

World Energy Perspectives

E-Mobility | 2016

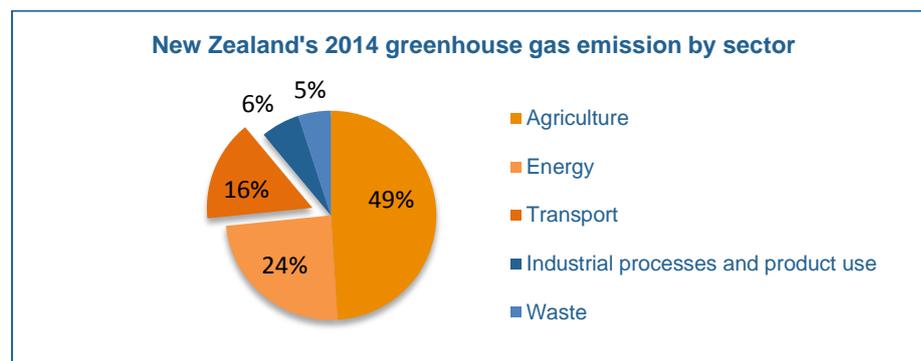


E-Mobility:
Closing the emission gap

The New Zealand Case Study

New Zealand has a vibrant market-led economy with a rapidly increasing population¹ and a high economic growth rate.² It has an energy market that is generally free of subsidies and a broad policy commitment to signal costs and trade-offs so that consumers can make the best choices about the use of resources - from energy fuels to capital. New Zealand also has an abundance of natural resources generating around 81 percent of electricity from renewable sources in the 2015 December quarter.³ However, this renewable advantage belies an energy problem – rapidly growing transport emissions. The transport sector causes around 16 percent of the New Zealand’s greenhouse gas emission as shown in FIGURE 1. These emissions have risen by 60 percent since 1990 (2.1 percent annual).⁴

FIGURE 1: NZ’s greenhouse gas emission



Source: MBIE, New Zealand’s Greenhouse Gas Inventory 1990–2014⁵

In July 2015, the Government announced a target to reduce total greenhouse gas emissions to 30 percent below its 2005 level by 2030.⁶ By leveraging off its high percentage of electricity from renewable sources New Zealand has the significant opportunity for electric vehicles (EV) to make the transport sector cleaner and more energy efficient.

In January 2016 New Zealand had only 1,015 EVs out of 3.1 million registered light vehicles so we are coming off a very low base.⁷ Committing to support the uptake of EVs, the government has recently announced a new EV package. The implications of this new EV policy is to avoid direct subsidies but deal with market failures - like the lack of information about or supply of new technologies such as EVs. This is fundamentally different to most other countries with high levels of EV uptake where governments have chosen to subsidise the market in order to achieve wider policy goals such as decarbonisation.

The New Zealand government, in partnership with the business sector, has developed a package of measures including the goal to double the number of electric vehicles in New Zealand every year to reach approximately 64,000 by 2021.⁸ So for 2020 the government target would be approximately 32,000 EVs. In 2015, the NZ Business Energy Council created two New Zealand specific scenarios of future energy supply and demand (BEC2050: <http://www.bec.org.nz/projects/bec2050>),

¹ <http://www.tradingeconomics.com/new-zealand/population>

² <http://www.tradingeconomics.com/new-zealand/gdp-growth>

³ <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/publications/new-zealand-energy-quarterly>

⁴ <http://www.mbie.govt.nz/info-services/sectors-industries/energy/energy-data-modelling/publications/energy-greenhouse-gas-emissions/documents-image-library/NZ%20Energy%20Greenhouse%20Gas%20Emissions.pdf>

⁵ <http://www.mfe.govt.nz/sites/default/files/media/Climate%20Change/national-inventory-report-2016.pdf>

⁶ <https://www.mfe.govt.nz/climate-change/reducing-greenhouse-gas-emissions/new-zealand%E2%80%99s-post-2020-climate-change-target>

⁷ <https://www.transport.govt.nz/assets/Uploads/Our-Work/Documents/NZ-Electric-Vehicles-fact-sheet.pdf>

⁸ <https://www.beehive.govt.nz/release/govt-driving-switch-electric-vehicles>

consistent with the international picture described by the World Energy Council's long-running scenario work. These describe a predominantly market-led future ("Kayak") with 2,500 EVs in 2020 and a government-led alternative ("Waka") with 41,050 EVs in the same year.⁹ Compared to the analysis set out in the BEC2050 Energy Scenarios report the government's 2020 target falls between our Kayak and Waka scenarios but looks to achieve outcomes more akin to, if not more optimistic than, Waka where relatively high oil and carbon prices drove EV uptake under the BEC2050 Waka storyline.

The new EV policy will not just allow EVs to use the bus lanes and high-occupancy vehicle lanes on the State Highway, but also include elements such as one million NZD annually for nation-wide EV information and promotion campaign over five years, an extending of the road user charges exemption on light EVs plus a new road user charges exemption for heavy EVs until they make up two percent of New Zealand's light vehicle fleet¹⁰ and a fund of up to six million NZD annually to encourage and support innovative low emission vehicle projects. The package also seeks ongoing collaboration between the government and the private sector to arrange bulk purchases as well as the establishment of an electric vehicles leadership group.¹¹

Government agencies will coordinate activities to support the development and roll-out of the public charging infrastructure. A key element of this coordination will be to encourage EV charging during off-peak periods to minimise the use of electricity from non-renewable sources, and avoid the need for electricity transmission and distribution investment to meet a growing EV electrical load. New Zealand's flexible wholesale and retail market design (including a carbon price which applies to electricity generation)¹² should help retailers design products which incentivise EV charging at the most efficient time.

The EV package signals an initial step to reduce greenhouse gas emission in New Zealand's transport sector. This package is a significant initiative to encourage private consumers to experience the benefits of driving EVs and express their desire to limit global warming.

⁹ http://www.bec.org.nz/_data/assets/excel_doc/0015/110841/Report-BEC-2050.xls

¹⁰ 2% corresponds to approx. 62,000 EV today

¹¹ <https://www.beehive.govt.nz/release/govt-driving-switch-electric-vehicles>

¹² NZs current carbon price is around NZD 14/tCO₂-e