

## Low-emissions Economy Issues Paper

NZ Wind Energy Association Submission

Grenville Gaskell, CE

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### Introduction

1. The New Zealand Wind Energy Association (NZWEA) welcomes the Productivity Commission's (PC) inquiry into the Opportunities and Challenges of a Transition to a Lower Net Emissions Economy for New Zealand.
2. The absence of an integrated approach to developing a strategy and set of actions to address how New Zealand should meet its 2030 climate change emissions reduction target or to agreeing a target date and actions to achieve a net zero position has been a concern for the Association. While a number of separate initiatives have been announced by Government there is currently no defined transition pathway to a low carbon economy.
3. We note that the options to meet the emissions reduction target can be broadly defined as domestic greenhouse gas reduction options, forestry contributions or supporting the emission reduction initiatives of other countries to obtain international credits and that the scope of the inquiry is limited to domestic mitigation options.
4. NZWEA's preference is for New Zealand to address its emissions footprint domestically as ultimately a net zero position needs to be achieved under the Paris Agreement and any investment should be focused on achieving this outcome for the benefit of all New Zealanders.
5. We consider, as the price of carbon increases, future competitive advantage can be obtained by utilising New Zealand's natural advantages in land, water and wind resources. New Zealand has a significant potential to develop low cost renewable energy based on natural resources that are world leading.
6. New Zealand's wind energy potential is well documented. Installed capacity is 690MW with around a further 2,500MW consented but not yet built. There is also a significant resource of tier 2 lower wind speed sites suitable for smaller wind farm developments. While not all consented wind farms will be built, the future of the Tiwai aluminium smelter, regulatory and demand uncertainty, and high security margins have limited development in recent years. The electrification of high carbon emitting activities is a key opportunity for renewable energy.
7. The Association notes that New Zealand is in a unique position being the only country where, based on current targets and Government modelling, there may be a need to significantly rely on international markets to meet the agreed 2030 target. Utilising international markets is effectively subsidising other countries emissions reductions and potentially impeding New Zealand's own transition by drawing away significant financial resources from domestic initiatives.
8. Apart from the prospect of a large amount of money being spent offshore, with no benefit to New Zealand's own transition, international carbon markets have not yet been developed under the Paris Agreement and at best only a timing advantage and carries considerable risk with an uncertain carbon price along with the reputational issue of not being seen to solving our domestic emissions challenge.
9. NZWEA in the past has partnered with a number of industry associations to explore the opportunities for domestic mitigation in the energy sector. This included a "Yes We Can" achieve the greenhouse gas emissions reduction target symposium held in May 2016 to

consider options. In particular NZWEA and other industry associations are concerned with the proposed approach of purchasing international units to meet up to 80% of the reduction target as this would not provide lasting economic and wellbeing benefits to New Zealand.

10. Therefore, to have an inquiry to assess the opportunities and challenges of domestic options is overdue and we are pleased to respond to the Commission's issues paper.

## **Executive Summary**

11. The Association considers the Commission's issues paper an excellent summary of the issues and supports the proposed framing around the two broad Terms of Reference questions of:
  - Assessing opportunities to maximise the benefits and minimising the cost of a transition while continuing to grow incomes and wellbeing.
  - Identifying regulatory, technical, financial and institutional systems and processes help realise the benefits and minimise the costs and risks of a transition.
12. We also concur that achieving a low emissions economy will involve a major transformation, the impact and economic benefits of which, in the absence of a clear strategy, has not been understood or articulated.
13. NZWEA's approach is to briefly summarise the wind industry's view in respect of these two broad questions and specifically respond to those questions which relate to the energy sector or where actions, in other areas, may have an impact on the sector.
14. An overarching point the Association would like to make is that the electricity industry is diverse with many organisations contributing to the value chain that delivers a reliable electricity supply to consumers. Sector priorities need to ensure an affordable, stable and environmentally sustainable energy system for all. With rapidly changing technology and innovation, the achievement of all three priorities is being compromised by a lack of regulatory alignment, slowness of decision making and individual participant decision making having unintended consequences particularly in respect of environmental sustainability and supporting renewable electricity generation.
15. Specific examples of the Association's issues are outlined in this submission. In response to the opportunities to transition to a low net-emissions economy and NZ's Regulatory, technological, financial and institutional systems and processes and practices we advise as follows:

