



Z Energy submission on The Productivity Commission's inquiry into transitioning to a low emissions economy.

2 October 2017

Z Energy welcomes the Productivity Commission's inquiry into how New Zealand can maximise the opportunities and minimise the costs and risks of transitioning to a lower net-emissions economy, in order to identify options for how New Zealand could reduce its domestic greenhouse gas emissions through a transition towards a lower emissions future, while at the same time continuing to grow incomes and wellbeing.

The review provides a timely opportunity to develop a meaningful policy response in order to meet New Zealand's agreed climate target. Z encourages the New Zealand Government to set an ambitious pathway so all parties – business, government, and society - can move towards a common, and meaningful goal.

Failure to prepare for climate change has been identified as posing the greatest risk to the global economy over the next decade in a World Economic Forum survey released recently. In the New Zealand context, this risk can include ongoing and protracted policy uncertainty for business; damage to New Zealand's credibility and brand; and reduced competitive advantage, with New Zealand losing its global reputation as an innovator and leader. These risks sit alongside the global environmental and social risks caused by rising temperatures, like species extinction, sea level rises here and in the Pacific, and the impact of extreme weather events on health, infrastructure, tourism and the agriculture sector.

We will only be able to reduce emissions in all sectors if we have coherent, predictable government policies that match the new global ambition. This will need to include efforts to support the path towards a global price that is supported by a linked emissions market, enduring and long-term political accord to encourage and stimulate alternative energy investment, and a meaningful price on carbon that will engender real behavioural change.

Z has long been on the record as believing in the science of climate change, and we have taken material steps towards decarbonising our own and our customers' activities. Z's recently-revised sustainability [stand](#) is: "We stand for an environmentally sustainable New Zealand that is an example to the rest of the world and an inspiration to Kiwis. Z will move from being a part of the climate change problem to the heart of the solution. We will be bold and provide leadership and a range of solutions to enable our customers, stakeholders and communities to join us on the journey to a low carbon future." We've committed to reducing our carbon emissions by 30% by 2020, and offsetting those we are unable to avoid.

Z Energy understands that the inquiry task is framed around two broad questions:

- What opportunities exist for the New Zealand economy to maximise the benefits and minimise the cost that a transition to a lower net-emissions economy offers, while continuing to grow incomes and wellbeing?
- How could New Zealand's regulatory, technological, financial and institutional systems, processes and practices help realise the benefits and minimise the costs and risks of a transition to a lower net emissions economy?

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Submission Form

Q1. How can the Commission add the most value in this inquiry?

Z Energy ('Z') agrees that the Commission can add the most value in this inquiry in the following ways:

- providing an independent and robust analysis of whole-of-economy trade-offs based on sound economic analysis;
- developing ways to assess the benefits and costs of different pathways for New Zealand to transition to a low-emissions economy;
- taking a longer-term perspective in identifying policies and institutions that will be required to achieve a low emissions economy that enhances productivity and wellbeing;
- describing what a low emissions economy will mean for the many different businesses and households in New Zealand;
- developing conceptually sound but doable recommendations for change; and
- bringing its expertise and understanding of innovation, and the development, adoption and diffusion of new technologies, in the New Zealand economy to this task.

Z is supportive of the external views the Commission will draw on in finalising its final position; particularly those referred to that were authored by Motu Economics, the Business New Zealand Energy Council, and Vivid Economics. Z was a member of the Motu Economics multi-disciplinary programme *Shaping New Zealand's low emissions future*, and concurs with its policy findings. Z supported and sponsored the Vivid Economics *Net Zero in New Zealand* report prepared for GLOBE-NZ. Z was also involved in the Business Energy Council scenarios work, providing assumptions to inform the modelling. Z was also a project sponsor.

Z also publicly supported the outgoing Parliamentary Commissioner for the Environment's recommended structure to make and monitor decisions on New Zealand's emissions. Z is especially supportive of the Commissioner's call for a new Act similar to the UK Climate Change Act 2008; putting New Zealand's emissions targets into law, and requiring the setting of carbon budgets that would act as stepping stones towards the targets. The Act would also establish an independent expert group that would provide objective and transparent advice. The resulting long-term policy predictability would help New Zealand businesses manage investment risks.

Q2. Chapter 3 of this issues paper mostly looks at ways to reduce emissions directly at their source. What other approaches would help identify opportunities to effectively reduce emissions?

As per Z Energy's submission on the NZ ETS Review 2015/2016 consultation, Z believes that the current NZ ETS: a) bears a per-tonne price point far too low to effect meaningful change, and b) isn't linked internationally to a fully-functioning, fungible supply of credible units.

