

Proposed Vector electricity zone substation at 37 Don Buck Rd, Ranui

Vector is your electricity lines company – we own and operate the electricity network that delivers electricity to homes and businesses in the Auckland region.

As part of Vector's commitment to improving the reliability of the electricity supply, sometimes we need to build new electricity substations. Vector is committed to keeping you informed, and this question and answer sheet addresses questions commonly asked about substations.

What is a substation?

Substations allow Vector to control and monitor the flow of electricity in different sections of the network. A substation also contains equipment to lower ('step down') the voltage of electricity to voltages suitable for distribution to transformers which supply homes and businesses. The 'step down' in voltage that occurs in substations is generally from 33,000 volts to 11,000 volts. Vector operates 100 substations throughout the Auckland region which are located in both residential and business areas.

Why is a new substation required?

Population growth, combined with the increasing use of electrical appliances, has increased the demand for electricity in the area. The new substation is required to address the ongoing growth in the demand for electricity, ensuring that there is adequate electricity supply and to reduce the risk of power supply interruptions to customers.

What will the substation look like?

Vector ensures that its new substations are in keeping with the surrounding area, so that they appear to be part of the local neighbourhood. Within a residential area the substation building is designed and built to look like a residential house, right down to the fencing and landscaping.

Vector will also seek to comply with the local council's District Plan development controls for the zone so that the building is of a height and size which could be expected in the area.

The electricity lines that will run into and out of the substation to the local overhead network will be undergrounded and all of the electrical equipment will be located within the building. There is no storage of equipment, such as power poles or cables, outside the building at any time. In some cases a communications pole is required as part of the building. This is so Vector can monitor the substation. The communications pole is indicated on the plans shown to you.

You are invited to view a comparable substation located in Takapuna that has been designed and built to look like a residential dwelling. Please contact David Hay to arrange a visit.

Is there boundary fencing?

Often the existing boundary fences at properties are adequate. The substation building itself is secure and as no equipment is located outside of the building it is not necessary to construct security fencing. If new fencing is required, Vector discusses new fencing options with adjoining property owners and will meet the replacement costs in full. Any required fencing will be designed and built to fit with a residential dwelling.

Will the substation generate noise?

The electrical equipment inside a substation does create a level of noise, however, Vector designs and soundproofs the building so that the noise levels generated comply with the District Plan noise controls for that zone. Vector prefers to achieve a higher level of noise control so that noise from the substation is not audible to adjoining properties even at very quiet times, such as in the middle of the night.

Will there be exterior lighting?

Standard residential security lights will be installed on the substation. These lights are sensor activated and the lights will be angled so any light spill onto adjoining properties is minimised.

Will the substation be safe?

Substations contain high voltage electricity and hence are inherently dangerous for unauthorized people, however, the equipment is completely enclosed and securely locked inside the substation building. The buildings are also designed to keep fires contained and have on-line monitoring to our 24 hour control room.

Concerns have been raised in recent years about the safety of utility equipment, particularly around electric and magnetic fields (EMFs). EMFs are produced by all electrical wiring or equipment carrying electric current. This includes household appliances, internal wiring and electricity network lines and equipment. EMFs are not a form of radiation.

Extensive studies have been carried out to determine any possible health risks from EMFs. In spite of all the studies that have been carried out it is still not clear whether the fields pose any health risk. If there are risks, the results obtained to date do show that they are very small.

Vector designs its electricity network using a cautionary approach endorsed by the World Health Organisation. All electrical equipment is well insulated and located indoors and all power cables are buried which minimises EMFs outside the substation building. So while electricity network equipment carries much higher voltages than a household supply, EMF readings taken at the boundary of zone substations are comparable to EMF readings taken near common household appliances.

The Ministry of Health's National Radiation Laboratory has published a brochure 'Electric and Magnetic Fields and Your Health', which is a good source of information if you want to know more about this subject. This brochure can be obtained from the National Radiation Laboratory website www.nrl.moh.govt.nz.

Will there be Vector staff working at the substation?

No permanent staff are employed at substations. After construction, substations are generally visited a few times a month by Vector contractors for routine maintenance. Contractors generally visit the site during the day except in the event of a fault occurring during the night.

Who looks after the substation?

Vector employs a range of contractors to maintain its assets including security and fire monitoring companies, and landscape and maintenance contractors. Vector will notify adjoining property owners of a contact person who they can contact at any time should any issues arise with the property for Vector to address.

How long will the construction of the substation take?

It usually takes two years to design, construct and commission a substation. The construction period usually takes about six months. The construction is closely monitored and only Vector approved contractors are allowed to work on site. Vector seeks to ensure there is minimal disruption to neighbours from traffic, dust, construction noise and other construction effects. Prior to construction, Vector will inform adjoining property owners of a contact person to notify at any time should any issues arise during construction.

Will the substation affect the value of my property?

This can be difficult to determine. We have no evidence to suggest that a new modern substation has a detrimental affect on surrounding property values. The substation will be designed to look like a residential dwelling and Vector maintains the substation and property to the highest standards at all times. Vector employs a range of contractors to regularly undertake maintenance and upkeep.

Do substations need consent from the local Council?

Under the Resource Management Act Vector will issue the local Council with a Notice of Requirement to designate the site for an electricity substation. The Council is required to publicly notify this Notice of Requirement and to advise affected parties, which normally includes adjoining property owners.

What if I object to the substation being built in my area?

Any person can make a submission in support or opposition to the Notice of Requirement. The Council holds a hearing, where submitters can speak, before making a recommendation to Vector as to whether Vector should confirm, modify or withdraw the application and if any conditions will be imposed. Vector then advises the Council whether it accepts or rejects in whole or in part the Council's recommendation. The Council and any submitters then have the opportunity to appeal Vector's decision to the Environment Court.

If you want to know more about the designation process the Ministry for the Environment has produced a guide called 'The Designation Process' which is available on www.mfe.govt.nz.

Further questions?

Please contact David Hay on 09 425 9844 or 027 425 0234 if you require further information about the proposed substation.