### **Opportunities:**

- The Association supports the direction outlined in the NZ Energy Efficiency and Conservation Strategy 2017 - 2022 (NZECS) and considers the strategy a significant improvement on the 2011- 2016 plan which contained little to support renewable electricity development. The refreshed strategy identifies key priority areas as the renewable and efficient use of process heat, an efficient and low emissions transport fleet targeting electric vehicles and an innovative and efficient use of electricity including a focus on electricity efficiency increasing the percentage of renewable electricity generation which NZWEA endorses.
- NZWEA however has concerns that the NZECS lacks meaningful targets or clearly articulated actions to ensure progress is achieved in the priority areas identified. Also the NZECS does not detail the level of carbon savings the strategy will deliver.
- The scope of the NZECS is limited to the energy sector. We consider, as noted in the introduction section, the lack of an agreed strategy to meet New Zealand's 2030 target mean that a full range of options have not been assessed based on benefit and complexity to implement to provide confidence that New Zealand can meet its target.

For this reason, the scope of the PC's Inquiry represents a major step forward and opportunity to develop a coherent strategy and implementation plan.

**NZ's Regulatory, technological, financial and institutional systems and processes:**

- NZWEA considers there are a number of changes that are required particularly in the regulatory area to support a low carbon economy.
- A key change is the need to ensure the alignment of Government Departments and Crown Entities to promote energy efficiency, energy conservation and use of renewable sources of energy. For example, the Electricity Authority (EA) under its statutory objective of ensuring the efficient operation of the electricity industry does not allow consideration of pan-industry externality policies such as carbon emissions.
- A Report on the effectiveness of The National Policy Statement for Renewable Electricity Generation (NPS-REG) concluded that there had no noticeable increase in the consistency of REG planning provisions across regional policy statements or regional or district plans. The Association supports the Review findings and considers the introduction of national planning standards and a revision to the NPS-REG to provide more detailed direction and guidance are required to better support renewable energy generation. A simplified and lower cost process will be needed to progress development of smaller wind farm sites.
- The current regulatory approach and, in particular, the timeframes for decision making is an impediment to investment in capital intensive generation assets. An example of this is the EA's transmission and distribution pricing review which has been ongoing for a number of years. Transmission and distribution pricing are key variables in assessing wind farm commercial viability. With 45% of current wind capacity being connected as distributed generation unilateral changes that effect the viability of long life investments are a major concern.
- The Association is also concerned that consumer cross subsidisation created by electricity distribution businesses (EDB) charges not being cost reflective creates a market distortion that disadvantages wind energy. Solar energy is effectively being encouraged over investment in wind energy by outdated EDB charges being bundled with energy usage. Current EDB charging does not support energy sector innovation and the proliferation of EDB's all working to separate timeframes to review pricing is a key industry risk.
- The lack of an effective ETS is also a concern for NZWEA as a price on carbon, that better represents the cost of reducing emissions, is required to incentivise investment in low carbon opportunities. The Association notes the in-principle decisions announced by the Government in July and the research note issued by Motu. The objective of outlined by Motu of having a credible long-term emission price signal so to ensure dependable investment signals is supported and, while the Association does not have expertise in trading schemes, the 5 changes proposed by Motu are recommended for further consideration.
- NZWEA supports the call by the Parliamentary Commissioner for the Environment's (PCE) for a long-term approach to climate change. The PCE's recommendation that a new Climate Change Act and to put emissions targets into law recognises that a long term cross party approach is required what most regard as the ultimate intergenerational issue.

