

1. EXECUTIVE SUMMARY AND KEY RECOMMENDATIONS

EXECUTIVE SUMMARY

To date, New Zealand's strong commitment to undistorted and transparent liberalised energy markets has delivered a relatively high level of energy security and economic prosperity for consumers. Furthermore, in order to fully understand and analyse the challenges New Zealand policy makers face, it is important to take into account the country's geographic isolation and low population density. Within this policy-making framework, where policy changes have been needed the government has generally acted; the 2009 decision to improve electricity market performance, the two-phase reform of the Resource Management Act, the 2009 Petroleum Action Plan and the Energy Research Roadmap are relevant examples. In recent years, the government has also introduced a series of Government Policy Statements, on Gas Governance and on Land Transport Funding, and a National Policy Statement on Electricity Transmission. A National Policy Statement on Renewable Electricity Generation is currently being developed. Since the previous review in 2006, the government has built on the success of existing policy mechanisms and implemented a number of IEA recommendations. Tougher building standards have been introduced, the New Zealand Emissions Trading Scheme has been developed, a new Vehicle Exhaust Emissions Rule was introduced and the Warm Up New Zealand programme has been developed. In 2008, the national Energy Strategy was placed under detailed review and the outcome of this process was the draft New Zealand Energy Strategy, which was published alongside an updated energy efficiency strategy, in mid-2010.

The government has set two national targets for reducing greenhouse gas emissions: a medium-term responsibility target of a 10% to 20% reduction in emissions below 1990 levels by 2020 and a long-term target of a 50% reduction in net greenhouse gases from 1990 levels by 2050. In February 2010, New Zealand announced that it was joining the Copenhagen Accord on climate change. To assist in meeting the country's Kyoto targets, the government introduced a New Zealand Emissions Trading Scheme (NZ ETS), which commenced in July 2008. By 2015, the NZ ETS will cover all sectors and all gases and will be reviewed every five years, with the first review to be carried out in 2011. During a transition phase, emitters will only be liable for half their emissions, having to surrender one emission unit for every two tonnes of emissions. New Zealand is one of the first non-EU OECD member countries to introduce such a scheme; it represents a significant achievement and the ability to review the scheme in 2011 presents the government with an opportunity to make any changes necessary.

New Zealand has abundant renewable energy resources, which at present contribute over 70% of electricity output, one of the largest shares among OECD countries. The government goal is to increase this proportion to 90% of electricity generation by 2025 (in an average hydrological year) providing this does not affect security of supply. We welcome renewed government support for this target. Furthermore, New Zealand is

recognised as having one of the best wind energy resources of any OECD member country and, although underdeveloped, the industry is growing. This is despite the absence of subsidies or explicit fiscal mechanisms, which are available to developers elsewhere. Further potential for geothermal energy, where New Zealand is also a world leader, remains and the government is supporting the industry by means of a high-level overview of geothermal technologies and the preparation of an assessment of potential barriers to development. Hydropower, the principal source of electricity, contributes over 55% of capacity, continues to expand with a number of capacity additions planned or under construction. Hydro's contribution, however, as a percentage of total electricity generated, has declined in recent years as the contribution from other renewable sources of electricity such as wind and geothermal has increased. The country also has substantial bioenergy resources but their potential has yet to be realised.

Since the last review, the government has completed an assessment of the electricity market, the objective of which was to improve performance of the sector in line with government objectives. The outcome of this assessment, in the form of a government decision, was published in late 2009 and a series of changes to improve sector performance is being implemented in 2010. Among the changes being made are a reconfiguration of the state-owned enterprise generation assets, the promotion of a liquid electricity futures market, measures to improve energy security and further steps to improve electricity market governance. Regarding electricity security, where New Zealand remains vulnerable owing to a reliance on hydropower, the Electricity Commission recently developed security of supply regulations and published a security of supply policy document, an Emergency Response Plan and Outage Plan. Transpower, the owner of the electricity transmission network, is investing in a number of large upgrade projects, including the North-Island Grid Upgrade and the Inter-Island Link Project, which are under construction at present.

