

## Low-emissions economy

August 2018



The Government asked the Productivity Commission to identify how New Zealand could transition to a low-emissions economy, while continuing to grow incomes and wellbeing. The inquiry investigates the challenges of, and identifies opportunities for, reducing New Zealand's emissions, in the context of an ambition to achieve net-zero emissions by 2050.

This *At a glance* brings together the important messages from the Commission's final report on New Zealand's transition to a low-emissions economy.

### New Zealand's role in the global climate challenge

New Zealand has among the highest per person greenhouse gas (GHG) emissions in the world. This is despite most of New Zealand's electricity coming from renewable sources. Major emissions sources in the New Zealand economy are agriculture and transport.

While per person emissions are large, New Zealand's emissions are a very small share of the global total (less than 0.2%). But this does not justify inaction. Collectively, small emitters (whose individual emissions are less than 1% of the global total) account for around a quarter of global emissions. Countries such as New Zealand do matter and a concerted effort by all is needed to solve this issue. By achieving a successful transition to a low-emissions economy, New Zealand has the opportunity to influence other nations, including by sharing its technology and experience.

### Pathways to a low-emissions economy

The transition to a low-emissions economy will be a long journey through very uncertain terrain. Modelling undertaken for this inquiry suggests that New Zealand can make the transition by cutting its domestic emissions at costs similar to those likely to be experienced by other developed countries. But, the sooner New Zealand begins to reduce its emissions, the less abrupt and costly the transition will be.

The transition to a low-emissions economy will require significant changes that will affect households, businesses, industries, cities, and regions. Three key changes must occur if New Zealand is to achieve its low-emissions goals:

- a transition from fossil fuels to electricity and other low-emissions fuels across the economy. This means a rapid and comprehensive switch of the light vehicle fleet to electric vehicles (EVs) and other very low-emissions vehicles, and a switch away from fossil fuels in providing process heat for industry, particularly for low- and medium-temperature heat users;

- substantial levels of afforestation to offset New Zealand's remaining emissions. This will require sustained rates of planting over the next 30 years (mostly on land currently used for sheep and beef farming) potentially at an annual rate approaching the highest ever recorded (100 000 hectares in 1994); and
- changes to the structure and methods of agricultural production. This will include diversification of land use towards horticulture and cropping, and greater adoption of low-emissions practices on farms.

## Immediate action is needed to drive an effective transition

Stronger emissions pricing, establishing stable laws and institutions, and increased investment in innovation are required in the next two years to set the strategy on the right trajectory and avoid New Zealand incurring unnecessary costs later in the transition.

### Getting emissions pricing right

An emissions price is the price an emitter pays for each unit of GHG they release to the atmosphere. Effective emissions pricing provides a strong incentive to reduce emissions at least cost and provides a clear and credible signal to investors contemplating long-term investments in new production assets that have different emissions consequences.

New Zealand already prices emissions through the Emissions Trading Scheme (NZ ETS). But the NZ ETS needs reform to be effective. Specifically, higher emissions prices, increased coverage across the economy, and greater clarity about the future supply of emission permits are needed. The inquiry's modelling suggests that New Zealand's emissions price will need to rise to at least \$75 a tonne of carbon dioxide equivalent, and possibly over \$200 a tonne, over the next three decades.

GHGs have different atmospheric lifetimes. Some gases, such as carbon dioxide, are long-lived. They accumulate in the atmosphere so any current emissions irreversibly warm the planet. Others, such as methane, are short-lived so that the bulk of the warming effect of current emissions lasts for less than 20 years.

All long-lived gases should be included within the NZ ETS. But biogenic methane from agriculture and waste should be treated differently. Putting biogenic methane within either a dual-cap NZ ETS or an alternative methane quota system, will incentivise reductions of biogenic methane in recognition of its nature as a short-lived GHG.

### Stable and enduring laws and institutions

New Zealand lacks clear and stable climate-change policies. This lack of clarity and political agreement about longer-term goals has weakened incentives for change and undermined confidence in existing policies. The Government should establish:

- legislated and quantified long-term GHG emissions-reduction targets;
- a system of successive "emissions budgets" that, separately for short- and long-lived gases, translate long-term targets into short- to medium-term reduction goals; and
- an independent Climate Change Commission to act as the custodian of New Zealand's climate policy and long-term climate-change objectives. The

Climate Change Commission should provide objective analysis and advice to Government on the scale of emissions reductions required (ie, by recommending emissions budgets); progress towards meeting agreed budgets and targets; and barriers, opportunities and priorities to reduce emissions.

