**Submission to the**
**New Zealand Productivity Commission**
**Low Emissions Economy**
**Issues Paper**
2nd October 2017

**Introduction**

The Tauranga Carbon Reduction Group is an informal group of around 70 people who are committed to raising awareness of the need to reduce carbon emissions and to support activities to that end. Our members come from a wide range of organisations and businesses around the region. We are pleased to present this submission as this Productivity Commission investigation is the first reasonably comprehensive study of climate change mitigation potential undertaking by this government.

**Context**
This review is being undertaken in the context of a seriously deteriorating climate situation. It is becoming increasingly clear that drastic reductions in greenhouse gas emissions are required to address the threats that science is predicting to the future environment of our world. The need to look seriously at our national emissions and the method that we have been using to manage them is brought about by a number of factors.

1. Our poor record in managing our overall GHG emissions which have been increasing consistently since 1990. This contrasts with the EU which has been decreasing since that time.

2. Our overall GHG emissions which are amongst the highest in the world, despite the fact that we are blessed with a very high levels of renewable electricity resources. Consideration of our high level of agricultural emissions does not improve the situation very much.

3. The December 2015 Paris climate change agreement in which a global temperature increase target below 2$_o$C approaching 1.5$_o$C was agreed to. This agreement increases the need to reduce emission to achieve international expectations.

4. Our privileged position as a country that has built its high economic standards substantially on the consumption of fossil fuels, in contrast to the many developing countries which need to be able to use fossil fuels, at least in part, to bring themselves out of their poverty levels.

5. The uncertainty about the level of climate change mitigation achieved by prescribed emission reductions due to the uncertainty presented by a number of tipping points that the climate system is approaching. For instance the increasing flow of Antarctic and Greenland ice and the methane emissions from Arctic tundra and sea floors is very unpredictable, and exacerbate the current threats.

6. Our potential contribution to global leadership in generating concerted effort amongst nations to make the changes to achieve the levels of mitigation required. We have a reputation for supporting multilateral efforts, but the modest level of our own leadership increases the risk of failure.

7. The low level of public and industrial awareness and commitment to making the changes needed to achieve the radical reductions in emissions required. These changes do not merely involve the changes in energy sources but also the changes in lifestyles and industrial practices which would substantially reduce the energy demand. Such changes include reduction of unnecessary travel, particularly recreational travel, shifts of cargo from trucks to rail and the expansion of public transport.

In short, this is a case of national and global survival, far beyond the very modest issues that the government is presenting to the public. While the IPCC have targeted carbon neutrality by the year 2100, with the increasing ambition and the climate uncertainties many experts argue that 2050 needs to be the global neutrality target, and developing countries need to be looking at 2035.

Until now, the efforts by the government have been far below that required to bring about the changes needed by NZ to achieve our emission reductions, and we hope that this effort by the Productivity Commission will assist to put the country on course for a more effective response.

**RESPONSES TO Issues Paper Questions:**

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

Providing guidance to central and local government, businesses universities and institutions throughout NZ on their appropriate initiatives and roles in laying out the pathways to a carbon neutral future by 2050 with the true costs and impacts on NZ society. This includes new techs and offset opportunities.

**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?**

Making people aware of the importance of consumption patterns, including lifestyles, that impact on emissions. Issues such as diet, local food production, travel, local community development, recreation styles. This would be a strong targeted campaign similar to that for the EnergyWise initiative, shifting the norm to one of awareness and action)

Empowering local govt to invest in low carbon developments through land use and transport.

Regulating higher building code to increase resource efficiency and energy generation.

**Q3 To what extent is it technically and economically feasible to reliably measure biological emissions at a farm level?**

At present there is no actual method. The programme "Overseer" does about 75% job but needs considerable more investment in research.

**Q4 What are the main opportunities and barriers to reducing emissions in agriculture?**

An opportunity is to promote an increase in horticulture production and plant-based consumption based on evidence of environmental and health impacts and market acceptance. See Drawdown and Sensemaking

A major barrier is the economic benefits, both to the nation and individual farmers of our unique farming systems, We should not under estimate the huge social and financial cost of any major change to established farm systems.

