



Memo

To: Hon Tim Groser, Minister for Climate Change Issues

From: Vera Power - Acting Director, Climate Change **Date:** 5 June 2015

Re: Information to support discussion with Senior Ministers

Purpose

1. This memo provides you with information to support your discussion of New Zealand's post-2020 climate change target with other Ministers on Monday 8 June.

Background

2. On 30 March 2015, Cabinet Strategy Committee discussed the level of New Zealand's post-2020 climate change target. The discussion indicated that an appropriate target may be the equivalent of 10 per cent below 1990 levels over the whole economy (STR Min (15) 2/1 refers), conditional on factors such as:
 - a) research and scientific developments (including in relation to livestock emissions mitigation options),
 - b) New Zealand's access to international carbon markets.
3. Following the Cabinet Strategy Committee meeting, three key issues warrant further discussion with your colleagues prior to final Cabinet decisions and tabling of New Zealand's intended nationally determined contribution (INDC). These issues are:
 - a) the framing of our INDC and the handling of "provisionality,"
 - b) the form of our post-2020 climate change target (if raised),
 - c) the level of our post-2020 climate change target.
4. We suggest that you sequence discussion on Monday in the order indicated above, ending with the level of ambition. We are aware that other Ministers may have questions relating to modelling costs and target form.
5. On Monday, we will provide you with a short draft handout for your colleagues that outlines the key points you may wish to raise in guiding this discussion. Prior to your meeting with your colleagues, officials will meet with you at a scheduled meeting at 10:00am.
6. Additionally we have appended material on New Zealand's forestry approach post-2020 (see appendix 1). While not a topic for discussion on Monday, this appended information is relevant for both the costs and level of ambition.

A. Framing of our INDC

Key points:

- To give effect to Cabinet Strategy Committee's preference for a conditional target, we recommend that New Zealand describes its target as a "provisional" target expressed in broad terms.
 - Our recommendation is to make clear our particular circumstance and report periodically to the international community against Cabinet Strategy Committee's imperatives (including research and technology, forestry rules, and market access). In doing so we should not prejudice the rules negotiations post Paris (ie, we must be seen to be acting in-step with others whilst securing favourable forestry and market access rules).
7. We have provided you with advice (BN 15-B-00772 refers) on the issue of framing our INDC, and your office has indicated that this has been circulated to other Ministers. We recommend that to give effect to Cabinet Strategy Committee's preference for a conditional target, New Zealand table an INDC that describes a "provisional" target. The basis for provisionality should be expressed in sufficiently broad terms to enable a future decision to amend the INDC before ratification, eg:
- "New Zealand's INDC remains provisional pending confirmation of assumptions made about accounting for land sector emissions and access to carbon markets and will be subject to a Parliamentary examination process prior to finalisation.*
- In determining this INDC we have identified a need for cost-effective mitigation technology, and in particular that our continuing investment in agricultural research delivers results that can be commercialised in time to realise emission reductions within the time period covered by the final NDC."*
8. We are aware that the Treasury has provided an Aide Memoire to their Minister indicating that *neither* explicit conditionality *nor* provisionality give a future government the flexibility that Cabinet Strategy Committee Ministers are seeking. For this reason, target form may be relitigated as a potential option to moderate costs.
9. An initial draft of the INDC text has been appended to this memo (see appendix 2). The draft INDC follows the "terms of reference" agreed at the Lima Conference of the Parties.

B. Target form

10. We anticipate that the issue of target form could be raised. Below we list reasons why an economy-wide QELRO remains preferable.
- All developed countries who have tabled to date have taken targets covering their whole-economy. China has also announced a target covering over 80 per cent of its emissions profile,¹ whereas splitting out methane or agricultural methane from New Zealand's target would see New Zealand taking responsibility for only roughly 55-70 per cent of its emissions profile.
 - The concept of "progression" will be important to the credibility of New Zealand's target and suggests that New Zealand should not step backwards in terms of coverage or level of its target. Targets tabled to date by other developed countries represent progression on previous undertakings.²

¹ China has announced a target of peaking its carbon dioxide emissions prior to or by 2030.

² It is currently unclear whether Japan intends to take a QELRO style target or a single-year target, however the latter would represent a step back from previous commitments.

