

Submission to MINISTRY FOR THE ENVIRONMENT on

**“NEW ZEALAND’S CLIMATE CHANGE TARGET: OUR
CONTRIBUTION TO THE NEW INTERNATIONAL CLIMATE CHANGE
AGREEMENT (JUNE 2015)”**

INTRODUCTION

1. Straterra¹ welcomes the opportunity to submit on the Ministry for the Environment discussion document (DD) entitled “New Zealand’s climate change target – our contribution to the new climate change agreement”. We do so in the interests of fair and reasonable consideration of the minerals sector, and of the New Zealand economy and society as a whole, and in consideration of the need for New Zealand to do our “fair share” towards the global climate change mitigation response. The submission deadline of 3 June 2015 is noted.
2. In preparing this submission, Straterra has consulted with BusinessNZ, and supports their submission. We have also sought expert opinion on a range of matters from CRL Energy.
3. This submission is structured as follows:
 - Executive summary/discussion;
 - Straterra’s recommendations to the Government for its consideration;
 - The discussion section speaks to the DD; and
 - Appendix 1 lists Straterra’s answers to the specific questions raised in the DD.

¹ Straterra represents NZ minerals production, exploration, research, services, and support
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EXECUTIVE SUMMARY/DISCUSSION

4. The Government’s policy approach to the “intended nationally determined contribution” (INDC) will entail reaching a compromise between being:

- “Ambitious (including progressing on previous targets)” (page 17 of the discussion document); and
- “Fair compared with what other countries are doing”.

There is a risk that NZ sets a target that is neither ambitious nor fair, i.e., that meeting both aims to UN standards by 2030 turns out to be impossible. Managing this risk will be difficult because the uncertainties that NZ will need to take into account are numerous, and, particularly when multiplied, very significant. We return to this issue from para. 7.

5. As a minimum, the DD makes it clear that NZ will have to commit to emissions reductions out to 2030, provisionally and subject to a number of assumptions, that would deliver at least -5% of 1990 levels. Being more relaxed in our commitments is seen as untenable, in the context of the international negotiations. We agree.
6. At the other end of the spectrum, the DD discusses targets of as much as -40% out to 2030. We take that as the maximum reduction the Government is contemplating. We note also possibilities raised of -10% and -20%. We agree that all of these possibilities need to be considered when setting our INDC.
7. The DD lists a number of uncertainties or assumptions that NZ (and other countries) will have to consider when setting our INDC. We reproduce these below for ease of reference:

- “Impacts and costs on the economy” (page 17), and we note the large uncertainties inherent in the general equilibrium modelling of economic impacts (pages 13-14), and lack of discussion on distributional effects;
 - NZ’s international trade competitiveness under a new agreement;
 - “The rules of the new agreement (particularly on markets and land-use)”, including on forestry, and on whether or not methane will be treated the same as other GHGs;
 - NZ’s ability to deliver ongoing forestry sink activity, during a period of significant harvesting of plantation forests (which will count at this stage as emissions, with further uncertainty around the accounting rules to be introduced);
 - “Availability of new technologies”, which would need to be cost-effective (not considered in the DD);
 - “The speed of the global transition to a low-emissions world”, which is related to the above issues, and depends on other factors, themselves highly uncertain, such as political will around the world, and the effectiveness of actions taken; and
 - “Reducing domestic emissions” (page 13), given: our high level of renewable electricity generation; high level of agriculture emissions in a world that needs food; expectations around the harvesting of forests; high per capita use of road transport; relatively high population growth (page 8); as well as high marginal abatement costs (as discussed on page 8 of the DD).
8. The discussion on page 15 on new opportunities and technologies is optimistic, and the outcomes of most of the “measures” listed on page 16, very uncertain. That said, investment in agricultural emissions is a priority for NZ Inc, and there may well be a case for a government-led strategy to increase the adoption of electric vehicles across our transport fleet. Clearly, further increases in the level of renewable electricity generation, and in the use of forestry sinks (subject to the new rules, and the level of response in NZ to incentives to plant more forests) can and should continue to be an important part of NZ’s emissions management strategy.
9. On a sector of the economy in which Straterra has expertise, demand is strong in NZ for coal as a source of industrial or commercial process heat, including in: steel and cement making; dairy and other food processing; hothouse horticulture; wood and timber processing; other primary processing industries; and in the heating of large buildings such as hospitals and schools. Coal in

the South Island, and coal and gas in the North Island, are so used because the cost per unit of energy produced is around one-third that of electricity or biomass². This demand exceeds 2 million tonnes of coal a year, normally domestically sourced, and on occasion, supplemented via imports. The industrial output includes the round \$14 billion a year in dairy exports.

