



NEW ZEALAND

Clean technology industry in New Zealand

July 2008

In this document:

- **Overview**
- **Fast facts**
- **International innovations**
- **Sustainability achievements**
- **Up-and-coming innovations**
- **Industry contacts**

Overview

Clean Technology applies to a range of world changing technologies that harness renewable materials and energy sources, dramatically reduce the use of natural resources, and limit or eliminate emissions and wastes.

New Zealand has a history of innovative developments and expertise in renewable energy and environmental technologies, paired with benchmark policies in environmental protection and management. The country's overarching policy for land use, the Resource Management Act, has resulted in environmental planning becoming a necessary feature of product and service development for most major industries.

New Zealand historically has been a pioneer in a number of clean technology areas including geothermal energy and the use of CNG/LPG for transport fleets.

With the advantage of experience, New Zealand is seizing on the opportunities presented by global markets and investors hungry for clean technology offerings. Some of the country's strongest offerings are in renewable energy, energy efficiency, waste and wastewater management, nanotechnologies, transportation and sustainable agriculture.

Fast facts

- Globally, clean technology is commanding massive investment. According to United States consultancy Clean, global investment in clean energy alone is expected to reach US\$167 billion by 2015.
- In 2006 GE invested US\$900 million in cleaner technology research and development and is targeting an annual spend of US\$1.5 billion for research and development by 2010.
- Major clean technology sectors include energy generation (biofuels, solar, wind, hydro/marine, geothermal); energy storage (fuel cells, advanced batteries); energy infrastructure;



NEW ZEALAND

energy efficiency (mechanical and electrical efficiency, building materials and lighting); transportation; water and waste treatment; air and environment (including carbon audits and offsets); smart materials (nanotechnology, biopolymers, novel alloys); smart manufacturing and industrial processes; and sustainable agriculture.

- The over-the-counter voluntary carbon offset market is estimated to have grown 200 percent between 2005 and 2006.
- Currently 65 to 70 percent of New Zealand's electricity is generated by renewable energy sources – mostly hydro, geothermal, wind, and a small amount from biomass.

International innovations

Flotech

Compressor and heat exchange technology has traditionally been Flotech's core business but with the drive for sustainable energy solutions its "Greenlane" biogas upgrading systems are in demand. The biogas upgrading systems produce renewable energy which is carbon neutral. The company, which operates in Sweden, New Zealand, Australia and Singapore, holds the Environmental Management System Standard ISO-14001 for its gas compressors, biogas systems and heat exchangers. In September 2007 they commissioned the world's largest biogas treatment plant which processes 4,000 cubic metres per hour of raw gas in Madrid, Spain.

International collaborations

WhisperGen™

Whisper Tech Limited has created the gas-fired, grid-dependent WhisperGen™ micro combined heat and power (microCHP) system for home domestic use – an energy efficient boiler heating system that also generates electricity to supplement the grid supply. The result is lower energy costs, reduced dependence on mass energy production and a reduction in CO2 emissions overall. Spanish industrial cooperative group Mondragón Corporación Cooperativa and Whisper Tech's parent company Meridian Energy have formed a joint venture to mass-manufacture the micro combined heat and power system in Spain for distribution in Continental Europe.

Sustainability achievements

Tenon

Tenon Limited's wood processing plant in Taupo specialises in producing high value clearwood products for the North American market. Before its redesign, the plant burned up to 500 terajoules of natural gas per annum to provide heat for its nine wood-drying kilns. That was until energy supplier Contact Energy got on board to help the plant move to renewable energy. Now the new plant takes a mix of geothermal steam and water to three heat exchangers, and the geothermal heat is then used as the sole



NEW ZEALAND

heat source for the kilns. The new facility has reduced Tenon's energy costs and prevents the release of about 26,000 tonnes of carbon dioxide emissions each year. The redesign saw Contact Energy win the 2007 Sustainability and Clean Technology category of the Engineering Excellence Awards.

CarboNZero cert™

Landcare Research's carboNZero programme is a world-leading certification scheme for measuring, managing and mitigating greenhouse gas emissions (GHG). Its key focus is on helping individuals and organisations reduce their GHG emissions to the atmosphere. In 2008 it licensed British-based Achilles Information Limited to provide the measurement, management and certification steps of the carboNZero programme to Achilles' 30,000 clients in 23 countries.

Up-and-coming innovations

Enviro-Energy

Hamilton New Zealand based environmental technology company Enviro-Energy safely and economically eliminates biosolids (sludge) from wastewater treatment. Using a unique proprietary drying process, the pilot plant converts dewatered sludge into a sterile energy source to run the system, producing an end product of commercially usable sand and ash which is only 7 percent of the wet volume processed. Cities in the United Kingdom, the United States and Canada have expressed interest in the technology, which has massive universal potential.

LignoTech

Lignotech is using breakthrough technology to convert co-products of the United States ethanol industry, such as corn fibre, dried grains and solubles, into bio-composite plastics. As well as shifting plastics manufacture to sustainable renewable resource materials, LignoTech has developed a full scale commercial manufacturing process. LignoTech is collaborating with United States-based New Composite Partners, the National Composite Center, Washington Penn, Amco, New Zealand's Scion and others on product development and bio-composite research, with some exciting results.

Industry contacts

New Zealand Clean Energy Centre

The New Zealand Clean Energy Centre (NZCEC) has been established with funding from both government and private sources to accelerate New Zealand's transition away from fossil fuels towards clean, renewable energy.

New Zealand Business Council for Sustainable Development

The NZBCSD's mission is to provide business leadership as a catalyst for change toward sustainable development, and to promote eco-efficiency, innovation and responsible entrepreneurship.



NEW ZEALAND

[Energy Efficiency and Conservation Authority](#)

The Energy Efficiency and Conservation Authority (EECA) promotes a sustainable energy future by changing the way New Zealanders think about and use energy. EECA works to raise community awareness of energy efficiency issues and provides businesses and individuals with the tools to make changes.

[New Zealand Trade and Enterprise](#)

New Zealand Trade and Enterprise (NZTE) is the New Zealand government's economic development agency and works with the clean technology industry to build its capability and increase its international connections.