## **Substantial investment in the innovation system**

Innovation comes in many forms and is unpredictable. Yet it is the closest thing to a “silver bullet” to enable humanity to meet the challenge of avoiding damaging climate change. It also provides an opportunity to combine the low-emissions transition with improvements in national wellbeing. While the form, timing and impact of innovation are highly uncertain, a country’s policies and institutions significantly affect its innovation performance. These policies and institutions need to enable and encourage researchers and businesses to both create and deploy new low-emissions technologies.

Given the imperative to reduce emissions, the Government should devote significantly more resources to low-emissions innovation than the modest current allocation.

## **Supportive regulation and policies**

Stable policy, emissions pricing and a fired-up innovation system are needed to change behaviour and promote investment. But, on their own, they will not be enough to maximise the opportunities of the transition for all New Zealanders. A range of other, specific, policies will also be required.

### **Fast-track the uptake of low-emissions transport and avoid emissions lock-in**

Transport is New Zealand’s second largest source of GHG emissions. Low-emissions technologies, particularly EVs, present a significant mitigation opportunity. Because New Zealanders hold onto their cars for many years, fast uptake of low-emissions options will be needed to avoid locking in fossil-fuel cars for decades to come.

To encourage uptake, and catalyse the transformation to a low-emissions transport system, the Government should:

- introduce a “feebate” scheme, in which importers would either pay a fee or receive a rebate, depending on the emissions intensity of the imported vehicle;
- continue to provide funding for some EV infrastructure projects, to fill gaps in the charging network that are commercially unviable for the private sector;
- raise awareness and promote uptake of low-emissions vehicles through leadership in procurement; and
- require imported new and used fossil-fuel vehicles to meet fleet-wide emissions standards. New Zealand is one of a handful of developed countries without vehicle emissions standards, and risks becoming a dumping ground for high-emitting vehicles from other countries that are decarbonising their fleets.

### **Develop an abundant supply of low-emissions electricity**

New Zealand already has a relatively low-emissions electricity system. However, electricity generation will likely need to increase by at least 50% by 2050. An abundant supply of low-cost, low-emissions electricity will be important as other parts of the economy switch from fossil fuels to electricity, particularly transport. Regulatory reform to facilitate the expansion of both grid-scale and distributed renewable energy

generation is needed alongside the removal of barriers to innovative technologies that assist consumers to manage their demand during peaks.

### **Accelerate afforestation**

Land use will need to change substantially if New Zealand is to transition to a low-emissions economy by 2050. Land planted in forests will need to increase by between 1.3 million and 2.8 million hectares, mostly converted from marginally profitable beef and sheep land. In addition to its recent one billion trees programme, the Government should take other steps to accelerate afforestation including making it easier and less risky for small foresters to participate in the NZ ETS and by providing recognition for carbon sequestered in harvested wood products.

### **Targeted interventions across the economy**

The cumulative effect of numerous smaller emissions reductions across the economy will also be important. Many opportunities exist to achieve such change. For example:

- Much of the heat used for industrial processes (such as drying milk) is created using fossil fuels. While rising emissions prices will be central to driving emissions-reducing investments, Government should also play a role by limiting the installation of any new fossil fuel-powered plant for low-temperature heat in publicly owned buildings.
- Waste sector emissions account for 5% of New Zealand's total emissions. Extending the coverage and rate of the waste disposal levy, collecting better data on waste emissions and supporting local councils to regulate waste will help reduce emissions.
- Mandatory climate-related financial disclosures will help to overcome information and inertia barriers inhibiting businesses from adequately addressing climate risk and capitalising on low-emissions opportunities. They will also help investors correctly value assets and avoid stranded assets.

### **Support for communities facing significant transition costs**

The transition to a low-emissions economy presents many opportunities, but also challenges, particularly for low-income households. Government policies could increase the costs of energy, food and transport, which may disproportionately affect these households. These increased costs should be offset through the tax and welfare system. Where emissions-reduction policies generate significant shocks (eg, the loss of a major employer) the response should be targeted toward re-training opportunities for those who will have the most difficulty gaining new employment.

### **Challenging but achievable**

While the challenges of achieving a low-emissions economy are large, they are not beyond the will or ability of communities to respond. New Zealand can reach its low emissions targets if it has the right institutions and policy settings in place, and the journey is embarked upon without delay.

The full report *Low-emissions economy* is available at  
[www.productivity.govt.nz/lowemissions](http://www.productivity.govt.nz/lowemissions)