11. The critical issue is that this sector, and the NZ economy generally, maintains competitiveness (objective 3, page 7), through access to affordable emissions reduction units, offset projects abroad, or other market mechanisms, including forestry sinks. We will also need some technological breakthroughs, with the most likely deliverables appearing in photovoltaics and batteries for electricity users, and potentially the transport sector.
12. As far as industrial and commercial coal users are concerned, NZ may achieve improved biomass-use technologies over the next 5-15 years. Longer term, there is potential for technology development in the areas of carbon capture and storage (for new, large industries, e.g., coal to liquid fuels); underground coal gasification and other coal to liquids or gas technologies; and improved means of drying and handling wood. The areas outlined in paras. 11 and 12 will require significant commitment from the Government towards research and development, innovation, and/or adoption and application of international technologies in NZ.
13. Straterra agrees that the INDC to 2030 should exceed -5% of 1990 levels, and not exceed -10% or -20% or -40% of 1990 levels, to meet the three policy objectives set out on page 7 of: fairness and ambition; managing the costs and impacts on NZ; and guiding NZ long-term “in the global transition to a low-emissions world”. That is subject to the provisos – which should form an additional objective for NZ - that NZ make explicit the large number of uncertainties and assumptions we have listed above, and acknowledging that the INDC is provisional, and may be altered as these assumptions are tested, and uncertainties resolved (covered on page 17).
14. As to the policies and measures to be used in NZ to achieve our INDC, Straterra notes that the NZ Emissions Trading Scheme is a well-designed and fit-for-purpose policy tool, and supports its continuation. The counter argument is often run that NZ ‘has not done enough to reduce emissions’ and that the ETS should therefore be scrapped. We argue that NZ should ‘do its fair share’ and, in this context, note the lack of progress to date made by virtually all countries in reducing their emissions (alluded to on page 6).

² Wayne Hennessy, CRL Energy

15. Straterra welcomes the opportunity to continue to engage with the Government on the domestic policies and measures that NZ will need to ensure that “adjustments are smooth and impacts are fair on different sectors and households” (page 16), with particular emphasis on the NZ coal sector.

RECOMMENDATIONS

16. Straterra recommends the Ministry for the Environment to:

- a) Note Straterra’s agreement with the Government that the INDC out to 2030 needs to exceed NZ’s tentative 2020 net GHG emissions target of -5% of 1990 levels (providing appropriate market mechanisms are available so that the burden on our economy of this commitment is comparable with that on our trading partners);
- b) Note Straterra’s view that the INDC should not exceed -10% or -20% or -40% of 1990 levels;
- c) Agree to set NZ’s provisional INDC, as subject to the large number of assumptions (to be tested) and uncertainties (to be resolved), covered in the executive summary/discussion of this submission;
- d) Agree to add Rec. (c) as NZ’s fourth objective when determining our INDC;
- e) Agree to add to the list of measures on page 17, other areas in which the Government could be proactive, on technology R & D, innovation, and/or adoption and application in NZ;
- f) Note Straterra’s view that the NZ ETS is a well-designed and fit-for-purpose policy tool for achieving NZ’s objectives in respect of our INDC; and
- g) Note Straterra’s interest in participating in the “separate conversation” (page 4), that Minister for Climate Change Issues, Hon Tim Groser, intends to hold with New Zealanders on domestic policies, with special emphasis on distributional impacts, and on the coal sector.

DISCUSSION

Setting the scene: implications of meeting the current 2020 target

17. New Zealand’s current target to reduce gross greenhouse gas emissions to 5% below 1990 levels by 2020 (page 3 of the DD), will require a 27% reduction below the projected “business as usual” emissions for 2020. The DD notes that New Zealanders will have to pay a cost disproportionately higher than people in the EU or US to achieve this target.

