

## Some things to think about...

Renewable energy in New Zealand can come from sunlight, wind, water and geothermal heat. It is all naturally replenished in a relatively short amount of time. In 2013 New Zealand sourced 38% of its total energy from renewable resources.

Domestic renewable energy production means energy sourced onsite and predominately used on site. The main sources that are relevant to Whanganui sites are solar and wind. Below is some basic information to help you decide if solar or wind is right for you.

When deciding whether or not to invest in renewable energy, you need to consider it as a 5-7 year investment. The variables you should factor into your decision should include:

- How much power you'll actually use from the system, and how much will be sold back to the retailer.
- The discount rate, which takes into account the time value of money. For example, could other investments give you a better financial return over this time?
- How power prices and buy-back rates will change.
- The real total lifetime cost of the system. For example maintenance and battery replacement.

The average New Zealand household uses about 8kWh of electricity per person per day. Therefore it is unlikely that a single domestic renewable energy system would generate enough electricity to run your house on its own.

## Council Requirements

### Building Act 2004

Due to the varied nature of renewable energy, each device and site needs to be treated on its merits to see if a Building Consent is required. All building work, whether or not it requires a building consent, must still comply with the Building Code (under section 17 of the Building Act 2004). Building work must also comply with any other relevant legislation, including;

- Plumbers, Gasfitters and Drainlayers Act 2006
- Gas (Safety and Measurement) Regulations 2010
- Electricity Act 1992
- Fire service Act 1975
- Health and Safety in Employment act 1992

### The Whanganui District Plan (Resource Management Act 1991)

The District Plan encourages renewable energy and allows for the following types:

#### **Wind Turbines:**

One per site, with the top blade no higher than 11 metres above ground level. Note that you must prove that it will comply with the noise limits of the zone.

#### **Solar Panels:**

Maximum height is 11 metres above ground level. Panels fixed no more than 200mm from the main bulk of the dwelling are exempt from the setback to the boundary rules.

### Further Information

For more information it is recommended that you talk to one of the renewable energy installers in the District, or make a time to talk to our staff in Planning and Building Control if you need further information about the Council requirements.

#### WHANGANUI DISTRICT COUNCIL

101 Guyton Street  
PO Box 637  
Whanganui 4500

Phone: (06) 349 0001  
Fax: 06 349 0000  
[www.whanganui.govt.nz](http://www.whanganui.govt.nz)

## Renewable Energy in Whanganui



**WHANGANUI  
DISTRICT COUNCIL**  
Te Kaunihera a Rohe o Whanganui

# Potential Options for you to explore...

## Passive Solar Design

There are several different ways to harness the sun's energy. The design of your building (orientation of house & windows) can influence how your house is heated and retains heat which is passive solar design. If you are looking to alter your home or build a new house, it is worth adding value to your property by considering Passive Solar Design. Some examples of this include:

### Thermal Mass Storage

During construction, the use of dense materials such as concrete and brick with insulation can help maintain comfortable temperatures inside your home year round. Incorporated into your building plans, this should not significantly increase your construction costs.

### Evacuated Tube Solar Collectors

This system collects heat from tubes outside the house for space heating or domestic hot water and works similar to a solar panel. A well designed solar water heating system could meet 50-75% of a homes hot water needs.

### Wetback

A wetback is a pipe arrangement that fits in the back of the firebox of a woodburning/multi-fuel stove. Water from your hot water cylinder is circulated through these pipes, sometimes by a small pump, and is heated using some of the heat from the fire. Wetbacks are most cost effective in colder areas where a lot of space heating is used. They should not be used as a sole method of hot water heating.

## Solar Panels



There are also solar panels (also known as photovoltaic panels) that generate electricity directly from sunlight.

Whanganui has an average mean total sunshine hours of 2055. This is in the top half of New Zealand sunshine hours compared to other places.

A panel system that could run a clothes dryer and an electric cooktop at the same time (3.5kW peak output) will generally cost \$10,000. Of course, this is limited to daylight hours, and the peak output would drop during overcast days or if the panels are obstructed.

The types of properties that would benefit the most from a solar panel installation are those that use power during daylight hours (like businesses) or those with enough batteries to store the electricity generated during the day. Any excess energy is usually sold back to the National Grid for a low amount.

## Wind Turbines

Wind turns turbine blades connected to generators that convert the wind's energy into electricity. The faster the wind blows, the fast the blades turn and the more electricity is generated.

Whanganui has great wind resources. The majority of our wind comes from a West North West direction and average wind speeds vary between 7 and 13 kts.

Small wind turbines generally cost between \$10-15,000 per kW of rated capacity. You will not get ideal wind conditions at all times, so they will generally generate only 10-40% of their rated capacity every hour.

It is worth investing in where there is a relatively consistent wind speed and not too many obstructions such as buildings and trees. Therefore they are more cost effective in rural areas.