- New Zealand invests heavily in research into mitigation of agricultural greenhouse gas (GHG) emissions. Splitting out agricultural GHG emissions risks New Zealand not benefitting from future technology developments.
 - Different target forms risk New Zealand's negotiating position, and in particular risks losing access to international carbon markets. Even losing access to *some* overseas markets could limit New Zealand's ability to pursue the cheapest available units or sell units should the scenario arise.
 - Some domestic stakeholders have highlighted the potential for an increased focus on carbon dioxide. However this has largely been in relation to a long term goal for New Zealand (eg, zero carbon dioxide by 2050), rather than a recommendation of splitting out gases in New Zealand's INDC.
11. Some arguments in favour of splitting out gases or sectors relate to the cost of New Zealand's target, and that it places an undue burden on New Zealand to take responsibility for agricultural GHG emissions (nearly 50 per cent of our GHG emissions) when no one globally places a price on agricultural GHG emissions.
 12. Splitting out gases or sectors and focusing on carbon dioxide could allow New Zealand to achieve an ambitious headline number (eg, 30 or 40 per cent below 1990 levels) for similar or lower cost to a 10 per cent target covering the whole-economy. However, this option is likely to be criticised by many stakeholders and other countries.

C. Level of ambition (Considerations and costs)

13. You have requested additional information on the impacts of a target of 15 per cent below 1990 levels. By way of example, targets of 7, 10 and 15 per cent below 1990 levels will each have different implications for the cost, credibility and long-term signals of New Zealand's INDC.

Cost

14. Based on modelling by Infometrics and Landcare Research, any target that represents *progression* on New Zealand's current target of 5 per cent below 1990 levels will be met via increased purchasing of international carbon offsets. Based on this assumption, the effect of varying New Zealand's target between 7, 10 and 15 per cent below 1990 levels (at a global average carbon price of \$50) is shown in Figure 1 overleaf.
15. The costs shown below **exclude** all forestry emissions and removals. Applying preferred forestry and land use rules will likely reduce the costs faced by New Zealand from those displayed overleaf.

Figure 1: Cost of targets on 1990 levels for target year of 2030

| Target on 1990 levels [on 2005] | Average impact to Gross National Disposable Income (RGNDI) 2021-2030 % reduction (annual cost to economy) | Impact to average household consumption at 2027 % reduction (annual cost to average household) |
|--|--|---|
| -7% [-27%] | -1.2% (\$3.6 billion) | -1.51% (\$1,290) |
| -10% [-29%] | -1.23% (\$3.7 billion) | -1.55% (\$1,320) |
| -15% [-33%] | -1.30% (\$3.9 billion) | -1.64% (\$1,390) |

Source: Results interpolated by the Ministry for the Environment based on modelling by Infometrics.

16. The low marginal cost from deepening New Zealand's target *in the models* used arises because around 40 to 50 per cent of the total economic cost to New Zealand from mitigating climate change, regardless of target level, comes from:
- lower exports as a result of other countries acting on their greenhouse gas emissions and slowing global growth,³
 - a deadweight loss effect from New Zealand pricing greenhouse gas emissions via the Emissions Trading Scheme that is already partially a "sunk" cost.⁴

Points in favour of a 15 per cent target

17. Below are some points in favour of taking a target of 15 per cent below 1990 levels relative to targets of 7 or 10 per cent below 1990 levels.
- A target of 15 per cent below 1990 levels is more credible:
 - Easier to defend New Zealand's effort relative to the global goal of limiting temperature rise to below 2°C.
 - Moves target to the middle of New Zealand's conditional range for its 2020 target which may support arguments relating to progression.
 - May enhance New Zealand's standing in negotiations to secure international carbon market access and its preferred forestry and land use approach. (Negotiations in these areas could have a far more substantial impact to the costs of our target than the difference in cost between a 7, 10 and 15 per cent target.)

Points against a 15 per cent target

18. Below are some points against taking a target of 15 per cent below 1990 levels relative to targets of 7 or 10 per cent below 1990 levels.
- May leave less headroom for future governments to increase New Zealand's target if there is international pressure to ramp up targets. However, taking a target of 15 per cent below 1990 levels running through to 2030 could offer

³ This effect exists for other countries too, and is particularly pronounced for fossil-fuel exporting countries.

⁴ In theory, New Zealand could reduce this effect in the short-term by reducing the coverage of the Emissions Trading Scheme and using international purchasing to meet its target. However, this would result in New Zealand's domestic greenhouse gas emissions rising more rapidly and significantly increasing the cost of meeting future targets (eg, 50 per cent below 1990 levels by 2050).

some protection against calls to ramp up ambition at 2025 relative to lower targets.