**Q5 What are the issues for government to consider in encouraging alternative low-emissions land uses?**

1. The options for alternative crops suitable for various NZ conditions
2. The benefits of crops over animal agriculture for protein production
3. The domestic and international markets for the various products
4. The costs of downsizing our current systems and developing production systems in the various products.
5. The costs of maintaining our current high emissions systems.

**Q6 What are the main barriers to sequestering carbon in forests in New Zealand?**

The will to do it and lack of governmental incentives and or support of a fair carbon tax regime

According to MFE, NZ has enough credits till 2020, but because there is a lot of plantation forest reaching maturity in the next 5yrs, NZ will have a decreasing offset carbon sink.

The government should be planting 100,000 hectares of permanent plantation forest on crown land per year with the best carbon sequestering trees possible. If the present 1.7m hectares of mixed plantation forests give us 30m tons of carbon sink, doubling that would be a huge benefit.

Private interests could be in encouraged to plant for 30 year harvesting of wood that is used in a life long use way, not pallets.

**Q7 What policies, including adjustments to the New Zealand Emissions Trading Scheme, will encourage more sequestering of carbon in forests?**

Governmental incentives to the forestry industry until the carbon price effectively incentivises the long term retention of forests.

Known long term returns and end use of the products.

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

Range capacity of vehicles, shortage of high speed charging stations, and lack of promotion by governments and commercial entities. If it is feasible for government departments to undertake largescale use of EVs, why are they not promoted to other organisations with similar uses?

Range is only part of the problem, as vehicles with 500km ranges are available now, it's more 1) the cost of vehicles and 2) the range of what is available in NZ.

High speed charging is already being delivered (and we don't want to end up with them on every street corner) but having some sort of standards around charging in NZ that encourage and support use (i.e. not make it difficult to charge at home with a low cost option)

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

Sinking lid of petrol and diesel vehicles imports. 10% per year in favour of EVs

Only imports of second hand EVs permitted. Second hand imports for EV's needs to be supported by good regulation to stop 'the cowboys'

government bulk buying of EVs

Remove subsidies on fossil fuel industry, and give them to EVs until the costs even out and EVs can stand alone without support. Possibly about 5 – 7 years away. *CH

Car sharing programmes

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

Promotion of active transport by example, sponsoring and publicity campaigns
Promotion of public transport, especially by rail.
Promotion of freight transport by rail and shipping. in the light of the true cost of the getting the goods to and from the ship or train station.

As per above point: Empowering local govt to invest in low carbon developments through land use and transport. There needs to be standards and expectations set from the top town about transport systems being multi-model for urban developments.

**Q11 What are the main opportunities and barriers to reducing emissions from the use of fossil fuels to generate energy in manufacturing?**

Use of wood in the construction of high-rise buildings

Substantive carbon prices to promote lower industrial practices

Better focus/requirement for cyclical energy generation using waste products and heat capture/transfer.

**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?**

Promotion of micro-generation, including the payment of feed-in tariffs that encourage generation. Review of the electricity market rules that accommodate micro-generation.

**Q14 Apart from the regulation and operation of the electricity market, what are the main opportunities and barriers to reducing emissions in electricity generation?**

Management of hydro systems to avoid the need for fossil fuel generation for high demands periods and better management of the various generation sources. This should include tidal generation.

**Q15 What are the main opportunities and barriers to reducing emissions in industrial processes (such as the production of steel, aluminium and cement) and in product use (such as the use of hydrofluorocarbons in refrigeration and air conditioning equipment)?**

Ensure the disposal of refrigerants is effectively managed, including the work of the Trust for the Destruction of Synthetic Refrigerants is supported to ensure a high level of capture. This needs assurance that refrigerant and air conditioning equipment is managed by properly qualified staff and the importance of the process appreciated by allied industries such as construction. Also further encouragement to use waste products for heat generation e.g tyres in cement production.

**Q16 What policies and initiatives would best promote the design and use of buildings that produce low greenhouse gas emissions?**

Tax and rates incentives to reward them

Set some standards (following international best practice) that require the design and use of buildings to be low carbon!!!! It won't happen any other way!!!

