

Wind Energy Case Study

Local economic benefits

The wind farms in the Manawatu do more than supply New Zealanders with renewable electricity. Their construction and ongoing operation creates jobs and provides opportunities for many New Zealand companies.

This case study looks at the economic activity created by the construction and operation of Stage 3 of Tararua wind farm – a 93 megawatt (MW) development in the Manawatu.

About Tararua Stage 3

Tararua wind farm is located at the northern end of the Tararua Ranges, near Palmerston North and the Manawatu Gorge. It is the largest wind farm in New Zealand, and also one of the world's best performing commercial wind farms. It was built in three stages from 1998 to 2007.

Stage 3 of Tararua wind farm (Tararua 3) was constructed over 2006 and 2007, following two years of site investigation, consenting and financial feasibility studies. Its 31 turbines make up one-third of the Manawatu's wind energy capacity, with each 3MW turbine producing about 12 gigawatt-hours of electricity a year.

Construction

The construction of Tararua 3 provided a large financial injection into the Manawatu economy. About 70% of the project costs related to the purchase and delivery of the wind turbines from Europe. The majority of the remaining spend went to NZ companies, many of which were based in the Manawatu.

Civil works are usually the second largest cost of developing a wind farm, following the purchase of turbines. For Tararua 3, civil works cost \$17 million. Of this, over 80 percent – \$13.5 million – was spent directly with Manawatu companies.

The head contractor for civil construction work was Higgins Contractors Ltd, a Manawatu based company. Other local subcontractors were involved in work at the site, undertaking earthworks, trenching, surveying and fencing, laying turbine foundations, and providing security. Using the knowledge gained at Tararua, many of these companies have gone on to work at other wind farms. As just one example, Higgins managed the civil construction work for Project West Wind, a 143MW wind farm near Wellington.

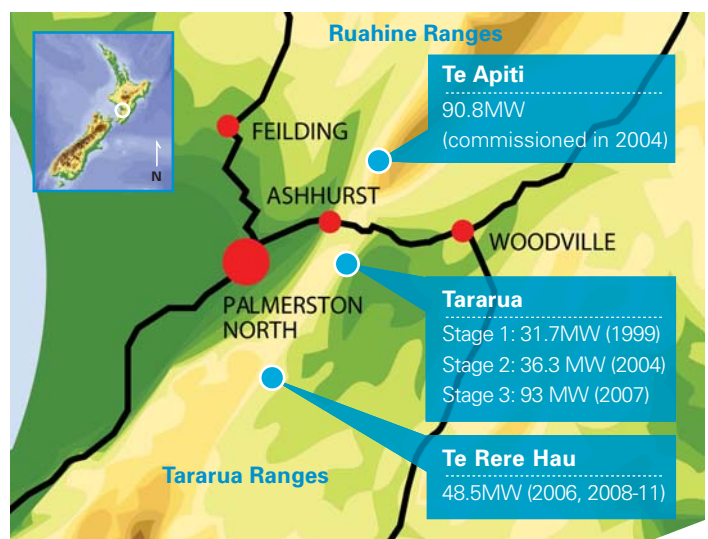
Tararua Stage 3

The wind farm

\$180M	total project cost
\$45M	project spend within New Zealand
370GWh	nominal annual electricity generation, which is equivalent to the amount of electricity used by about 46,000 homes in a year

In the Manawatu

80%	percentage of civil construction costs (\$13.5m of \$17m) spent with Manawatu companies
100	full time equivalent jobs created during construction
\$4M	annual operations and maintenance spend
6	permanent operations staff



The economic benefit to the wider Manawatu economy was greater than the direct project spend. Civil works at the site alone involved 200,000 man hours over a 12-month construction period. This created 100 full-time equivalent jobs. Over \$7 million was paid out in salaries, much of which flowed on to the wider Manawatu economy as many of the people working on Tararua 3 lived in the region.

Many other companies supplied equipment and services to contractors on site. And hotels, restaurants, rental car companies and the airport benefited as people travelled to and from, and worked at, the wind farm site.

Operations

The ongoing operation of Tararua 3 injects roughly \$4 million per year into the Manawatu economy.

In 2009 Vestas, the turbine supplier and wind farm operator, spent \$2.25 million with over 100 local companies in relation to Tararua 3 alone. These companies supplied a wide range of equipment and services – from batteries, gloves and protective clothing to grease, cranes, transport, engineering, hydraulic components, electronics and earthworks.

Landowners receive a total of about \$600,000 in royalties each year from Trustpower.

The ongoing operation of all three Manawatu wind farms injects an estimated \$8 to \$11 million into the Manawatu economy each year.

Vestas' has an operations base in Palmerston North and employs six people permanently for Tararua 3. In total it employs 38 people in Palmerston North – up from just two 10 years ago when the first turbines were commissioned at Tararua wind farm. These employees provide service for Tararua 1 and 2 and Te Apiti wind farm, as well as for Tararua 3.

Vestas' New Zealand-based technicians are well respected internationally. They have the opportunity travel internationally for specialist training and to make use of the skills and experience they gain at Tararua wind farm.

Tararua 3 project costs

\$ million

Development	1.5
Project management	1.5
Electrical works	5
Substation and transmission	10
Other	10
Civil works	17
Turbines	135



Tararua wind farm

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