18. The DD accepts there is a significantly higher cost in maintaining that target through to 2030, especially for a growing economy (unlike many European economies). That will be impossible to achieve *unless* New Zealand has:
- Access to international carbon markets (at an affordable price); and/or
 - Access to carbon projects in other countries (at an affordable price), and/or
 - The ability to effectively implement “forestry sinks”.
19. On the face of it, none of the above avenues are certain, and nor are there estimates of how much the level of abatement required to meet the 2020 target would cost different sectors of the NZ economy and society. As well, it is too much to rely on technology or significant fuel efficiency improvements, as a fix in the short and medium term, on the evidence to date.
20. That said, we are advised in the DD that New Zealand is on track to achieving our 2020 net emissions target - when forestry sinks are taken into account. The DD mentions an additional issue is the “surplus of emissions reduction units from our first target under the Kyoto Protocol” (page 11). A point of clarification: is New Zealand advocating in the international negotiations for credits recognition for past achievements³?
21. Forestry and carbon offsets (box 5) are potentially a core emissions reduction strategy for New Zealand, given the challenges we face domestically, if these mechanisms can be made to work as intended. That assumption needs to be tested when setting and delivering on our “intended nationally determined contribution” (INDC).

Problem definition: what is a fair and ambitious INDC?

22. Straterra agrees in principle with the need “to do our fair share” towards a global response to the global problem of human-caused climate change, when setting our INDC.
23. Objective 1 in relation to New Zealand setting a “fair and ambitious” target (page 7) is fine in principle, subject to what “fair and ambitious” is taken to mean.
24. Straterra notes the statement on page 10: “New Zealand is expected to put forward a target that is more ambitious than our current target of 5 percent below 1990 levels by 2020”. It is noted that the cost to NZ of achieving this aim will be higher for NZ than for many other comparable countries. It appears that our “national circumstances and interests” are being weighed as less important than other factors.

³ Note <http://www.bloomberg.com/news/articles/2015-05-29/un-encourages-use-of-pre-2020-emission-credits-for-climate-plans>

Factors to consider when determining NZ policy for our INDC

Uncertainties

25. In response to the first paragraph, on page 4, the world does not know yet if countries meeting in Paris will reach a global climate change agreement. We will only know that once the COP has been held at the end of 2015.
26. On the uncertainties listed on page 3, we suggest the addition of: the comprehensiveness of any global agreement reached; the extent to which our trade competitors/partners are exposed to or protected from global carbon prices; and access to carbon offset projects in other countries⁴. (These issues are covered elsewhere in the DD, e.g., on page 17.)
27. The DD rightly raises many uncertainties over the cost to New Zealanders of meeting the 2020 target or of setting an INDC. Taking these together multiplies into significant uncertainty.
28. The DD argues that the cost to the NZ economy of achieving a 2030 target in line with our 2020 target is in the range of \$3.5 billion annually by 2027 (page 13), or \$17.5 billion between 2025 and 2030, to achieve emissions reductions over that period of around 110 million tonnes of CO₂e. That is an abatement cost of roughly \$160 per tonne at a macroeconomic level, which we think is a serious underestimate of the transition costs NZ is expecting to pay.
29. The figure of a drop on average of \$1270/yr of household consumption (page 14) ignores job losses in carbon-intensive industry sectors, that we think will be inevitable (unless NZ can offset emissions cost-effectively). The associated loss of output will contribute to a drop in access to, or availability of public services such as new roads, health and education.
30. We are concerned at the conclusions being drawn by some from the Infometrics, and Landcare Research general equilibrium (GE) modelling results, that these suggest a “low cost” of a proposed shift from a -5% to a -40% target.
31. The statement - “wages will grow more slowly” (page 14) - says nothing about the risks of increased unemployment, regional economic stagnation, or the closing of industry sectors, and is also silent on the future of NZ debt, and income distribution. The DD does say that such matters would be a focus for later policy development.

⁴ For example, the Clean Development Mechanism (CDM).

32. A Castalia study⁵ has noted the shortcomings of GE models in estimating the transition costs for energy-intensive industries, and related impacts on export income.