In April 2008, the government published a Government Policy Statement on Gas Governance. The purpose of this document was to clearly establish the objectives and outcomes of the Gas Industry Company (GIC), the approved industry body and co-regulator of the gas market. The statement provides industry with a clearer understanding of the respective roles of each party, government and the GIC, while retaining the preference for light-handed regulation which is maintained by regular reporting to the minister on progress made towards meeting the government's objectives.

New Zealand is self-reliant in natural gas but faces a decline in domestic production as output from the Taranaki Basin falls. In April 2010, the government announced a major two-year work programme aimed at promoting oil and gas exploration. Crown Minerals has contracted with the Institute of Geological and Nuclear Sciences (GNS Science) to deliver the NZD 7.6 million Petroleum Exploration and Geosciences Initiative (PEGI) project, a suite of individual projects focused on improving knowledge of New Zealand's petroleum potential. The oil industry is similarly affected as production is forecast to decline rapidly. In response, changes have been made to the tax and royalty regime, including an adjustment to the corporate tax rate and a simplified royalty regime, to make exploration more attractive to investors. Since 2007, New Zealand has met the IEA's overall minimum stockholding obligation of 90-day net imports by supplementing domestic stocks with stockholding in other IEA member countries, in the form of ticket reservation. In an IEA co-ordinated action, New Zealand would likely contribute to the collective response by releasing these public stocks and implementing a campaign for voluntary demand restraint.

New Zealand has relatively strong energy efficiency policies, including minimum energy performance standards and energy rating labelling requirements in place for appliances and equipment. The compliance monitoring programme for these policies is robust, which contributes to meeting the level of energy efficiency improvements expected from the sectors. Furthermore, New Zealand has a well-regarded energy efficiency statistics and indicators capability; the Energy End-Use Database developed by the Energy Efficiency and Conservation Authority (EECA), which contains detailed end-use energy consumption estimates based on national-level data. These estimates of national energy use are broken down into different categories, including sector, technology, end use, region and fuel type. This is essential for good policy development and should be commended. On the other hand, many New Zealand homes have poor energy efficiency performance relative to European or North American countries, for example there is little central heating. The government's response, the roll-out of the Warm Up New Zealand programme, has been well managed and will deliver long-term benefits for the government and consumers. We welcome the government contribution of NZD 324.82 million and its aim to retrofit more than 180 000 homes by 2012/13.

The Ministry of Economic Development is preparing a work programme to ensure that carbon capture and storage (CCS) remains an option for New Zealand and that the country is active in CCS research and demonstration projects at home and elsewhere. Solid Energy, a state-owned enterprise, is investigating CCS technologies and is operating a practical trial aiming to store 100 000 tonnes of CO₂ underground.

As a technology taker, investment in energy technology research and investment in New Zealand is traditionally at the lower end of the OECD scale in terms of New Zealand dollars spent per unit of gross domestic product (GDP). Nonetheless, the amount of money invested in R&D has increased in recent years, with investment generally in line with government priorities, much of the increase in funding over recent years being targeted on the biofuels and geothermal energy sectors.

New Zealand has traditionally taken a proactive approach to energy policy and many of the changes adopted in the last four years continue this position. Recent policy developments demonstrate a visible commitment to energy policy reform which has built upon previous IEA recommendations. Nonetheless a number of policy challenges remain.

