

Todd Corporation Limited

Productivity Commission: Low-Emissions Economy Submission

Introductory comments

This is The Todd Corporation (Todd) response to the NZ Productivity Commission's Low-emissions economy issues paper dated August 2017 (Paper).

Todd understands that New Zealand has made international commitments to implement measures to reduce NZ greenhouse gas (GHG) emissions and that it is Government policy to do so in a considered and sustainable way. Todd has provided a response on those questions in the Paper in relation to which it has some relevant expertise or knowledge. Also **attached** is a copy of Todd's previous submissions relating to the 2016 NZETS review.

Key themes in this submission include:

1. A global perspective should be taken:
 - a) domestic outcomes are important but should not be pursued to the detriment of the New Zealand economy and its international competitiveness; and
 - b) promote access to appropriate international carbon markets for price discovery and liquidity.
2. Climate policy measures should be technology, fuel and sector neutral, to maximise desired effects, encourage innovation and avoid perverse outcomes. This includes:
 - a) taking steps to include all sectors in any assessment and within the NZETS framework; and
 - b) considering the importance of transitional fuels and technology in moving to a lower emissions economy.
3. A stable and predictable regulatory and policy environment is critical, including:
 - a) stable policy settings and a regulatory environment that is comprehensive, robust, transparent and aligned with key competitors and trading partners;
 - b) appropriate lead times and engaged consultation for proposed changes to provide a predictable operating and methodological environment; and
 - c) a framework that seeks to incentivise economic efficiency and lower emission technologies whilst maintaining a level playing field for New Zealand firms that participate in global markets.

New Zealand is already generating around 80 percent of its electricity from renewable resources, which is very high by international standards. The Government has a target of 90 percent of electricity generation from renewable sources by 2025 'providing this does not affect security of supply' (page 6, [NZ Energy Strategy 2011–2021](#)).

Natural gas-fired generation plays a key role in electricity supply by providing reserve capacity and security of supply for when hydro generation lacks water, wind generation lacks wind or solar generation lacks sun, at a much lower unit cost (~\$150–170 kW/year) than other alternatives (refer to Transpower's September 2017 Discussion Document "[Battery Storage in New Zealand](#)"). For that reason, modern natural gas-fired peaking plants are a key enabler of renewable generation. MBIE's [New Zealand's Energy Outlook: Electricity Insight](#) suggests that new natural gas peaking plants are "required to provide peak support for the increased level of renewable energy generators".

Whilst the New Zealand electricity system is able to achieve a high proportion of renewables, targeting 100% renewable generation or seeking to exclude any new natural gas-fired peaking generation would risk structurally and unnecessarily higher energy costs through the need to have significant overcapacity of inconsistent renewables to offset supply shortfalls. This would, in turn, reduce New Zealand's international competitiveness and business/consumer confidence.

Todd's view is that any changes to the regulatory, institutional and infrastructure arrangements should focus upon maintaining a stable, reliable, predictable and economically efficient operating environment that remains consistent with New Zealand's trading partners while reducing emissions in a cost-effective, market-driven, way rather than favouring particular technologies.

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

The Commission can best add value by providing an independent and robust analysis of whole of economy trade-offs, based on sound economic analysis. Importantly, this needs to include the trade-offs relating to New Zealand's international competitiveness.

Similarly, the Paper identifies emissions leakage as an important issue given the export oriented nature of the New Zealand economy. Todd considers it is critical for New Zealand policy makers to address this issue comprehensively as emissions leakage could result in both a weaker domestic economy and/or higher global emissions. The Commission will be able to provide value by ensuring it includes this global assessment and perspective.

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 stated above, Todd's view is that a whole of economy approach is required, entailing a consistent, coherent and principled treatment of all sectors in the context of internationally relevant considerations.

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

Currently not all sectors are treated in the same manner under the NZETS and this creates distortions in assessments of land and other resource use, particularly around emissions costs. It is important that all sectors be assessed equally and consistently and included in the NZETS.

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

In addition to electric vehicles, intensification of residential housing and appropriate management of zoning controls has a number of potential benefits including:

- a) more people living closer to their place of work / social amenities;
- b) greater likelihood of co-located and coordinated public transport with higher usage;
- c) freeing up land that can be planted with trees, serving as carbon sinks; and
- d) reduced emissions in construction.

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

As noted in the IEA Energy Outlook 2015:

Utilisation of renewable forms of energy will increase substantially over coming years and decades but hydrocarbons will continue to play an important role for many years to come. While use of renewables will grow significantly in some areas, for the foreseeable future hydrocarbons will still be required where renewables are too costly, intermittent or lack scale and where high process-temperatures and dense energy storage are necessary, such as in steel and cement manufacturing and in heavy freight and air transport.

In addition to the opportunities identified in the issues paper, the replacement of coal and diesel with lower emitting natural gas for process heat would reduce emissions.

The comments below have general application as well as being relevant to energy use for manufacturing.

Technology neutrality with the focus on reducing emissions efficiently and appropriately configured market mechanisms are a key consideration in any policy approach. Similarly, it is important not to view all fossil fuels in the same manner, for instance replacing coal with natural gas (for instance for process heat) will reduce GHG emissions as well as providing other benefits such as improved air quality.

