

## Changes since the 1997 State of the Environment report

The following is an extract from Environment New Zealand 2007 (state of the environment report), January 2008. It summarises aspects that have changed in the past 10 years – notably wind energy is frequently referred to as an energy source that has developed during this period and is expected to continue to do so.

The 1997 report, The State of New Zealand's Environment 1997, concluded that:

*Most of our electricity is of hydro origin (with impacts on river flows and lake levels) but around two-thirds of our total primary energy supply is from fossil fuels (with pollutant impacts on atmosphere, water and soil). ...*

*Responses to the environmental impacts of energy services include the requirement to obtain consents under the Resource Management Act, moves toward greater use of renewable energy forms (including the development of wind power) and the encouragement of energy efficiency. (Ministry for the Environment, 1997, chapter 10.)*

In 2007, most of New Zealand's electricity is still generated from its hydro resources and more than two-thirds of its total primary energy supply comes from fossil fuels.

### Consumer Demand for Energy

Since 1997, total consumer demand for energy has grown. During this time, consumption of oil, gas, electricity, and renewable fuels (biogas, wind, wood, and solar) has increased, while consumption of geothermal energy and coal has decreased (excluding the geothermal energy and coal used to generate electricity). Since 1997, the transport sector has consumed the largest share of energy; however, the commercial sector has shown the greatest growth in consumption.

Similarly, Statistics New Zealand's 2007 report, Energy and the Economy: 1997–2005, found that use of transport fuels by households account for a considerable proportion of New Zealand's energy consumption. In 2005, households used 83 per cent of New Zealand's consumer petrol. When electricity use by households is combined with their transport fuel use, households are the largest user of energy in New Zealand.

### Total Primary Energy Supply

To meet growing consumer demand, New Zealand's total primary energy supply has increased since 1997 and is still dominated by fossil fuels.

New Zealand's domestic gas and oil reserves have declined over the past 10 years, and as a result the amount of primary energy supplied by New Zealand oil has decreased. However, the contribution of New Zealand oil sources to its total primary energy supply has always been relatively small, and we rely on imported oil to ensure security of supply.

## **Use of Renewable Energy**

Since 1997, New Zealand has been moving towards greater use of renewable energy forms such as wind power, solar power, and biofuels.

In 1997, New Zealand had one wind farm, Hau Nui in the Wairarapa region, and one turbine at Brooklyn in Wellington. There are now eight wind farms operating throughout the country, with several more projects at various stages of planning.

Demand for solar energy is small but is increasing, particularly for water heating. Industry sales of solar water heating systems indicate that, as of June 2006, about 35,000 solar water heating systems were installed in New Zealand homes and commercial buildings. Ten per cent (3,500) of these were installed in the year leading up to June 2006 (Energy Efficiency and Conservation Authority, 2006b).

International energy policies have led to the development of a global market for renewable transport fuels and technologies. This has prompted the introduction of biofuels for commercial use in New Zealand.

## **Energy Efficiency and Conservation**

Since the introduction of the Energy Efficiency and Conservation Act in 2000, there has been an increased focus on energy efficiency and conservation in New Zealand. Energy efficiency and conservation measures focus on demand management – that is, influencing the quantity and pattern of energy used by the consumer. Examples include:

- programmes to improve insulation in older homes and to encourage the uptake of efficient home heating and lighting options
- the Energy Star rating programme, which enables consumers to compare the energy efficiency of household appliances
- the introduction of energy efficiency requirements in the Building Code
- schemes to help businesses, households, and organisations save energy.

By improving how we use energy, New Zealand can reduce the need for new energy supplies, improve security of supply, reduce greenhouse gas emissions, and increase productivity. This will free up valuable capital for more productive enterprises.

Since 1997, consumer energy demand has increased at a lesser rate than the growth of the economy (as measured by gross domestic product). This trend indicates weak relative decoupling of energy demand from economic growth. In the future, there will be a greater focus on decoupling energy demand and economic growth.

## **Present and future management**

New Zealand continues to move towards greater use of renewable energy and an increased focus on energy efficiency.

The recent changes in international energy supply and higher energy costs, coupled with concerns about climate change, have resulted in a global drive towards even greater energy efficiency and greater use of renewable fuels. These concerns are likely to continue into the future. The challenge for New Zealand is to maintain economic and social well-being, while reducing the environmental costs of energy use.