously and work will not necessarily be undertaken in one direction along the transmission line – it will move around throughout the 50.5 kilometres.

The transmission line is just about complete and is on track to be finished and energised in late May 2018.

### What planning process did you go through?

The Moyne Planning Scheme and Corangamite Planning Scheme (as with all Victorian planning schemes) allows a transmission line which is designed to operate at less than 220kV to be constructed without a planning permit. As the transmission line for the Salt Creek Wind Farm is designed to operate at 66kV a planning permit was not required.

However, planning permits were required for the removal of native vegetation associated with the construction of the transmission line. Two planning permits applied for in 2016 (one for native vegetation within the Corangamite Shire and another within the Moyne Shire) were granted by the Minister for Planning in early 2017.

During this process Tilt Renewables notified all neighbours of the transmission line by letter, in December 2016. The notification period lasted two weeks and only one submission was received, which was regarding environmental impact and consideration to vegetation management (burning) in the road reserve.

### What other approvals are required before building a transmission line?

Prior to construction of the transmission line, a Cultural Heritage Management Plan was prepared and approved. Assessments under state and federal state environmental assessment legislation were undertaken and permits to impact on a small area of state protected flora in road reserves were obtained by Tilt Renewables.

Additionally, AusNet Services and Broadspectrum obtained approvals associated with the crossing of waterways, a rail reserve and to work within road reserves (see further discussion below).

### Some of the poles are in the road reserves. Was road safety and flooding considered?

Road safety is considered in the design and placement of poles in road reserves and must be reviewed by local Council engineers who need to be satisfied that appropriate design and safety requirements are met.

To construct the sections of the transmission line located in road reserves, 'works within road reserve' permits were required from the Corangamite Shire and Moyne Shire Council. These were obtained prior to construction commencing in these sections by the contractor.

The shires inspect the poles located in road reserves during and following their construction. In some instances, safety improvements have been implemented.

Table drains in road reserves will be reshaped where necessary to the satisfaction of Council so that there is no reduction in table drain flow rates.

### How will controlled burns within the road reserve impact the line?

Controlled burns along road reserve will not impact the transmission line and mitigation measures will be undertaken around poles as required. AusNet Services will manage vegetation growth within a six metre radius around these poles.

### How has bushfire safety been considered?

The transmission line has been designed to meet or exceed appropriate design and safety standards. In this case, the transmission line will be owned and operated by AusNet Services who will apply best electricity industry practice to the maintenance of the transmission line (including, for example, vegetation clearance) and ensure all required regulations in relation to electricity safety and bushfire mitigation are met.

Specifically, once the transmission line is built, it will be managed in accordance with the wider AusNet Services Electricity Safety Management Scheme for the Victorian Transmission Network, which is accepted, approved and audited by Energy Safety Victoria on a regular basis.

### What inspections or checks are undertaken?

Compliance audits have been and will continue to be conducted during the remainder of construction by AusNet Services, Tilt Renewables, WorkSafe Victoria, Aboriginal Affairs Victoria and the Department of Environment, Land, Water and Planning.

AusNet Services must submit commissioning and compliance documentation to the relevant authorities to energise the transmission line, including the Australian Energy Market Operator (AEMO). The transmission line can only go 'live' once AEMO is satisfied their requirements are met.

### Who do I contact if I have a problem?

You are best to contact AusNet Services if you have any concerns about the transmission line. However, we have included contact details for Tilt Renewables, AusNet Services and Broadspectrum below.

**Tilt Renewables (wind farm owner and operator)**  
1800 122 823

**AusNet Services (transmission line owner and operator)**  
Project Manager Kaushal Obadage - 0427 800 590

**Broadspectrum (transmission line construction contractor)**  
Project Manager Grant Tonkin - 0447 500 137