ENERGY STRATEGY

In recent years, the energy policy environment has been marked by uncertainty. It is difficult to fully assess the long-term potential and effectiveness of energy policy when significant changes occur on a regular basis. Investments in energy infrastructure are long-term considerations and require some level of national consensus and regulatory certainty before informed and efficient decisions can be taken. At the time of the review team visit, in December 2009, a review of the 2007 Energy Strategy had been announced by the newly elected government in order to align government energy policy priorities and to reflect a stronger focus on economic development. In mid-2010, a revised New Zealand Energy Strategy was published in draft form, the goal of which was to assist the country to make the most of its energy potential. This document clearly identifies a number of priorities and is intended to form the basis of the strategic direction of the New Zealand energy sector and the role energy will play in the economy. The IEA welcomes the publication of the draft Energy Strategy and urges the government to move quickly and finalise this important Strategy and commence implementation in

collaboration with other relevant ministries and industry stakeholders. The Strategy should include clear priorities and identify firm actions needed to meet them.

ENERGY EFFICIENCY

The draft New Zealand Energy Efficiency and Conservation Strategy (NZECS) was published alongside the draft New Zealand Energy Strategy (NZES). The draft NZECS was prepared under the Energy Efficiency and Conservation Act 2000 to promote energy efficiency, energy conservation and renewable energy. The NZECS proposes energy-saving goals for each of the energy-consuming sectors of the economy and assigned clear, sometimes shared, responsibility for leadership within each sector. Supporting actors have been identified and governance arrangements, progress monitoring and review mechanisms included. Nonetheless, the draft proposals lack a firm commitment to actions that will contribute to achieving the energy savings goals. The government needs to assign priorities for working towards goals it can realistically achieve in order to demonstrate early effectiveness and lead to confidence building. The Strategy is missing a firm set of actions to achieve its stated goals. While the Strategy takes a high-level view, action plans complement strategies by detailing what specific actions are needed, by whom and when. Detailed action plans targeted specifically on the transport, commercial buildings and industry sectors may be needed in the form of sectoral strategies.

INVESTMENT IN ELECTRICITY INFRASTRUCTURE

The Transpower-owned national grid is a cornerstone of New Zealand's energy infrastructure and general economic well-being. Investment in the electricity transmission network peaked over thirty years ago while demand for electricity has continued to grow, by almost 300%, over the same period. The grid is highly loaded, constraints are frequent and it is increasingly difficult to take assets out of service for planned maintenance. While there was significant increase in expenditure from 2005 to 2008, it appears that this was to address constraints rather than an investment for the future. At the same time, electricity security has become more fragile; the country has faced four major droughts since 2010. There is an obvious need, therefore, to increase and maintain investment in both transmission and generation capacity. A robust grid is necessary to facilitate the forecast growth in "renewable electricity" required to meet the government's 90% target. Furthermore, there is significant potential for efficiency gains in the form of reduced losses along the grid. The low-carbon energy system of the future with more variable renewable energy, greater small-scale generating capacity, increased interruptible load and demand participation, electric vehicles, supported by a smart grid, all call for higher levels of investment. We understand that this process has commenced and we commend the government for the scale of the investment programme under way at present. We recommend that the government continue to support investment in long-term development and maintenance of the electricity transmission grid, complemented by the removal of administrative barriers in order to facilitate a competitive electricity market, secure and diverse electricity supply and, in the longer term, a low-carbon economy.

KEY RECOMMENDATIONS

The government of New Zealand should:

- Finalise and implement the New Zealand Energy Strategy in a manner that will inform long-term strategic policy direction for the energy sector based on a co-ordinated approach to economic, environmental and consumer priorities.*
- Finalise and implement the New Zealand Energy Efficiency and Conservation Strategy and give priority to enhancing energy efficiency in the transport, commercial buildings and industry sectors by defining clear objectives for the sector supported by adequate cost-effective measures and long-term investments. The strategy should also include a detailed roadmap towards achieving the government's 90% target for renewable electricity.*
- Continue to support the long-term development and maintenance of the electricity transmission grid, in order to facilitate a competitive electricity market, to meet renewable energy targets, maintain a secure and diverse electricity supply and, in the longer term, facilitate the emergence of a low-carbon economy.*