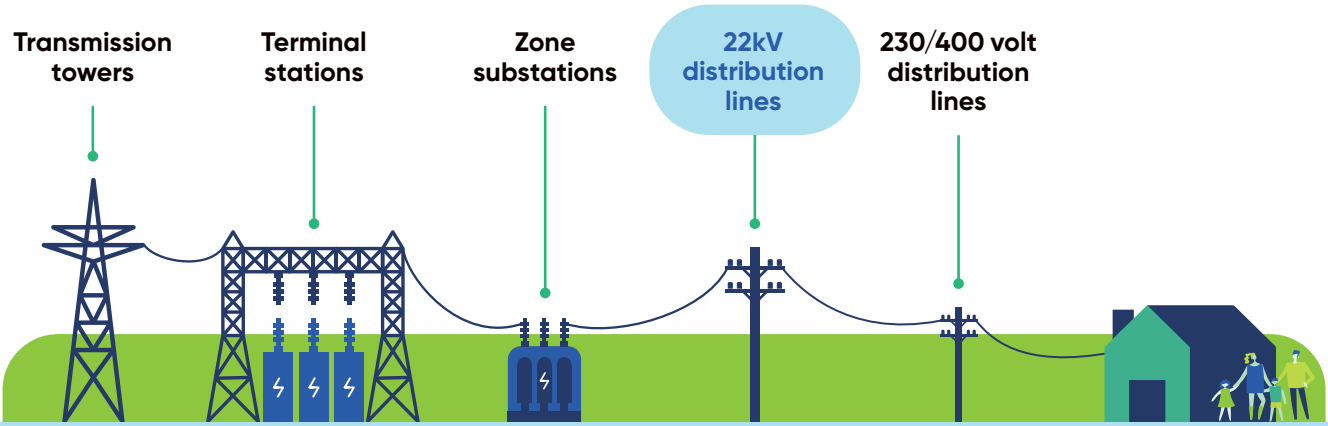
AusNet GridView

Understanding 22kV distribution lines

What is a 22kV distribution line?

A 22kV distribution line (or feeder) refers to a medium-voltage powerline that carries electricity at a voltage level of 22,000 volts (22 kilovolts or kV).

These lines act as a bridge, taking electricity from zone substations – where the voltage has been reduced from the higher voltage network – and feeding it into local distribution substations that further reduce the voltage to 230/415 volts to safely power your home.



What does a 22kV line look like?

These lines:

- are typically supported by power poles or towers and are often seen along roadsides or in urban areas. They can also be underground, which is more common in urban settings
- may be insulated or bare conductors, depending on the design and environmental considerations.

What network data do we provide?

Here is a sample of how the data will look:

Feeder

This is the name of a 22kV distribution line – for example, BDL42 is the name of a feeder that supplies power to an area near Bairnsdale and up to Omeo and Benambra. Type the feeder name into the search bar. The yellow highlighted line will show you what area it covers and how electricity is getting to your community and location.

Associated zone substation

This refers to the zone substation that supplies electricity to the feeders. For example, BDL42 is supplied by the Bairnsdale zone substation.

Network type

MV refers to medium voltage (22kV).

Total feeder length

This is the total length of the feeder in kilometres.

Total number of customers

This is the total number of customers who are supplied electricity by the feeder. The number of customers and the total feeder length allows you to calculate the customer density – how many customers are served per kilometre of line. This can help identify areas of high or low demand, inform infrastructure planning and support decisions around community energy initiatives.

Feeder type

This describes the type of feeder – urban, short rural or long rural. This allows you to compare its performance with the average for that feeder type across our entire network. To do this, read our Performance Reports in GridView.

Nominal voltage (Phase-to-Phase)

This refers to the voltage level that the feeder is designed to operate – e.g. 22kV.

Line segment selected:

This identifies the exact section of the feeder.

Mounting (selected line segment)

This describes how electricity wires are physically supported and secured to poles or structures. The mounting method impacts the system's safety, reliability and overall appearance.

Types of mounting include:

- overhead mounting (e.g. pole-mounted lines)
- underground mounting (e.g. cables are placed inside ducts or conduits underground).

Specification description

This describe the type of conductor used on the line (e.g. This describes the type of conductor used on the line (e.g. bare or insulated) and its material (e.g. aluminium or copper). Knowing the type of conductor is important for many reasons, including:

- Current carrying capacity - Different conductors have varying current carrying capacities, which impacts the amount of electrical load the line can safely handle without overheating.
- Voltage drop - The type of conductor affects the voltage drop over a distance. Conductors with higher conductivity (like copper) will have lower voltage drops compared to those with lower conductivity (like aluminium). Voltage drop can reduce the electricity network's efficiency.

Calculated line length (line segment, metres)

This shows the length of the selected line segment. This is useful for several practical and engineering reasons, including voltage drop calculations. For example, longer line segments experience greater voltage drop due to conductor resistance. Understanding the length helps assess whether voltage levels will remain within acceptable limits for customers at the end of the line.

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