Comparability of effort

33. We support the concept that “all countries will be able to participate commensurate with their capacities” (page 6), depending on how “capacities” is defined.

34. The DD (page 8) is correct to point out that New Zealand has a higher marginal cost of abatement (of GHG emissions) than most other OECD countries, and the reasons for that are well known, and are well canvassed in the document.

35. The material information in this context is that if we were to mirror the EU’s marginal abatement costs (in meeting their 2020 target), our target should be set at “approximately 10-20% above 1990 levels” (page 11). Straterra assumes that includes the application of forest sinks and other carbon offsets, and the use of global carbon markets.

New opportunities

36. The suggestions in the paper for new technologies are unconvincing (page 15), and we make the following observations:

- There is no evidence to suggest that NZ will convert significantly to electric vehicles within the next 5-15 years; however, this could be an explicit Government policy, suitably costed and promoted.
- Despite media commentary, there is no evidence of a comprehensive global transition to a lower-carbon economy, with energy poverty⁶ being a higher priority in much of the globe;
- Much uncertainty surrounds the future path of forest sinks; we would need to see the rules in the new agreement – assuming there will be a new agreement.

37. If New Zealand were to dramatically shift its energy structure by 2030, as part of meeting our climate change targets, we would need solutions on photovoltaics and batteries for electricity users, and potentially the transport sector.

38. For industries relying on cost-effective sources of industrial process heat⁷, improved biomass-use technologies would help mitigate against contraction of NZ’s industries in steel-making, dairy

⁵ Castalia Strategic Advisors, 2007. “The New Zealand Emissions Trading Scheme: How do we make it work? - The Need for Sustainable Climate Change Policy.”

⁶ The World Coal Association reports that 1.3 billion people do not have access to electricity, and that 2.6 billion use wood, dung and other traditional fuels for cooking.

processing, cement manufacture, meat/skins processing and hothouse horticulture. Today those heat sources are coal in the South Island, and coal and gas in the North Island, and are so used because they are around one-third the price of electricity as a source of industrial process heat. Wood pellets are a relatively costly solution, though appropriate for managing localised air quality issues. The use of wood waste is constrained by problems with the reliability of supply, moisture content, and bulk materials handling.

39. Longer term, there is potential for technology development in the areas of carbon capture and storage (for new, large industries, e.g., coal to liquid fuels); underground coal gasification, and, perhaps, other coal to gas or liquid technologies; and improved means of drying and handling wood.

NZ's policy approach to setting our INDC

40. In light of the above, Straterra supports a “provisional” target, subject to making explicit the assumptions and uncertainties behind New Zealand’s INDC. Those assumptions/uncertainties relate to, and are not limited to:

- Whether or not a new global climate change agreement is reached in Paris;
- The comprehensiveness of coverage – all countries, all sectors?;
- The detail of the rules for forestry and land-use change, and New Zealand’s ability to make good use of them over time;
- The nature and extent of international carbon markets;
- Access to carbon offsetting projects in other countries;
- The pace and intensity of advances in cost-effective technologies; and
- The real effects on the NZ economy and society, and sectors of the economy and society, in response to measures taken towards meeting our 2020 target, and our INDC for 2030.

41. If our assumptions are shown to not hold, then the logical policy response, in the face of great uncertainty at the time policy decisions were made, would be to review our contribution and adjust it accordingly. To preserve our option for being able to do this argues strongly for New Zealand taking a cautious approach to setting the INDC. If we find that we can do better than we

⁷ CRL Energy advice to Straterra, May 2015

first thought, we can always firm up the INDC. In practical terms, it is always much more difficult to relax a commitment.

42. The question of “how we intend to transition to a low-emissions economy” is important, and could take the form of a decision tree – if this occurs internationally, New Zealand will take that action. This approach can be applied iteratively over time.
43. On page 16 of the discussion document, a list of policy tools and measures is provided to illustrate what New Zealand could do to meet our commitment to the global response to climate change. In light of the earlier discussion on new technologies, there is material that could be added to the list, for example, more research into co-generation of industrial process heat energy using coal and biomass, to better manage the trade-off between cost-effectiveness and emissions reductions.
44. In respect of the 2020 target of -5% on 1990 emissions levels, New Zealand should not relax this commitment.
45. That leads to the setting of the INDC, out to, say, 2030. We note BusinessNZ’s proposal of -7.5%. Several options are explored in the DD: -10%, -20%, and -40%. All of these should be considered in light of the above considerations. In defence of setting a more conservative target, NZ can always firm up on that target if our ability to reduce emissions turns out to be better than expected.