- Will have higher costs than a target of 7 or 10 per cent.
- Based on the concept of progression, a target of 15 per cent would increase expectations for New Zealand's targets *after* 2030, relative to setting a target of 7 or 10 per cent. This may lead to greater future costs *after* 2030. However New Zealand's 2050 target is known internationally, so New Zealand will still be expected to progress towards this target after 2030 regardless of its ambition prior to 2030.

Appendix 1

Forestry and land use rules

Key points:

- The forestry and land use rule set applied by New Zealand in its INDC will have a material impact on the costs of its target.
- Some forestry and land use rule sets entail greater risk that New Zealand is unable to negotiate or apply parts of that rule set. In the event that rules cannot be secured, this could then impact the cost of New Zealand's INDC.
- We recommended that New Zealand preserves its options in regards to forestry and land use rules in its INDC, and following this, that officials continue to progress work on selecting a preferred approach prior to the Paris Conference of the Parties.

Forestry and land use rules

19. This information is an initial summary of the impact of forestry and land use rules to help with your thinking on New Zealand's target level. We do not expect you to necessarily raise this issue at your meeting with your colleagues on Monday.
20. The forestry and land use rules applied by New Zealand can have a significant impact on the cost and credibility of New Zealand's target. We recommend taking more time to finalise New Zealand's preferred approach to forestry and land use rules. This implies work beyond tabling our INDC.
21. A large number of permutations of possible forestry and land use rules exist. Four illustrative options for New Zealand's post-2020 forestry and land use rule set are shown below to give a sense of the possible impact of forestry and land use rules to New Zealand's target. These options are:

Existing agreed rules that could be applied:

- 1) **Kyoto Protocol status quo** – continues with the framework of rules used under New Zealand's transition period 2013-2020, extended out to 2030.
- 2) **Net-net accounting on a 2005 base year** – the approach taken by the United States, Canada and expected to be taken by Australia that compares net emissions in the base year against net emissions over the commitment period.

Rules that we might negotiate:

- 3) **Land in Transition (Inter-rotational averaging)** – an approach that provides credits for the first rotation of new forests before moving towards "business-as-usual" reference levels for all forestry classes.
 - 4) **Gross-net accounting** – a variation of a rule option applied by other countries under the Kyoto Protocol during the first commitment period 2008-2012.
22. A number of other rule set combinations exist, and it is not yet clear to the Ministry for the Environment whether these could have better outcomes for the cost or credibility of New Zealand's target. Further work is also needed on the domestic implications of each rule set and other issues relating to rules such as integrity and transparency.
 23. New Zealand may choose to indicate a particular rule-set when tabling its INDC, or could choose to preserve its options and determine its forestry and land use rule set at a later date, potentially before the Paris Conference of the Parties. Preserving

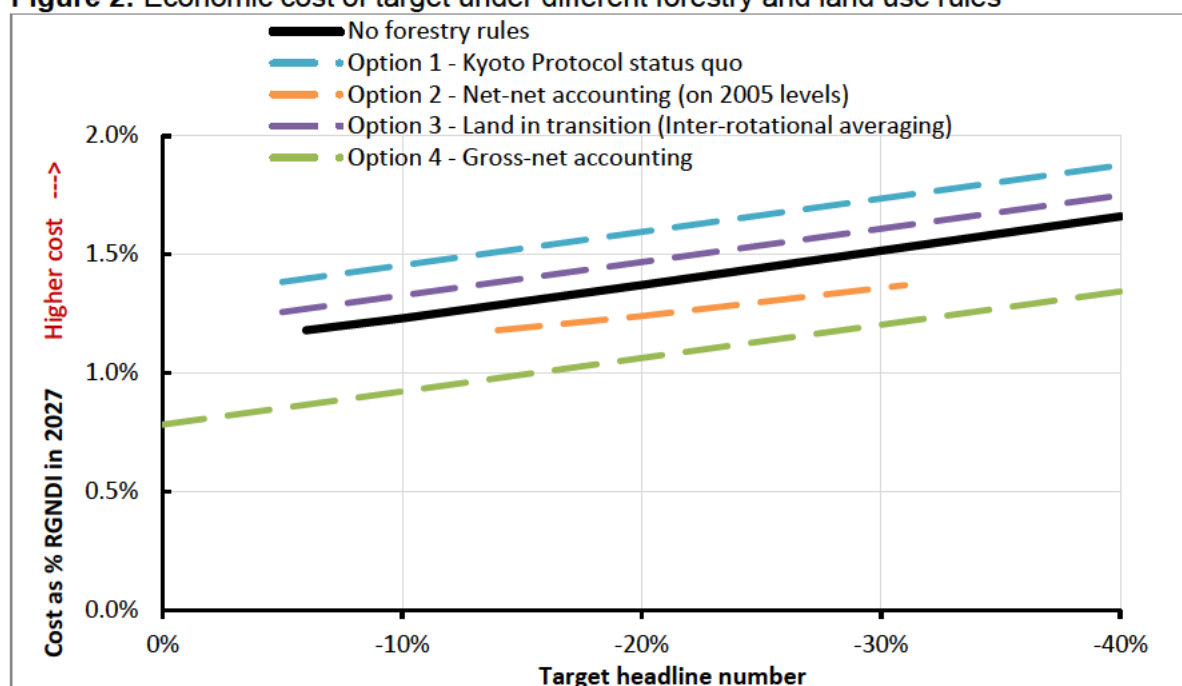
options would mitigate the risk of selecting a rule set that is later determined to be inferior to other options.⁵

