

Understanding New Zealand's GHG Emissions Profile as a Basis for Strategic Planning



Webinar summary



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The webinar was organised by the [Bioenergy Association](#) and presented by Dr Martin Atkins and Dr Tim Walmsley of the [Waikato Energy Research Centre](#). The presentation is [available here](#).

NZ's Emission Reduction Targets

The New Zealand government has agreed to woefully inadequate emission reduction targets and, worse yet, has not developed a comprehensive policy package that will effectively meet these targets.

The central aim of the Paris Agreement (signed 12 Dec, 2015) is to strengthen the global response to the threat of climate change by keeping the global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. None of New Zealand's targets come close to this as the table below demonstrates and as a nation we are not contributing our fair share.

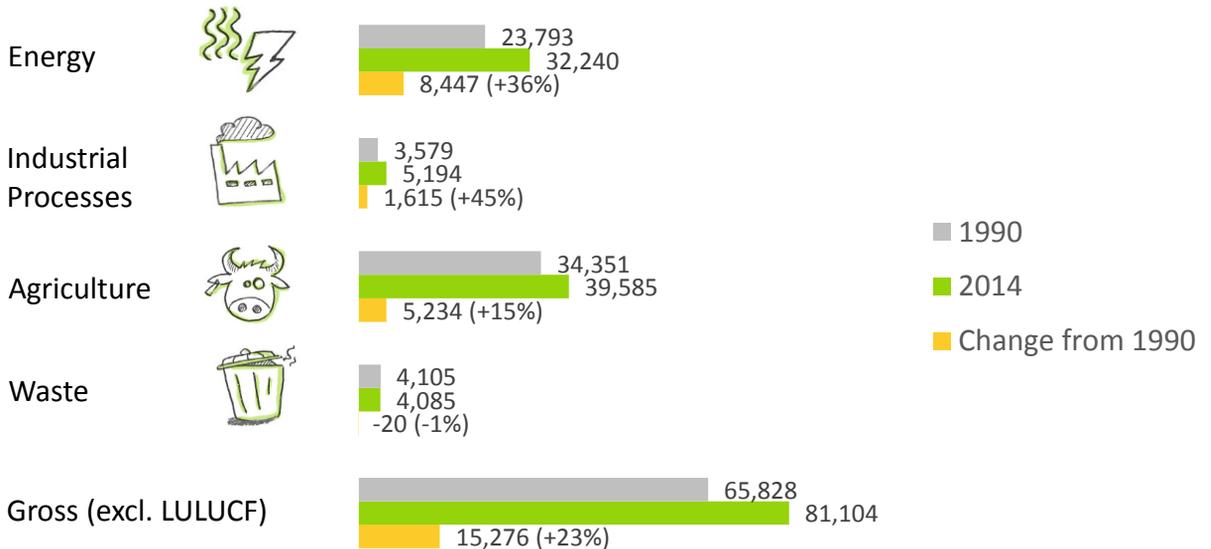
Year	New Zealand's Commitment	Required to stay below 2 dep warming
2020	5% below 1990 levels (unconditional), 10 –20% below 1990 (conditional)	20% below 1990 levels
2030	11.2% below 1990 (provisional)	50% below
2050	50% below 1990 levels (aspirational)	66% below 2010 levels
2100	Not available	100 % below 1990 levels

Emissions Contribution and Analysis by Sector

Since 1990 New Zealand has increased GHG emissions by 23% despite agreeing to Kyoto Protocol commitments to reduce emissions 5% below 1990 levels by 2012. In real terms, to meet the target pledged New Zealand needs to reduce emissions by **19 Mt** (19000 kt CO₂e), compared to business as usual, by 2030.

The major sources of our GHG emissions are presented over the page along with data showing how they have increased.

NZ GHG Emissions by sector in kt CO2 equivalent (2014)

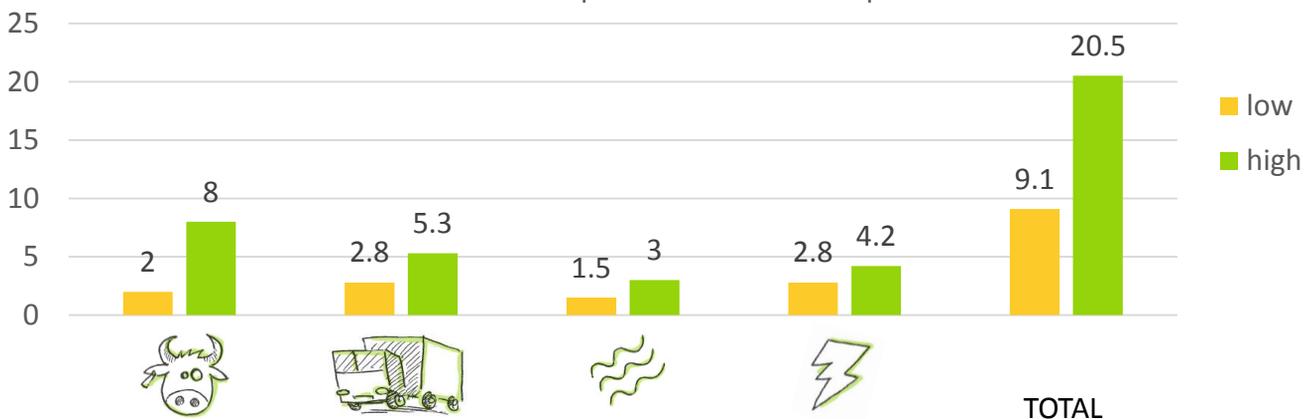


Agriculture emissions are mostly due to enteric methane (72%) and agricultural soils (21.5%). Transport emissions are due to the use of fossil fuels largely used in personal cars and air transport. These being the most inefficient modes of transport. Process heat emissions are largely due to the manufacture of dairy products (22%), cement (20%), methanol (14%), petrochemicals (10%) and other manufacturing. Electricity GHG emissions are due to the use of coal, natural gas to generate electricity. Geothermal also emits GHG's but at much lower rates. New Zealand currently has a very high renewable energy mix in our electricity generation (80 % in 2014).

Emission reduction options

The authors identified emission reduction options in each sector (see table below). The outcome being that New Zealand needs to use all emission reduction options and make significant reductions in all sectors to meet our commitments in 2030. This is possible, but would require changes to the ETS and commitment from the government. The emission reduction options identified lead to a **20.5 Mt CO2e** emission reduction compared to the 19 Mt required to reduce emissions by 5%.

GHG Reduction potential in Mt CO2 eq



Agriculture:

- Low methane and nitrogen feeds
- Low GHG emitting animals
- Methane inhibitors
- Anti-methane vaccines

Transport:

- Fuel switching
- Higher use of public transport
- More efficient engines
- Biofuels

Process heat:

- Fuel switching
- Energy conservation and efficiency

Electricity:

- Energy conservation and efficiency
- Replace thermal generation with renewables