

Reliable electricity supply

Having a reliable electricity supply is of national importance to New Zealanders. Millions of us depend each day on being able to turn on a switch at home, at work and in the community and have the power we need.

This includes:

- 1.7 million households
- 165,000 commercial businesses
- 70,000 agriculture, forestry and fishing businesses
- 40,000 industrial customers.

Delivering a reliable supply involves various electricity industry organisations and processes. In this fact sheet we look at how reliable electricity supply is delivered, what organisations are involved, and what happens if there is a problem.

Delivering reliable electricity supply to consumers

In order for consumers to receive a reliable supply of electricity, there needs to be:

- enough electricity generated by power stations around the country
- enough water in hydro lakes and coal, gas or diesel to fuel thermal power stations
- a robust transmission grid and distribution network to transport electricity from where it is produced to where it is used
- arrangements for making sure all aspects of the electricity delivery process run smoothly, anticipating potential problems and dealing with problems as they occur.

New Zealand has over 200 power stations, most of which run on hydro, geothermal or wind power, or burn coal, gas or diesel. All types of power stations help to deliver reliable electricity supply. Power stations are owned by companies called generators, including Meridian Energy, Contact Energy, Genesis Power, Mighty River Power and TrustPower.

Hydro generation is the foundation of New Zealand's electricity generation system but supply depends on having enough water in key hydro lakes in the South Island.

Power supply failed?

Call your electricity retailer.

Power line down? Don't touch it.

If there is an emergency, call 111. Otherwise, call your electricity retailer. Most retailers have an 0800 number that you will find on your latest bill, or in the phone book.

Medically dependent on electricity?

Tell your electricity retailer as soon as possible.

Fact sheets for vulnerable consumers and medically dependent consumers are available on the Electricity Authority website: www.ea.govt.nz

Business dependent on an uninterrupted power supply?

Talk to your computer supplier about the options available.



Who's involved?

Electricity Authority

As the regulator of New Zealand's electricity industry, the Electricity Authority's (Authority) objective is to promote competition in, **reliable supply by**, and the efficient operation of, the electricity industry for the long-term benefit of consumers. The Authority develops and administers the Electricity Industry Participation Code 2010 that governs the New Zealand electricity markets.

The Authority also ensures that the system operator is meeting its obligations. The system operator is required to consult with the Authority on various aspects of security of supply, including how it manages supply shortages. Power supply interruptions occur from time-to-time in every electricity system and it isn't possible or desirable to aim for zero power interruptions. The Authority's focus is on setting standards and incentives to achieve efficient levels of security and reliability.

The Electricity Authority's objective is to promote efficient levels of reliable supply

Transpower – the electricity system operator

As the system operator, Transpower is responsible for monitoring whether there is going to be enough generation to meet the needs of all consumers. Transpower publishes an *Annual Security Assessment* that compares the amount of current and planned generation with the amount of power that is expected to be needed.

Transpower also publishes weekly information about the short-term outlook for security of electricity supply. If there is a risk of power shortages, e.g. because there has not been enough rainfall into key hydro lakes, Transpower will communicate with the electricity industry and keep the public informed.

The *Annual Security Assessment* and the weekly updates on the security of electricity supply outlook are available on the system operator's website: www.systemoperator.co.nz.

Security and Reliability Council

The Security and Reliability Council plays a key role in advising the Authority on the security and reliability of New Zealand's electricity supply. The Council was established by the Electricity Industry Act 2010 to provide independent advice to the Authority on the performance of the electricity system and the system operator, and reliability of supply issues. More information about the Security and Reliability Council, including its members, is available on the Electricity Authority's website.



What happens if there is an electricity shortage?

The electricity industry can usually turn around low-level risks of power shortages by monitoring the situation, running thermal power stations, and conserving water in the South Island hydro lakes. However, if there is a high risk of running out of electricity Transpower will take steps to manage the situation. Transpower's *Emergency Management Policy*, available on the system operator's website, sets out what it will do.

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Official conservation campaigns

When the level of risk of electricity shortages becomes high enough, Transpower can call an official conservation campaign and encourage New Zealanders to use less electricity. The Energy Efficiency and Conservation Authority (EECA) will provide tips on conserving electricity in homes and workplaces. Transpower will provide information about how the risk level is changing, and will call off the campaign when there is an improvement.

In an official conservation campaign, all consumers in the affected area will be compensated by their electricity retailer to make up for the inconvenience. The affected area may be the South Island only, or the entire country. More information about customer compensation is available on the Authority's website.

Last resort rolling outages

If a conservation campaign is not enough, Transpower can move to the next level and call for rolling outages. This involves coordinating with the local lines companies that distribute electricity to consumers to periodically cut off electricity supply in a managed way to save energy and avoid the risk of unexpected power failure. It is very unlikely that rolling outages will be needed any time soon, but it is important that they are in place as a last resort backup measure.

Managing other problems with electricity supply

Transpower also owns, maintains and operates the national grid – the high voltage transmission network extending from Kaitiāia to Bluff that transports electricity throughout the country. Twenty-nine local distribution companies and at least 35 embedded network companies own or operate the low voltage transmission networks that transport electricity from a nearby Transpower substation to consumers.

Despite rigorous design standards and careful operation, all parts of the transmission network and all types of power stations can fail from time-to-time. Usually through a series of protection systems and coordination these problems are managed without consumers noticing. However, sometimes these systems are unable to deal with the problem and electricity supply suddenly fails. This is usually because of one or more failures on a local network caused by weather conditions such as high winds or lightning strikes.

If there is a power failure, the organisation responsible for fixing the problem will do its best to restore supply as quickly as possible. An example is the power failures in Christchurch following the earthquakes. Orion, the local distribution company, worked around the clock to fix the problems and restore electricity supply.

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Fact sheets in this series look at the regulatory framework for New Zealand's electricity sector and the roles of the various parties involved, principally the Electricity Authority as the regulator.