**Response to Questions**

16. The Association's response to questions based on the criteria outlined in point 13 is as follows:

Q1

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

- The Inquiry has a comprehensive Terms of Reference (TOR) including how to maximise New Zealand’s comparative advantage in a carbon constrained world. NZWEA considers the assessment of the opportunities to leverage New Zealand’s natural advantages in renewable energy for long term future growth and prosperity is a key area of review and needs to be fully considered.
- That the PC has identified the need for transformational change and is seeking wide industry engagement is positive. For many the focus will undoubtedly be on the difficulty and potentially controversial short-term decisions and it is therefore important to also view climate change through an economic lens and seek outcomes which enhance New Zealand’s long term competitive advantage.
- There is a risk that the PC’s focus on domestic mitigation may be discounted as too damaging to the economy with a call to fund overseas projects and access international carbon purchase opportunities. While the TOR is specific and limited to domestic mitigation options, the PC’s may wish to consider how its recommendations should be assessed with a counterfactual option that some interest groups may favour.

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?**

- Reviewing emissions at their source is an appropriate approach and the Issues Paper provides an excellent summary of the current position. Given the challenge is to meet a 2030 target it would be helpful to use current information to confirm a 2030 base case position by source based on current policy setting and in turn the impact of proposed initiatives on the base case.
- In assessing options ensuring the full impact on the future carbon footprint, including downstream consequences, are included. Examples being:
  - The risk of additional electricity sector emissions from an increase in generation to support electric vehicles and other electrification projects unless new renewable generation is built.
  - The expansion of solar energy changing the overall time-based demand profile to increase daily morning and evening peaks and winter period grid supplied electricity demand. Further changes to the variability of the demand profile may favour additional thermal peaking generation rather than other forms of renewable generation such as wind.

Q4

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

- A key barrier to reducing emissions in the agricultural sector is not having a price on carbon that reflects the severity of emissions. NZWEA supports including agriculture in the ETS at a level that reflects the nature of emissions as shorter life gases.

Q7

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

- NZWEA considers that shortcomings in the ETS scheme particularly having allowed access to questionable overseas units and the resultant price reduction has had a negative impact on Land use, land use-change and forestry activities (LULUCF) and renewable energy development.
- The proposed changes following the Ministry for the Environment's (MfE) review of the ETS will better support LULUCF. NZWEA also supports the changes recommended by MOTU and the need for clear price signals which go further than the MfE review. In particular the need for a near-term supply constraint to guide price and price safeguards in the form of a price ceiling and price floor will provide increased investment confidence.

Q8

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

- The main barriers are those identified in the issues paper. In addition, a lack of consumer knowledge of the advantages of EV's to them and the Country and uncertainty from investing in relatively new excessive cost technology also represent barriers.
- Knowledge in areas such as:
  - The economics of EV's with a low cost to run and maintain.
  - Understanding that NZ is uniquely advantaged with a largely renewable electricity system and that an EV is the single biggest contributor most households can make to lowering their carbon footprint.
- Uncertainty in respect of future economics with an expected decline in capital cost and therefore higher vehicle depreciation costs and the impact of any introduction of road user charges on EV economics.

Q9

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

- Supporting the development of a second-hand vehicle market by central and local government fleet purchases and infrastructure investment.
- Incentives to encourage large fleet owners to invest in EV's.
- Adopting a long-term target of phasing out the sale of new diesel and petrol cars.

Q11

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

- Introducing an effective price on carbon and incentivising industry to improve the economics of moving from fossil fuels to the use of renewable energy.
- Notwithstanding a higher carbon price, the economics of a sunk cost investment in existing infrastructure being assessed on a short term marginal cost basis creates an impediment to a shift to renewable energy with new technology and a potentially higher long run marginal cost.
- There are other major locational considerations such as the availability of a fuel source. Conversion to electricity may also require further investment and a co-ordinated approach with an additional investment in transmission and distribution assets required.