Z's submission is that a future NZ ETS should:

- Place an absolute cap on emissions, in order to incentivise meaningful change;
- Cover all sectors, and all gases to full obligations under this cap;

- Support the transition to net zero emissions and a reduction in gross emissions domestically;
- Phase out the two-for-one allocation as quickly as possible;
- Introduce auctioning as soon as possible;
- Include credible international units as soon as feasible, with restriction on the number and quality of units able to be purchased from offshore; and
- Ensure any price pass-through is not targeted at those least able to afford the impacts; and any policy response to this end incorporates across-government social equity considerations in its application.

Z's view is that New Zealand is now more able to afford to take meaningful action on climate change, and the scientific impetus as to why this matters means New Zealand can no longer afford not to take meaningful action.

Q8. What are the main barriers to the uptake of electric vehicles in New Zealand?

The barriers to the swift uptake of electric vehicles in New Zealand are fairly well understood now. They include:

- Upfront cost compared to equivalent internal combustion engine vehicles;
- Model availability and consequent fit with consumer/business use patterns;
- Charging infrastructure reliability and accessibility; and
- Knowledge of and confidence in new technology and ways of doing things.

We have nothing to add to the comprehensive table (Figure 12) in the Issues Paper, summarising the strengths, weaknesses, barriers and possible opportunities associated with the uptake of EVs.

Different external views exist but the general consensus is that total cost of ownership parity with internal combustion engine vehicles will occur from the early 2020s as batteries improve. The current upfront price premium for a BEV represents a visible barrier to consumer uptake.

Q9. What policies would best encourage the uptake of electric vehicles in New Zealand?

Z Energy believes that the Government could be far more bullish in their support of EV uptake in New Zealand – particularly around their own role as a significant procurer of electric vehicles. Investing significantly in EV import and uptake would turn over the second-hand market much more quickly, and bring the price point down to a more reasonable level for those considering purchasing an EV themselves.

One possibility to accelerate the transition to an electric fleet could be through a “feebate” scheme. New registrations (and renewals) introduce a cost differential related to the vehicles carbon emissions. Higher carbon emitting vehicles are charged a higher initial and ongoing registration, which is recycled into lower cost (or rebated) costs for low emissions vehicles. This type of scheme is a way to accelerate the fleet transition beyond what carbon pricing will achieve, in an area where there is a low emission choice available.

Q10. In addition to encouraging the use of electric vehicles, what are the main opportunities and barriers to reducing emissions in transport?

Z Energy agrees with the Issues Paper that the use of biofuels as a substitute for petrol and diesel could complement EVs in reducing vehicle emissions. The Ministry of Business, Innovation and Employment (MBIE) (2015) notes that a typical blend of biofuel leads to a 5-6.5% reduction in GHG emissions per litre of fuel compared to regular fuels. While traditional sources of biofuel have limited supply (PCE, 2010), new technologies for producing biofuels from sources including wood and agricultural wastes hold potential (RSNZ, 2016).

Z is supportive of the uptake of EVs in New Zealand and has a view that biofuels have additional potential to materially reduce transport emissions in New Zealand.

Biofuels are able to be used in the existing transport fleet, integrate into existing supply chain infrastructure with relative ease and provide material GHG reduction benefits. To provide context of relative GHG reductions, Z's biodiesel plant will produce 20 million litres of pure biodiesel which will result in 37,000 tonnes of CO₂ saving per year, the equivalent of taken 17,000 medium sized diesel cars off the road each year. In comparison to the 64,000 EVs target in New Zealand, this plant is equivalent to 25% of the EV emission benefits. Furthermore, there are some transport applications where electrification is significantly less developed and biofuels are a far greater fit for low carbon transport. One industry which is very pro-biofuels is aviation. In 2016, the global aviation community publicly committed to some highly ambitious carbon reduction targets, including the reduction of emissions of 50% by 2050. Projections on what it will take to achieve that are in the graph below, biofuels are a dominant feature. There are a multitude of companies around the world working on the development of advanced biofuels, in particular for aviation application.

Z believes there are credible short and long term biofuel opportunities for New Zealand. In the short term, Z has the capacity to double the size of its biodiesel production facility (tallow feedstock) from 20 to 40 million litres per annum, and invest in additional plants in New Zealand. Approximately 150,000 tonnes of tallow is produced in New Zealand each year as a by-product from the meat industry. The current facility only utilises ~10% of this feedstock. Additionally it would be possible to import renewable fuel and displace the fossil fuel which is imported to New Zealand today.