**Q18 Policies to lower emissions from particular sources, technologies and processes can have interactions with emission sources in other parts of the economy. What are the most important interactions to consider for a transition to a low emission economy?**

Producing an acceptable formula to charge the pollution producers for their pollution

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

Emission standards to be applied to all new vehicles and an increased fuel tax to reflect the environmental burden of carbon release.

Sinking lid of petrol and diesel vehicles imports 10% per year in favour of EVs (as per previous comment)

Only imports of second hand EVs permitted

**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?**

The ETS needs to be structured and managed with careful attention to the World Bank: Emissions Trading in Practice which emphasised the need to support the ETS with a wide range of complementary policies. Further, the ETS needs to apply to all significant emissions to ensure that they have an incentive to address them, and the price needs to adequately reflect the real long-term costs of the emissions to the environment and to society in the future. Any exemptions, e.g. to compensate for unfair trading, need to be explicit.

NZ needs to focus on reducing its own CO2 emissions and not invest in the international trading system.

**Q21 What type of market-based instruments would best help New Zealand transition to a low-emissions economy?**

The only market based methods do is to pass it on to the customer. It happens now for electricity and fuel and many other products. There for we can not leave it to the market and a more direct approach like help to develop new tech in a transition time frame could be introduced.

**Q22 What type of support for innovation and technology would best help New Zealand transition to a low-emissions economy?**

Target the big emitters first: transport and agriculture.

**Transport : EVs as soon as possible.**

**Agriculture : From box 3 p19**

*Methane vaccine* – a vaccine that triggers an animal's immune system to generate antibodies that suppress the CH4-producing methanogens in an animal's rumen.
*Methane inhibitor* – a chemical compound fed to an animal to target the methanogens by either killing them, or depriving them of the hydrogen they need to produce CH4.
*Targeted breeding* – identifying genes unique to animals that naturally emit lower levels of methane to selectively breed low-emitting sheep and cattle.
*Nitrogen inhibitor* – a chemical compound applied to pastures to slow the process of nitrification in soils, and thus reduce the loss of N2O.
*Low-emission feed* – identifying, and genetically modifying feeds that reduce an animal's CH4 and N2O emissions (eg, increasing the fat content in an animal's feed to reduce CH4 emissions).

**Q23 How can New Zealand harness the power of financial institutions to support a low-emissions transition?**

Require financial institutions and companies to report on the environmental and social policies and the potentials and liabilities involved, including those related to emissions, and potentially stranded assets.

**Q24 What type of alternative approaches (such as voluntary agreements or support for green infrastructure) would best help New Zealand transition to a low-emissions economy?**

A major contribution to climate change would be engaging the many community organisations that are concerned about the future and the implications for climate change. These organisations need to be brought together in enhancing their understanding of the issues, the potential for making a contribution, and the policy arrangements which would best assist their work.

An example is Dairy NZ and Fonterra which already have programs to inform dairy farmers and get feed back on what can be done to reduce GHG from farms.

**Q25 In addition to "core" climate policies and institutions, what other changes to policy settings or institutional frameworks are required to effectively transition New Zealand to a low-emissions economy?**

-apply Article 6 of the Paris Agreement - Education, Training and Public Awareness - bringing climate change education and an understanding of the nature of the transition we will need to undergo into the New Zealand curriculum, and into the community through public awareness programmes. This will build the capability of the future workforce in their….
-factoring the emissions intensity of a particularly economic activity into investment decision making both in the public and private sector - e.g. requiring all large new investments to take into account the goal of being carbon neutral by 2050. All government infrastructure spending and economic assessments for major consents under the Resource Management Act to assume a long-term carbon price of at least $60 per tonne of CO2 and rising in line with the social cost of carbon.
-Independent Climate Commission - independent voice on policy progress and trajectories of meeting targets. https://zerocarbonact.nz/getting-us-to-zero-carbon/the-climate-commission

**Q26 What are the main uncertainties affecting New Zealand businesses and households in considering investments relevant to a low-emissions future? What policies and institutions would provide greater confidence for investors?**

More direct government action rather than a market dominated approach

**Q27 What approaches, such as regulatory frameworks or policy settings, would help embed wide support among New Zealanders for effective reduction of domestic greenhouse gas emissions?**

A independent panel to set targets and review progress. They also need to support their decisions with a evidence based approach of the pathways to carbon neutral 2050. They also need to adopt a user pays policy in industrial law on pollution solutions.