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?**

- NZWEA considers there are a number of changes that are required particularly in the regulatory area to support a low carbon economy.
- A key change is to ensure the alignment of Government Departments and Crown Entities to promote energy efficiency, energy conservation and use of renewable sources of energy. For example, the Electricity Authority (EA) under its statutory objective of ensuring the efficient operation of the electricity industry does not allow consideration of pan-industry externality policies such as carbon emissions.
- The Association also notes that there are disconnects in areas of significant importance to the electricity sector. For example, there is a widely held view that the target of 90% renewable electricity generation by 2025 will be met given current policy setting yet under all the scenarios forecast in MBIE's latest Electricity Demand and Generation Scenarios published in August 2016 the target will not be achieved.
- The National Policy Statement for Renewable Electricity Generation (NPS-REG) was introduced in 2011 to provide statutory guidance on the benefits of renewable electricity generation and to promote a more consistent approach to decision-making under the resource management Act. A Report of the Outcome Evaluation of the NPS was completed in December 2016 and noted that there had no noticeable increase in the consistency of REG planning provisions across regional policy statements or regional or district plans. The Review noted the lack of detailed direction and guidance and the complexities in resolving interactions between NPS-REG and other national policy statements and other competing RMA part 2 matters at a local level. The Association supports the Review finding and considers the introduction of national planning standards and a revision to the NPS-REG are required to better support renewable energy generation.
- The lack of consistency and weight given to the NPS-REG and current RMA requirements creates uncertainty and cost in seeking wind farm consents. Studies undertaken by the PCE including the 2006 Report "Wind Power, People and Place" confirms that large scale wind farms can only ever occupy a small portion of the country's wind locations. Small microclimates which have funnelling or hilltop attributes are very favourable for community wind.
- Internationally small-scale community owned wind farms particularly in Denmark, Germany, Austria and the Netherlands have been essential to the growth in wind energy. Given NZ's complex planning requirements, regulatory uncertainty and weighting given to renewable energy in local authority plans it is difficult to see community wind being established in New Zealand.
- The current regulatory approach and, in particular, the timeframes for decision making is an impediment to investment. An example of this is the EA's transmission and distribution pricing review which has been ongoing for a number of years. Transmission and distribution pricing are key variables in assessing wind farm commercial viability. With 45% of current wind capacity being connected as distributed generation unilateral changes effecting long life investments is a major concern.
- There are other aspects of the transmission and distribution pricing review where there is wide dissent and the risk of unintended consequences such as:
  - the proposed shift from using peak pricing signals to a capacity based model which could have a major impact on the demand profile and better support fossil

fuel based peaking generation and disadvantage renewables which, in scale with geographical dispersion, have a baseload like generation profile.

- Changes to connection costs for distributed generation from incremental to including EDC's common costs provide a connection advantage to grid connected generation. This approach flies completely contrary to the NZ Energy Strategy's focus on supporting distributed generation, smart grid deployment and smaller scale generation technologies which are largely renewable.
- The Association is also concerned that consumer cross subsidisation created by electricity distribution businesses (EDB) charges not being cost reflective creates a market distortion that disadvantages wind energy. In particular solar energy is effectively being encouraged over investment in wind energy by outdated EDB charges. Current EDB charging do not support energy sector innovation and the proliferation of EDB's all working to separate timeframes to review pricing is a risk the EA is aware of.
- The EA's approach to transmission and distribution pricing together with EDB charges that are not cost reflect highlight the challenge of a sector with many participants in the delivery chain to consumers developing an integrated long term strategic focus on future energy sector development.
- It is the Associations view that insufficient focus has been given to the key design elements and principles of a future electricity system including smart grid and the key policy enablers to encourage its deployment. The NZ Energy Strategy 2011-2022 for example focuses on innovations such as smart grid infrastructure enabling higher levels of distributed generation including smaller scale deployment.
- Policy direction needs to be set which focuses on enabling innovation that balance security, affordability and sustainability.
- The lack of an effective ETS is also a concern to NZWEA as a price on carbon that represents the cost of reducing emissions is required to incentivise investment in low carbon opportunities. The Association notes the in-principle decisions announced by the Government in July and the research note issued by Motu. The objective of outlined by Motu of having a credible long-term emission price signal so to ensure dependable investment signals is supported and, while the Association does not have expertise in trading schemes, the 5 changes proposed by Motu are recommended for further consideration.
- The PCE in their recent report "Stepping stones to Paris and beyond" highlighted the need for a long-term approach to climate change. The PCE recommended a new Climate Change Act and to put emissions targets into law in recognition that a long term cross party approach is required what most regard as the ultimate intergenerational issue. NZWEA shares the PCE's view that we need to look decades ahead and supports the Report's recommendations.