In the medium-longer term, there is an opportunity to commercialise an advanced biofuels production facility in New Zealand that would see the manufacture of renewable, drop-in fuels for both a ground and aviation fleet – however, this would require a different market context to that which exists today.

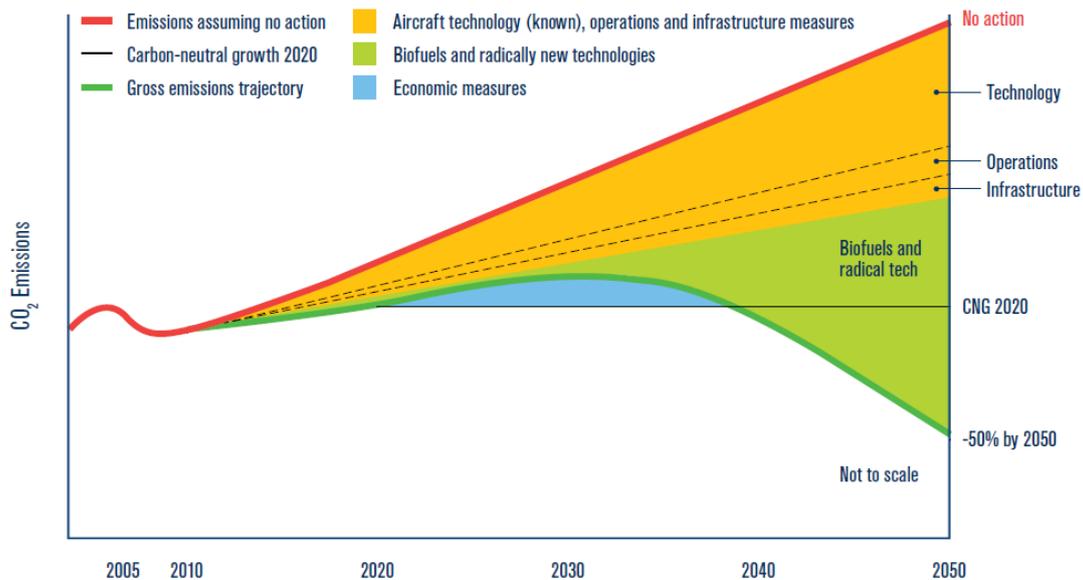


Figure 4: Schematic CO2 emissions reduction roadmap [Source IATA]

Current barriers to the large scale uptake of biofuels in New Zealand are the technical maturity of various biofuel technologies and the cost of production / supply, relative to the prevailing fossil fuel alternative.

Regarding technical maturity, conventional biofuel technologies are suitable for implementation today (such as with Z's biodiesel plant), but more advanced technologies which would produce drop-in fuels for ground and aviation purposes are only emerging around the globe today – typically in markets where government funding or mandates are in place. Z Energy believes that an advanced biofuel technology could be technically ready to implement in NZ in ~5 years, conditional on commercial viability.

The current low oil price and carbon price make the competitiveness of biofuels very poor relative to fossil fuels. Z has modelled that an order of magnitude carbon price in excess of 100 NZD/T would be required to make biofuels commercially viable in New Zealand, based on prevailing oil prices. In addition, the capital required to invest in an advanced biofuel production facility is substantially greater than a conventional biofuel technology. As such, to access the material emission reductions possible through the large scale uptake of biofuels in New Zealand (in particular for advanced biofuels), both a higher carbon price and other complimentary policy incentives addressing upfront capital investment required, would be needed to unlock the big opportunities here.

The Scion-led New Zealand Biofuels Roadmap is currently underway and Z is supportive of the project objective (to create a biofuel implementation roadmap which defines the optimum pathways for large scale production and use of liquid biofuels), and looks forward to the outcomes of this work.

Ultimately, Z would be highly supportive for a consortium of partners to commit to the transformational commercialisation of biofuels in New Zealand by aligning on: a biofuel technology that fits New Zealand (i.e., feedstock), a timeframe for implementation and respective roles in making it a reality. Z Energy sees the potential

for involvement from the New Zealand government, feedstock suppliers, and industry participants representing the supply chain and biofuel production facility, and product off-takers.

Z believes that a less constrained and more ambitious programme is not only possible, but necessary to help New Zealand achieve its climate change commitments. There could be additional costs associated with some of the ideas and initiatives Z suggests below and some of these would be commercially sensitive. This is not by any means an exhaustive list but rather a sample to demonstrate further possibilities and / or areas of inquiry.