Implications of the selected forestry and land use rule options

Costs

24. Each of the forestry rule sets will have different implications for the cost of New Zealand's post-2020 target. Figures presented below are based on updated forestry and land use modelling by the Ministry for Primary Industries (MPI) following the release of New Zealand's 1990-2013 Greenhouse Gas Inventory.
25. By way of example, a target of 10 per cent below 1990 levels by 2030 has an impact to RGNDI of -1.23% when excluding forestry emissions and removals completely. Preliminary modelling of the impact of the four forestry rule sets is shown in Figure 2 below based on the **most conservative projections** available from MPI. It can be observed that the choice of rule set will have a material impact on the level of cost of New Zealand's target (relative to the example that excludes forestry rules).
26. It should also be noted that **less conservative forestry projections** are likely to shift all rule sets down in cost relative to the no forestry rules scenario, though the extent may vary between rule sets.

Figure 2: Economic cost of target under different forestry and land use rules



Source: Initial analysis by Ministry for the Environment based on modelling by Infometrics and MPI.

Rule negotiations

27. It is likely that after the Paris Conference of the Parties, the forestry and land use rules that each country proposes to apply will be reviewed and accepted. There is potential that some forestry and land use rules that countries propose to apply may not be allowed under the new agreement. This process is likely to occur at some point between 2016 and 2020.

⁵ We note that other countries have also not detailed every aspect of their preferred forestry approach in their tabled INDCs.

28. Options #1 and #2 have previously been applied by other countries and have been included within tabled INDCs of major negotiating countries. As a result, they are likely to be less sensitive to future rules negotiations.
29. Options #3 and #4 draw on concepts from both the Kyoto Protocol and reporting under the United Nations Framework Convention on Climate Change (UNFCCC). As no countries have applied these rule sets (as a whole), they are at greater risk of being impacted by future rules negotiations, with possible effects on the cost of New Zealand's target if particular aspects of the rule set cannot be negotiated.

Recommendation for forestry and land use rules

30. We recommend that you opt to preserve, for now, New Zealand's options in regards to forestry and land use rule settings, on the basis that further work is needed to analyse the implications of each rule set. We can table our INDC with a placeholder saying that our forestry accounting approach is to be confirmed, and provide an update/more details internationally by the end of November. That would still allow us to reserve our right to make adjustments to reflect the outcome on forestry rules post-Paris.

Appendix 2

Draft text of New Zealand's intended nationally determined contribution (INDC)



NEW ZEALAND

Submission to the ADP

New Zealand's Intended Nationally Determined Contribution

[date] [June 2015]

New Zealand hereby communicates its intended nationally determined contribution and the accompanying information to facilitate clarity, transparency and understanding (decisions 1/CP.19 and 1/CP.20 refer).

[Regarding the invitation to Parties to consider communicating their undertakings in adaptation planning, please refer to Chapter 6 of New Zealand's 6th national communication submitted to the UNFCCC in December 2013¹].

New Zealand commits to reduce GHG emissions to x% below yyyy levels by zzzz.