**Q28 Is New Zealand's current statutory framework to deal with climate change adequate? What other types of legislation might be needed to effectively transition towards a low-emissions economy?**

Providing local government with the powers to consider climate change and other environmental issues into their planning and regulatory processes. Fund initiatives through LGNZ to support LGs in addressing those issues.

**Q29 Does New Zealand need an independent body to oversee New Zealand's domestic and international climate change commitments? What overseas examples offer useful models for New Zealand to consider?**

Yes. In particular, the UK model has proven particularly effective, but other countries also have similar institutions.

**Q30 How can adaptability best be incorporated into the system supporting New Zealand's low-emissions transition?**

Engagement of relevant interested parties, possibly through the Climate Commission, involving industry association, local governments (incl LGNZ), academic and community groups.

**Q31 What types of analysis and underlying data would add the greatest value to this inquiry?**

Assessment of best practices from around the world, including methods of engaging interested parties and the general public, local government and community organisations in social change.

**Q32 What should be the mix, and relative importance of, different policy approaches (such as emissions pricing, R&D support, or direct regulation) in order to transition to a low-emissions economy?**

These issues are well covered in the World Bank "Emissions Trading in Practice"

**Q33 What are the main co-benefits of policies to support a low-emissions transition in New Zealand? How should they be valued and incorporated into decision making?**

Clean environment, health, resilience and social cohesion, liveable cities and industries to take us into the future.

**Q34 Who are the most important players in driving forward New Zealand's transition to a low-emissions economy?**

National and local government, industry, community leaders, including cultural and religious leaders.

Education programs at all levels, with the school curriculum set to reflect the type of low emissions economy we need to move towards.

**Q35 What measures should exist (and at what scale and duration) to support businesses and households who have limited ability to avoid serious losses as a result of New Zealand's transition to a low-emissions economy?**

Subsidies for clean energy and transport infrastructure (as with home insulation). Need to consider the effect of changes on people and communities and how many people need to be retrained to other skills.

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

1. Move to a clean energy through:
    a. Large scale geothermal, wind generation and solar.
    b. micro-generation by wind and solar
    c. introduce tidal generation

    d. maximise buffering through hydro
2. Clean transport economy, including
    a. freight through rail and shipping
    b. increased plant-based diets
    c. electric vehicles
    d. active transport
3. Encourage local community development to
    a. minimise recreational transport
    b. maximise local food production
4. Widespread community education and engagement to
    a. Develop appreciation of the benefits of climate action (in contrast to focussing on the costs that the government has tended to do to date)
    b. Engage their input into developing the most effective approaches
    c. Gain their commitment to implementing effective action.

**Q37 Should New Zealand adopt the two baskets approach? If so, how should it influence New Zealand's emissions reductions policies and long-term vision for the future?**

Yes, as it enables us to better consider the true impact of short and long term gases. It should be noted that as the current equivalence is calculated over a 100 year period, the impact of the short term gases is concentrated at the beginning of that period. Hence, in the short term their impact is very much higher still. Because of the risk of early tipping points, such as loss of arctic ice or melting of arctic permafrost it makes the reduction of short term gases much more important.

**Q39 What do you see as the main benefits and opportunities to New Zealand from a transition to a low-emissions economy?**

A clean and healthy environment and a bright future.

Increase mental wellbeing
Increased physical health
New market opportunities
Lower cost of living
Higher quality of life
Increased resilience
Increased tourism opportunities
Increased global profile
Increased opportunities for trade

**Q40 What does your long-term vision for a low-emissions economy look like? Could a shared vision for New Zealand be created, and if so, how?**

New Zealand develops a rich local community-based society focussed on serving and enjoying the local environment and communities. Though we are closely linked with the international community, mainly through the Internet, we have great pride in our local independence. We have greatly reduced unnecessary consumption, especially in imports, which has substantially reduced the need for exports and enabled us to focus on satisfying our own needs. The industries that support this low emissions economy are now a major part of the economy.

More importantly, young people feel that the society now cares about the future, that there is a collective effort to ensure work towards a sustainable future, and many ways in which they can contribute.

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