APPENDIX 1: ANSWERS TO QUESTIONS

Q1 (a) Do you agree with the above objectives for our contribution? (b) what is most important to you?

Straterra agrees with the objectives, depending on what “fair and ambitious” means. The definition of this term should not be set entirely by the expectations of others, on the basis that NZ has a much higher marginal cost of abatement than many other relevant countries.

An objective should be added to proceed with caution in the face of great uncertainty, including on: the real transitional costs to the NZ economy and sectors of the economy; the parameters within which the global community will be operating under any climate change agreement; and on the nature, extent and pace of development of any new cost-effective technologies.

All of the objectives are important, and they are inter-related; they are not independent of one another. Therefore, the question of which objective is most important is misplaced.

Q2. What do you think the nature of NZ’s emissions and economy means for the level of target that we set?

As stated, NZ has a much higher marginal cost of abatement than many other countries including the EU and the US. That is the material factor to take into consideration, not the expectations of other countries who do not bear the costs of measures taken in NZ, and who are not prepared to go to the same level of effort as NZ is being asked to do.

Other countries will understand NZ’s (and Australia’s) circumstances with significant population growth since 1990, and our need for workable rules on purchasing international units, on providing consistent incentives for forest planting, and access to carbon offset projects in other countries.

For energy-intensive, trade-exposed industries, it is not enough to impose a high carbon price. Credible technology options must be available, as well as other mechanisms, for transition to occur. We do not have these yet, noting that some good progress is being made.

Q3. What level of cost is appropriate for NZ to reduce its GHG emissions? For example, what would be a reasonable reduction in annual household consumption?

This question is very difficult to answer because the information provided in the discussion paper is based on modelling which is highly unlikely to be accurate.

Framing this issue in terms of annual household consumption is misleading. That is because the effects on different sectors and regions, income distribution, unemployment, and public services that contribute to society in a way that is not measured by household consumption, are ignored under such a construct.

NZ should be considering our high marginal costs of abatement, and aligning our effort towards doing “our fair share” in those terms, with other relevant comparison countries. By way of comment: there is no such thing as a reasonable reduction per se, because reasonable can only be determined by reference to global norms.

Q4. Of these opportunities which do you think are the most likely to occur or be most important for NZ?

The discussion document contains a speculative discussion on this topic. We go to this issue at some length elsewhere in our submission. To summarise, we do not think any of these things are likely to occur or be of material help within the relevant timeframe - with much uncertainty around this conjecture. It is possible, for example, that progress is made with electric vehicles over the next 5-15 years, and with agricultural GHG emissions.

To avoid a wide range of energy-intensive primary processing industries closing as a result of harsh GHG emissions abatement policies, NZ will need a “step-change” in biomass-use technologies to substitute for coal (and gas) as a source of cost-effective industrial process heat. It is an open question whether or not this can be achieved within the relevant timeframe.

More work or research or innovation or adoption could be done in respect of technologies such as carbon capture and storage, underground coal gasification, and improved means of drying and handling wood. It is accepted that these are likely to be longer-term solutions for emissions-intensive (and trade-exposed) industries.

Q5. How should NZ take into account the future uncertainties of technologies and costs when setting its target?

NZ should definitely take this material issue into account when setting our target. The way to do that is to be cautious with our target; that should be among our guiding principles or objectives, more so than what other countries expect us to do.

What is certain is that NZ, if we commit to meeting emissions reductions of more than -5% on 1990 levels out to 2030, that level of abatement will cost the NZ economy much more than what other comparable countries, e.g., the EU and the US, are prepared to do. We should explain that.

Regardless, this is the wrong question. At issue is that politically and diplomatically it will be very difficult to relax our previously-announced tentative commitments. It may well be that -10% or -20% or -40% out to 2030 is the best that we can hope to achieve as part of reaching a global agreement this year in Paris, or is the appropriate course of action.