[placeholder for provisionality text]

¹ [http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/sixth-national-communication_20131220\[1\].pdf](http://unfccc.int/files/national_reports/annex_i_natcom/submitted_natcom/application/pdf/sixth-national-communication_20131220[1].pdf)

Information to facilitate clarity, transparency and understanding

| | |
|---|--|
| Time period | 2021 to [2025][2030] |
| Type [form] of commitment | Absolute reduction from base year emissions managed using a carbon budget |
| Base year | [1990] [If 2005 add comment: This base year has been chosen for ease of comparability with other countries using 2005.] |
| Reduction level | Net emissions will be reduced to x% below [1990][2005] levels of gross emissions by [2025][2030]. [If 2005 base year add comment: The 2005 target corresponds a reduction of [a]% from 1990 levels] |
| Scope and coverage | The target is economy wide covering all sectors: <ul style="list-style-type: none"> • Energy • Industrial processes and product use • Agriculture • Forestry and other land use [or LULUCF?] • Waste and all greenhouse gases: <ul style="list-style-type: none"> • CO₂ • CH₄ • SF₆ • HFCs • PFCs • N₂O • NF₃ |
| Methodological approaches for estimating anthropogenic greenhouse gas emissions and removals | This INDC was prepared using 100 year Global warming potentials (GWPs) from IPCC 4 th assessment report and IPCC 2006 greenhouse gas inventory methodologies. |
| <p>New Zealand's INDC assumes [that any rules agreed between Parties will allow for] the following:</p> <p>Approach to accounting for the land sector (forestry and other land use [or LULUCF?]) [Application of accounting methodologies that build on existing IPCC guidance where available (including the 2006 IPCC Guidelines and the KP Supplement) to address natural disturbance, permanence, land-use flexibility, legacy, non-anthropogenic effects and additionality since the base year.</p> <p>Use of international market mechanisms: Application of a production approach to accounting for emissions from harvested wood products]. Unrestricted access to global carbon markets that enable trading and use of a wide variety of units that meet reasonable standards and guidelines to:</p> <ul style="list-style-type: none"> • ensure the environmental integrity of units/credits generated or purchased • guard against double-claiming/double-counting, and • ensure transparency in accounting. <p>This INDC will remain provisional until either the accounting rules/guidelines to</p> | |

apply in the above areas are fully and finally agreed, or the Paris agreement confirms that accounting rules agreed post-Paris will not be applied retroactively.

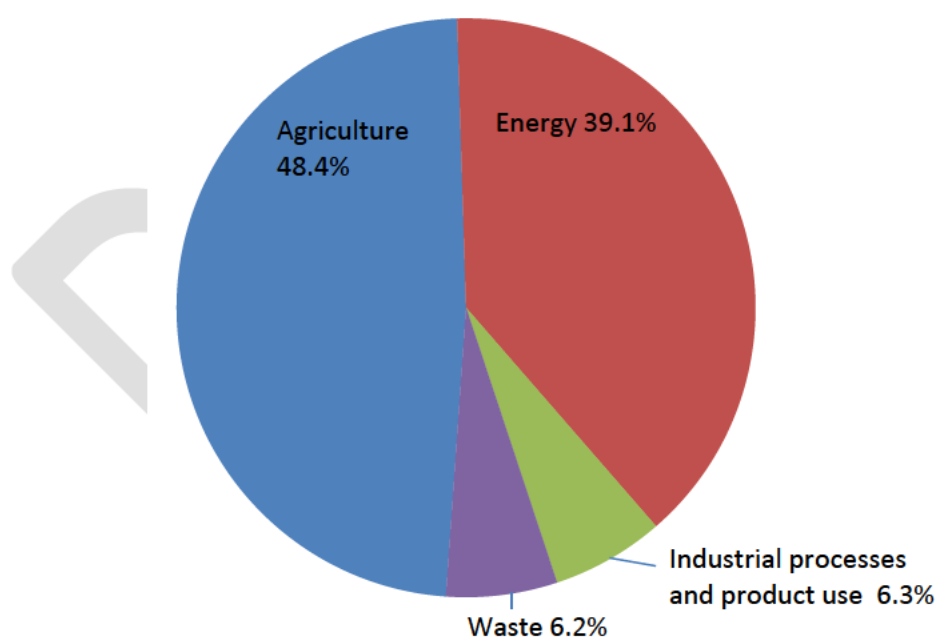
Planning processes and national circumstances

National circumstances²

- *Dependence on road transport because small widely distributed population*
- *Export dependent economy*
- *Highly efficient agricultural system fundamental to the economy*
- *Majority of electricity generated using renewable resources*
- *Total emissions susceptible to year-to-year variation due to localised events*
- *Historical forest planting and resulting harvest cycles will affect NZ's plantation forest emissions well into the future.*

New Zealand's emissions in 2013 (as reported in its National Inventory Report submitted to the UNFCCC in April 2015) are graphically presented in the chart below.