- a) Biofuels can deliver clear and tangible emissions reduction benefits which are immediately able to be realised through the current vehicle fleet in New Zealand. Biofuels are a 'drop in fuel source' through which consumers can cut their transport-related emissions without having to change their investment in current technology – i.e. buy an EV.

There is no mention in the supporting actions of the benefits of biofuels or any exploration around greater adoption of this lower emissions fuel source.

Z believes the strategy should support the rapid development of investment-ready 'drop in' biofuel projects able to replace mineral fuel, at scale, targeting those sectors currently unsuitable for electrification, i.e. marine, aviation, heavy transport and stationary energy.

- b) Appropriately additivated fuel reduces fuel consumption. The United States recognises this and requires that petrol be additivated. There is inconsistency across New Zealand fuel suppliers on the application of additivated fuel. This provides another drop in fuel source solution through which consumers can cut their transport-related emissions without having to change their investment in current technology.
- c) Addressing the recent trends in the light vehicle fleet such as the increasing trend towards sport utility vehicles and utility vehicles being used as passenger cars. In spite of advances in fuel efficiency these vehicles are less efficient than similar aged smaller vehicles.
- d) Fuel reduction can also be achieved by increasing vehicle occupancy thereby reducing vehicle kilometres travelled and/or better managing travel to avoid congested traffic periods. Regulatory mechanisms to promote greater productivity such as road (congestion) pricing are being used in other international jurisdictions and could potentially deliver multiple benefits in the New Zealand context.

Q12. What changes will be required to New Zealand's regulatory, institutional and infrastructural arrangements for the electricity market, to facilitate greater reliance on renewable sources of energy across the economy?

The currently relatively low price of carbon makes an upgrade of existing infrastructure to using electricity not fiscally viable. There is currently an abundance of renewable generation and plenty more consented waiting for the demand to match supply. At present, using fossil fuels (coal and natural gas) is cheaper than burning renewable energy or electricity – a much higher carbon price would change this equation.

Q19. What type of direct regulation would best help New Zealand transition to a low-emissions economy?

As above, we will only be able to reduce emissions in all sectors if we have coherent, predictable government policies that match the new global ambition. This will need to include efforts to support the path towards a global price that is supported by a linked emissions market, enduring and long-term political accord to encourage and stimulate alternative energy investment, and a meaningful price on carbon that will engender real behavioural change.

A high and rising price on carbon is the single most important regulation which could be introduced in order to transition to low emission economy. The BEC2050 scenario work found that a higher carbon price did drive fuel substitution, particularly in the electricity sector.

A high and rising carbon price should be supported by industry-specific regulations that deal with the unique characteristics of each sector. For example, support for research into reductions in agricultural emissions, a carbon-based feebate scheme for electric vehicle owners, subsidies for low carbon, energy-dense fuels, and financing support for process heat plant conversion to biomass.

The government should investigate these industry specific regulations with some urgency, and prioritise policy responses based on emission reduction return on investment and technical viability of alternatives.

Q20. Acknowledging the current review, what changes to the New Zealand Emissions Trading Scheme are needed if it is to play an important part of New Zealand's transition to a low-emissions future?

As submitted to the Ministry for the Environment's 2016 NZ ETS consultation process, clear and durable policy settings, which encourage long-term investment pathways, and effectively result in cross-subsidisation of low-emissions projects would most likely result in the efficient uptake of opportunities and technologies for reducing emissions.

Z's submission is that a future NZ ETS should:

- Place an absolute cap on emissions, in order to incentivise meaningful change
- Cover all sectors, and all gases to full obligations under this cap
- Support the transition to net zero emissions and a reduction in gross emissions domestically
- Phase out the two-for-one allocation as quickly as possible
- Introduce auctioning as soon as possible
- Include credible international units as soon as feasible, with restriction on the number and quality of units able to be purchased from offshore
- Ensure any price pass-through is not targeted at those least able to afford the impacts; and any policy response to this end incorporates across-government social equity considerations in its application.

It is also essential that any assumptions made around fuel demand elasticity result in across-government policy consistency that doesn't unintentionally disadvantage those who can least afford to bear the cost.

Our modelling shows even with a \$50 price per tonne on carbon, the costs would be passed through in the transport sector, and elasticity of demand would not effect changes in order to equate to a significant-enough revenue pool in order to lead to meaningful policy changes to meet the global climate commitment.

The goal of the NZ ETS should be a well-functioning market that leads to accurate price discovery. Long-term or gradual phasing-in of a full surrender obligation would dull and defer the price signal. As long as there was a well-functioning market, Z's preference would be to reach the future state as soon as possible: this provides clarity for investment decisions particularly regarding further investment in renewable fuels and technologies.

