new zealand wind energy association

www.windenergy.org.nz

Considering a Wind Farm on Your Land?

Wind farms co-exist with other rural activities and have many benefits for farmers and landowners, including a new income stream and improved site access. If you would like to host a wind farm on your land, you will need to consider a range of factors such as the suitability of the site, legal agreements, construction impacts and the effect of the wind farm on other activities.

WHAT MAKES A GOOD WIND FARM SITE?

Sites with the following characteristics are good for wind farms:

- strong and consistent winds
- open land without current or future obstacles to wind flow
- proximity to a suitable transmission line or substation
- suitable topography, the terrain should be relatively gentle without overly steep slopes
- suitable ground conditions for access tracks and turbine foundations
- good access for wind farm construction and maintenance

Wind farm developers are experienced in assessing the suitability of sites and have access to a range of tools for this purpose. The best way to find out if your land is suitable for a wind farm is to contact a wind farm developer.

HOW MUCH LAND IS REQUIRED?

As a very rough rule of thumb, 10 to 15 MW can be installed on every 100 hectares of land (one square kilometre). The actual installed capacity may be significantly higher or lower than this depending on the topography of the land and a number of other factors.

Access tracks across the site and to each turbine, usually made of gravel, need to be between four and 10 metres wide during construction (after construction, track width will usually be reduced). The width depends on the size of the turbine being installed and the cranes used in construction. Developers will often improve existing farm tracks rather than create new ones. Cabling between the turbines is almost always buried below ground, usually alongside the access tracks.

A wind farm usually requires a single electricity substation. For a small wind farm this may be contained within a small building. For larger developments a plot of land measuring about 30 metres by 30 metres (or more) will be required to house the electrical plant, associated switchgear and metering equipment. Security fencing is usually installed around the substation. The wind farm is normally connected to the grid or local network with a three phase power line mounted on poles.

Developers are required to comply with noise regulations. This will affect the position of wind turbines relative to residences. There is no recommended minimum distance between houses and wind turbines. The appropriate distance is determined on a case-by-case basis as a variety of factors, such as terrain, wind speeds, background noise and vegetation, will affect how sound travels. Conditions relating to noise will form part of the wind farm's resource consent, and will be based on the New Zealand Standard for wind farm noise (NZS6808:2010)

WHAT AGREEMENTS ARE NEEDED?

Landowners will usually enter into a formal agreement to host a wind farm on their property in return for payments over the life of the development.

If a developer wants to investigate the wind resource on your land, you will usually be offered an initial option agreement. This agreement gives the developer the right to collect wind data and carry out other feasibility studies over a few years. If these initial investigations are promising, the developer may offer a full lease agreement, which sets out the responsibilities and obligations of both parties through the resource consent process and over the life of the wind farm project. Owing to the long life of a wind farm, the developer's rights will need to be transferable to any future owner of the property.

Land owners should seek legal advice so that they are fully aware of their rights and obligations prior to making any long term commitments. The developer will usually contribute towards the cost of obtaining this advice.

HOW MUCH RENT IS PAID AND HOW ARE PAYMENTS MADE?

There are three main categories of lease payment plans that developers may propose to compensate landowners for placement of wind turbines:

- up-front lump sum payment
- fixed annual payment per turbine
- a variable payment based on actual generation (at a set price or related to actual revenue).

In general, payment will be in the region of 1 to 2% of the gross revenue of the wind farm, or about $1,500 to $6,000 per year for each megawatt installed.

CAN FARMING AND WIND FARMS CO-EXIST?

Once construction is complete, the footprint of the turbines, buildings and access tracks is usually about 1 to 3% of the total land in a wind farm site and access may use the same routes as existing farm tracks. Farmers are typically able to resume normal farming operations on the remaining 97 to 99% of the land and use the wind farm roads to access the farm.

Forestry is sometimes restricted on a wind farm site because it may reduce the commercial returns of the wind farm by slowing the wind. However, if the land is suitable for wind generation because of high average wind speeds, it is unlikely to be suitable for growing quality trees.

WHAT ARE THE IMPACTS OF CONSTRUCTION ON FARMING ACTIVITIES?

There may be significant disruption to normal farming activities during the construction of a wind farm, including frequent traffic movements. However, developers will work with farmers to manage any such disruption.

Construction typically requires between six and 18 months. Impact on livestock is minimal during this time provided that there is good communication between farm management and the construction team.

Electric fences can be used to control stock as gates will generally need to be left open during construction hours to minimise delays to traffic. All weather access tracks will be built to link the wind turbines and these can dramatically improve access across the property. New fencing and gates may be required where access tracks cross existing fence lines, these would typically be provided by the developer as part of the agreement.

Stock must be kept away from excavations. Trenches and excavations are generally left open for only a few days and appropriate fencing is used during this period.

Each foundation takes approximately one week to prepare and a day to pour. The framework around the foundation is removed after one or two days and backfilled within a week. Following approximately four weeks of curing the wind turbines can be installed. Several foundations may be installed together. The excavated material is commonly stockpiled for backfilling and road construction.

For larger sites, developers will usually seek to use onsite concrete batching plants during the construction process in order to reduce construction traffic and inconvenience to the local community.

Local and passing tourist interest will almost certainly be stimulated by the construction of a wind farm. Landowners may receive phone calls from a variety of people including neighbours, the media, government departments, tourism operators as well as other landowners who are considering wind farming. Developers will usual help farmers manage enquiries of this nature, and it may become part of the consent conditions.

HOW ARE FARMING OPERATIONS IMPACTED AFTER CONSTRUCTION?

The impact of an operating wind farm on livestock is minimal. Sheep, cows and horses are not disturbed by wind turbines and typically graze right up to the base of the towers, which they often use as rubbing posts or for shade.

Sowing patterns may be disrupted as it is likely that turbines will end up on productive land. Nonetheless careful planning and consultation will enable the landowner and developer to come to a mutually acceptable agreement.

Depending on the site, agricultural aviation such as crop dusting or super phosphate spreading may be impacted. Agricultural pilots are highly trained and operate very manoeuvrable aircraft at extremely low altitudes, so they are best placed to assess any potential hazard.

Extensive tree planting can slow the wind and cause turbulence. Both of these factors will reduce the commercial returns generated by the wind farm. Stock shelters and environmental plantings can normally be accommodated.

Construction of new residences or other buildings may need to be agreed by both the wind farm developer and landowner. This may be due to either the impacts on the wind resource or, in the case of occupied buildings, noise limits. Detailed noise modelling during the planning phase can provide a very good idea of 'no-go' zones for future residences.

HOW CAN I CONTACT A WIND FARM DEVELOPER?

Most wind farm developers in New Zealand are members of the New Zealand Wind Energy Association. On NZWEA's website you'll find the members list under About NZWEA. The website also contains a wealth of information about wind energy.

www.windenergy.org.nz

Find out more about wind energy and wind farms in New Zealand at www.windenergy.org.nz.

NZ Wind Energy Association

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The New Zealand Wind Energy Association (NZWEA) is an industry association that works towards the development of wind as a reliable, sustainable, clean and commercially viable energy source. We aim to fairly represent wind energy to the public, government and the energy sector. Our members include 80 companies involved in New Zealand's wind energy sector, including electricity generators, wind farm developers, lines companies, turbine manufacturers, consulting firms, researchers and law firms.

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