Q14

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

- Current electricity sector emissions are predominately from baseload geothermal generation and fossil fuelled generation to meet either peak demand periods or to support hydro generation in periods of low inflow / storage level.
- A key factor which will influence both current and future electricity emissions is the extent to which the demand profile changes. Under the EA's consultation documents proposed changes to current transmission and distribution pricing to a capacity rather than peak period pricing basis will result in accentuating existing peaks which will require more thermal generation.

- A shift to more consumer based daytime generation with solar also risks requiring more transmission and distribution capacity to support an increasing winter peak electricity demand. If electricity demand is for short peak periods or over winter thermal peaking capacity may prove more economic than building wind, which on a scale basis has a baseload profile, resulting in increasing electricity sector emissions.
- Currently the ETS states that if land is cleared of forestry to make way for a wind farm then the full ETS related liability would apply - despite the fact that the new land use (i.e. generation of electricity from wind) offsets more CO2 (for average NZ generation) than the forest would sequester. This should be rectified.

Q15	<b>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)?</b>
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- Refer response to question 11.
- The short run marginal cost of existing assets make investment in new plant utilising renewable energy difficult to develop a positive business case for without an effective carbon price.

Q19	<b>What type of direct regulation would best help New Zealand transition to a low-emissions economy?</b>
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- The most pressing change is to the Electricity Industry Act to amend the statutory objective of the Electricity Authority to incorporate a responsibility to include emissions in its decision making.
- Consideration to encouraging/rewarding landowners who allow wind (or solar) generation on their land by providing a government incentive. This could be used to offset the tax on carbon emissions associated with the same land (should this be introduced)

Q20	<b>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?</b>
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- Refer response to question 7.

Q29	<b>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?</b>
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- NZWEA supports the call by the PCE for a long-term approach to climate change.
- The PCE's recommendation that a new Climate Change Act and to put emissions targets into law recognises that a long term cross party approach is required what most regard as the ultimate intergenerational issue is endorsed.

Q39	<b>What do you see as the main benefits and opportunities to New Zealand from a transition to a low-emissions economy?</b>
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- Internationally the world is moving at pace to reduce carbon emissions from the energy sector for the obvious reason that currently this source produces approximately two-thirds of all emissions. The advantage most other countries have over New Zealand is that converting electricity generation to renewable energy is the key opportunity.
- With a high percentage of renewable electricity generation and significant agricultural emissions NZ has a different emissions profile to most countries. New Zealand is considered to be “ahead of the curve” in how it must address emissions reduction and our actions will be observed as potential future options by others.
- The main opportunities for New Zealand will come from:
  - Developing expertise in addressing emissions reductions in areas that other countries have not yet focused on.
  - Leveraging our natural resources of wind, geothermal and water to develop low cost renewable electricity in a world when the price of carbon is increasing and large corporations are seeking environmentally friendly energy sources.

#### **About the NZ Wind Energy Association (NZWEA)**

- The NZWEA is an industry association that promotes the development of wind as a reliable, sustainable, clean and commercially viable energy source.
- We aim to fairly represent wind energy to the public, Government and energy sector.
- Our members are involved in the wind energy sector and include electricity generators, wind farm developers, lines companies, turbine manufacturers, consulting organisations and other providers of services to the wind sector.
- By being a member of NZWEA you are assisting the development of wind energy in New Zealand and helping to reduce our greenhouse gas emissions to meet climate change targets.

Contact details in relation to this submission:

Grenville Gaskell  
Chief Executive  
New Zealand Wind Energy Association  
PO Box 553  
Wellington 6140  
[grenville@nzwea.org.nz](mailto:grenville@nzwea.org.nz)