In a closed domestic market the risk of volatile price movement is high. Volatility is not a desired carbon market characteristic as it gives uncertainty to the price signal and consequent investment decisions. While in the fuel industry we have reasonable ability to pass on costs to customers, other industries may need time to adjust pricing. Therefore retaining a Fixed Price Option makes some sense, however it would need to be at a significant enough level to incentivise change. We would recommend a rising Fixed Price Option, e.g. a \$5 per annum increase. A rising lid safety valve may be a good compromise. The benefit of introducing a gradually rising price cap is the price certainty it brings as it reduces the potential for price shocks, and allow for flexibility while international markets are still being developed elsewhere

We need to reach a future certain state as soon as possible, without causing unintended consequences getting there. We would recommend taking action as early as practical while still ensuring a functioning market.

Once auctioning has been introduced and has "matured" and/or international linkage been established, the Fixed Price Option could be raised or removed.

In the absence of international unit access, auctioning is required to ensure a liquid and functioning NZ ETS. We would support auctioning to be phased in with pilot auctions and subsequent full auctioning prior to the NZ ETS becoming reliant on the fall back of the Fixed Price Option for NZU supply. The key auction settings need to be established as a priority and signalled in order to provide market certainty.

Clarity and normalisation of the NZ ETS and subsequent clarity of carbon price path would assist in considering the future cost of emissions in our business planning.

Certainty of NZ ETS settings, and reduced politicisation of scheme details, through greater cross-party agreement, are essential in order to maintain and encourage investment in low-carbon alternative fuels and technologies. Any changes as a result of the NZ ETS review need to include consideration of business planning that will result in a clear pathway to support transparent and reliable decision-making.

Z supports all sectors and all gases being covered under an emissions cap to ensure a fully-functioning emissions market. A clear timeframe for inclusion of all sectors (including agriculture) and a clear set of criteria for the phase out of industrial allocation will provide businesses with the certainty needed for future investment decisions.

Z is committed to meaningful action on climate change, and requests that the government's policy framework provides a collection of responses that lend themselves to constructive and long-term investment certainty. Previous uncertainty and inconsistency in policies such as those concerning biofuels, Harvested Wood Products, electric vehicles, and the ad hoc application of the ACC levy through vehicle registration rules, lead to an uncertain future in which business decisions are

difficult to make. Z requests a consistent and comprehensive long-term policy framework across all emitting sectors.

Z has publicly supported the outgoing Parliamentary Commissioner for the Environment's report '*Stepping Stones to Paris*', calling for a new climate change law that sets up a process for reducing greenhouse gas emissions into the future that endures through changing Governments.

Q36. What are the essential components of an effective emissions-mitigation strategy for New Zealand that will also be economically and politically sustainable?

Z concurs strongly with the Issues Paper that it is vital to reduce CO₂ emissions to zero as soon as possible to have any chance of keeping global temperature increases to 2°C. Our recent interaction with Professor Will Steffen (previously executive director of the Australian National University Climate Change Institute and a member of the Australian Climate Commission; hosted in August by the Sustainable Business Council) left us with some extremely sobering and compelling truths. Firstly, the magnitude of the change, and the urgency. This isn't an "environmental problem". The shifts in the future are going to be non-linear. Above 2° warming there will be massive changes in terms of drought-affected migration, and the disruption of the global food system. The later we leave it to act, the less time we have to transform our economies (to the point that it'll be impossible). And crunch time is only 3 years away. Leaving starting decarbonising the economy until 2020/2025 makes it technologically and economically unfeasible.

The essential components of an effective emissions mitigation strategy should include: -

- A long term vision that clearly articulates New Zealand's Climate Change ambition;
- Short, medium and long term objectives and targets to act as signal posts along the way.
- A transition strategy that has been co-designed and is therefore co-owned by stakeholders from all sectors. This will drive buy in and inclusion.
- A supporting framework of incentives, policy, legislation, financing models and enablers in service of the long term outcome that focusses on the more short term priorities and opportunities.
- Independent, robust measurement and verification of progress on emission reduction is essential.

Again, Z supports the outgoing Parliamentary Commissioner for the Environment's call (echoed by Generation Zero) to emulate the UK Climate Change Act, and bring in:

- Emissions targets in legislation;
- Carbon budgets – the stepping stones to targets;
- Policies set by Government to ensure carbon budgets are met; and
- An expert body to provide objective analysis and advice.

In the words of Professor Will Steffen, there should be no complacency. We *have* no time left. Once you've pushed the temperature up to a certain point the change is irreversible, and permanent. And the cost may be an inhabitable planet.