New Zealand's 2013 greenhouse gas emissions by sector



Planning processes

² Further information on New Zealand's national circumstances can be found in Chapter 2 of New Zealand's 6th national communication : <http://www.mfe.govt.nz/publications/climate-change/new-zealands-sixth-national-communication-under-united-nations-framework>

New Zealand's policy response to climate change is informed by a combination of its unique national circumstances, the level of its targets, and recognition that climate change is a global long-term issue necessitating a global response. New Zealand is committed to being part of this response.

Key domestic policies

The Climate Change Response Act 2002 (the Act) contains the legal framework which enables New Zealand to meet its international climate change obligations. The Act was amended in 2008 to encompass the New Zealand Emissions Trading Scheme (NZ ETS) which is New Zealand's principal policy response for reducing domestic emissions and its primary mechanism to meet international emissions reductions commitments.

In addition to the NZ ETS New Zealand has a domestic goal to produce 90 percent of its electricity from renewable resources by 2025, with around 80 percent from renewable resources in 2014. New Zealand has also gazetted a target of reducing emissions to 50% of 1990 levels by 2050.

International cooperative initiatives - New Zealand has a long-standing commitment to providing leadership in research, innovation and technical solutions to reduce greenhouse gas emissions from agriculture, and sharing this knowledge internationally. The New Zealand Agricultural Greenhouse Gas Research Centre³ was established to deliver knowledge, technologies and practices to enable New Zealand to enhance agricultural productivity in a carbon constrained world. New Zealand was also a founding member of the Global Research Alliance on Agricultural Greenhouse Gases (GRA).⁴ The GRA was established with the aim of increasing international cooperation, collaboration and investment in agricultural greenhouse gas research, to find ways to grow more food without growing greenhouse gas emissions. New Zealand is also an active member of the Friends for Fossil Fuel Subsidy Reform group, and a member of the Climate and Clean Air Coalition.

Consultation on the INDC

Prior to taking decisions on its INDC, the New Zealand government undertook a public consultation process including publication of a discussion document, public meetings, hui and an invitation to make submissions. The consultation document (*New Zealand's Climate Change Target*) and related publications (*A general equilibrium analysis of options for New Zealand's post-2020 climate change contribution*, and *Modelling the economic impact of New Zealand's post-2020 climate change contribution*) are available on the Ministry for the Environment's website⁵.

Fairness and ambition:

Fairness:

- *NZ is responsible for low historical levels of emissions now, and historically*
- *NZ continues to improve the emissions intensity of its economy*
- *NZ has already acted on renewable electricity generation*
- *NZ has less capacity to reduce than other [developed] countries*
- *This target is informed by New Zealand's national circumstances (harvest cycle, ag, renewable generation, population growth, transport)*

³ <http://www.nzagrc.org.nz/>

⁴ <http://www.globalresearchalliance.org/>

⁵ <http://www.mfe.govt.nz/publications/climate-change/new-zealands-climate-change-target-our-contribution-new-international>

- *The cost of domestic abatement is higher in NZ than in other countries*
- *NZ is a food exporter*

Ambition:

- *This INDC represents a progression beyond New Zealand's current target*
- *New Zealand does not intend to carry-over a surplus following achievement of its current target.*
- *This INDC represents a significant reduction from BAU emissions*
- *This INDC represents an improvement in the emissions intensity of the New Zealand economy*
- *NZ has policies in place to tackle its main emissions sources, and ag tech showing promising results, and transport (necessary long-term) is picking up pace. But transformation of these sectors necessarily occurs over longer-time frame than this INDC.*
- *NZ intends to meet this target through domestic action as far as possible. Our ability to do so will, to a large extent, depend on whether early promising results from our investment in agricultural research deliver results that can be commercialised.*
- *NZ requires access to deep and liquid markets to take responsibility for more emission reductions than it can cost-effectively achieve domestically.*
- *NZ's use of international markets will have environmental integrity. NZ contributes actively to international cooperative initiatives with a view to facilitating emission reductions over and above its national target*