Similarly, switching to renewable energy sources can have multiple but also varying benefits and should not be treated as a proxy for low emissions. While renewables will often reduce emissions, on a lifecycle basis this cannot simply be assumed. For example, replacing efficient natural gas generation with high CO₂ emitting geothermal, or introducing biofuels with few lifecycle emissions benefits, could increase emissions over time or deliver reductions at very high cost. Adverse outcomes of this kind are less likely with technology neutral policy frameworks.

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?

As noted above, natural gas-fired peaking plants are a key enabler of increased renewable generation because they provide reserve capacity and security of supply for when hydro generation lacks water, wind generation lacks wind or solar generation lacks sun, at a much lower unit cost than other alternatives.

Targeting 100% renewable generation or regulating against new natural gas fired peaking plants would not recognise variances in load and production capacity and would cause structurally higher energy costs and increase the risks of supply disruptions. This would reduce New Zealand's international competitiveness and consumer confidence in renewable energy sources. There is a need for a legislative and policy framework that is consistent with international competitors and trading partners to avoid New Zealand becoming uncompetitive and out of step with global practice. This framework needs to be stable, predictable, transparent and economically efficient for business certainty in the electricity market, particularly to permit informed decision making for long-term infrastructure investment decisions.

Improving battery technology may assist to smooth intra-day variability in demand, but batteries lack sufficient capacity to help with extended shortages of renewable generation, particularly in dry winters that impact key hydro catchments.

The increased availability of natural gas in the United States due to hydraulic fracturing saw natural gas-fired generation replace coal-fired electricity generation. This has reduced US

GHG emissions from electricity generation by 12% since 2005 (refer US Energy Information Administration's 9 May 2016 [Today in Energy](#)). Preserving regulatory settings that, for example, continue to allow for hydraulic fracturing in New Zealand will similarly serve to reduce NZ GHG emissions by replacing coal and diesel generation with lower emitting natural gas-fired peaking 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?

Todd reiterates the view that natural gas-fired peaking generation should be seen as a cost-efficient enabler of increased renewable generation. Regulation that mandates renewable only new generation risks supply uncertainty and, potentially, blackouts that would ultimately undermine public support for renewable generation.

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

As a general principle Todd favours less, rather than more, direct regulation due to the problems, acknowledged by the Commission in its issues paper, of its inflexibility and negative effects on innovation.

As already discussed, better planning regulations would encourage intensification of residential housing and so reduce emissions by reducing transport distances and improving the viability of public transport.

Carbon capture and storage (CCS) could be used to assist with New Zealand's transition to a low emissions economy. Clarifying the regulation applying to CCS would facilitate this. The Crown Minerals Act covers the permitting of underground gas storage facilities, however the application of other legislation is uncertain, see "[Advancing NZ's Petroleum Sector](#)" page 11 on the PEPANZ website.

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?

Todd has appended its NZETS Review submission. Expanding the NZETS to all sectors and creating access to international credits for price discovery, liquidity and operational feasibility is critical to New Zealand's transition to a low-emissions future.

The Todd NZETS submission advocates (amongst other things) a longer lead time to phasing out the two-for-one surrender obligation in conjunction with:

- a) inclusion of all industries within NZETS;
- b) considered and phased lead times for any changes to the price cap; and
- c) creating access to international ETS and credits to facilitate price discovery, liquidity and operational feasibility.

The Commission can provide rigour in looking at the wider NZ economy and the global context when assessing the NZETS and the other measures being considered.

For instance, there is benefit in looking at life-cycle carbon emissions – it would be undesirable to reduce emissions in NZ but increase emissions at a higher rate elsewhere. NZ has to be especially careful not to displace high emission industries (where global demand for the product will not change even if NZ is not producing it) to other countries that do not have the resources to manage emissions and invest in technology as well as NZ. For example:

- a) NZ should not displace dairy with forestry if the dairy demand would be met elsewhere in less suitable conditions that may require additional deforestation and would be less technologically advanced and/or produce higher emissions.
- b) For making milk powder, natural gas in NZ may be one of the lowest emission systems of processing globally (c.f. coal use in some other countries).

In a similar way, NZ needs to carefully consider any technology produced overseas e.g. network scale batteries, as after taking into account the impact of mining, manufacture and transportation to NZ they may have the same or a potentially greater emissions footprint as natural gas fired peaking generation.

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

As stated above, a liquid market for internationally convertible emissions units would aid price discovery and assist New Zealand's transition to a low-emissions economy.

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?

Access to international credits for price discovery, liquidity and operational feasibility would assist investor confidence.

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?

As noted in the attached Todd NZETS submission, a key element is ensuring alignment with international trading partners and competitors.

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?

The Issues paper notes that top-down solutions to collective action problems without substantive stakeholder involvement are typically unsuccessful. Todd recommends that the Government work on stakeholder initiatives in addition and/or as an alternative to direct policy initiatives.

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?

As stated above, Todd considers that all sectors should be treated in the same way and thus does not favour a two basket approach.

Q38: How should the issue of emissions leakage influence New Zealand's strategy in transitioning to a low-emissions economy?

Emissions leakage needs to be taken into account. It is pointless for NZ to give up economic activity only for it to migrate offshore to a higher emissions regulatory environment.