

## **AD HOC WORKING GROUP ON FURTHER COMMITMENTS FOR ANNEX I PARTIES UNDER THE KYOTO PROTOCOL**

### **NEW ZEALAND SUBMISSION SEPTEMBER 2008**

1. The Ad Hoc Working Group on Further Commitments for Annex I Parties under the Kyoto Protocol (AWG-KP) has invited Annex I Parties to provide additional and updated available information and data on the mitigation potential of policies, measures and technologies at their disposal, appropriate in different national circumstances. Further, the AWG-KP has requested Parties to identify possible ranges of reductions that could be achieved through their domestic and international efforts, and on the scale of emission reductions to be achieved by Annex I Parties in aggregate. Finally, the AWG-KP has invited Parties to submit views on the topics to be covered and the experts/organisations to be invited to participate in the in-session workshop in Poznan.
2. New Zealand welcomes the opportunity to submit information on these issues, and notes that information contained within this submission is supplementary to our submissions to the AWG-KP of February and June 2007.

#### **Summary of key points**

- New Zealand has an atypical emissions profile when compared with other developed countries. National circumstances mean that New Zealand has relatively limited domestic mitigation potential. The New Zealand Government has a number of domestic policies in place however to ensure that the currently limited opportunities are realised and that mitigation potential is improved in the future.
- There is a clear linkage between mitigation potential and individual Parties' emission reduction commitments, as recognised by the AWG-KP. The relative cost of domestic mitigation should be one of the criteria used to differentiate the emission reduction commitments of individual Annex I Parties. This will ensure that individual Parties' emission reduction commitments fairly reflect the costs that a country faces in meeting them.
- The AWG-KP should further elaborate and agree on other factors and criteria to compare mitigation potential across countries. This should be a topic for the in-session workshop.
- Given the diversity that exists within Annex I Parties, including with respect to criteria such as mitigation potential, we would expect a large spread in individual Parties' emission reduction commitments - greater than the corresponding spread in the first commitment period and more on the scale of the EU member states' allocations within its ETS.
- New Zealand supports an indicative range of aggregate emissions reductions for Annex I Parties as a group, corresponding to the lowest feasible level of global greenhouse gas concentrations in the atmosphere. Accordingly, New Zealand supports an indicative range of emissions for Annex I Parties as a group of 25 to 40 per cent below 1990 levels by 2020 (as the lowest greenhouse gas stabilisation band currently assessed by the Intergovernmental Panel on Climate Change), in the context of a global goal and agreement that has comparable effort from all

developed countries and nationally appropriate mitigation action from developing countries<sup>1</sup>.

- A shared vision, including a long term global goal, is required to guide future mitigation efforts under the Convention and its Kyoto Protocol. Further defining the range of emission reductions to be achieved by Annex I Parties in aggregate will depend upon defining the shared vision to guide actions by all Parties to the Convention and its Kyoto Protocol.
- Four topics suggested for the in-session workshop: (i) how to compare mitigation potential across Parties, (ii) the shared vision, including the relationship between long-term and near-term action under the AWG-KP and AWG-LCA, (iii) the potential impact on supply and demand of specific global emission reduction commitments/actions from 2013 onwards, and (iv) an initial exploration of issues related to the base year, nature and length of the second commitment period.

### General remarks

3. New Zealand is prepared to take on its fair share of future commitments to address climate change, in the context of a global agreement that has comparable effort from all developed countries and nationally appropriate mitigation action from developing countries. A long term global goal will be important to guide the international community's mitigation efforts.
4. In this regard, New Zealand is encouraged by recent developments at the G8 Summit in Japan, where they stated their desire to work with all Parties in the UNFCCC towards a goal of achieving at least a 50 percent reduction of global emissions by 2050, recognising that this global challenge can only be met by a global response, in particular, by the contributions from all major economies.
5. To reach an ambitious global long-term emission reduction target, and ensure that global emissions begin to decrease in the next 10-15 years<sup>2</sup>, will require nationally appropriate mitigation commitments and actions from all major emitting developed and developing countries. Relying only on further commitments from those Annex I Parties that have ratified the Kyoto Protocol will not be enough, as aggregate emissions from these Parties make up less than 30 percent, and a rapidly declining share, of total world emissions. New Zealand's support of a new Annex I<sup>3</sup> aggregate target will therefore be contingent on a comparable and equitable effort from all countries (developed and developing), so that in aggregate global emissions are set on a trajectory that avoids dangerous levels of climate change<sup>4</sup>.
6. A decision in the AWG-KP on the aggregate emissions reduction target for Annex I Parties to the Kyoto Protocol is, scientifically and politically, complementary to the mitigation commitments and actions agreed under the AWG-LCA for developed and developing countries, with both contributing to a shared vision and global goal. As the level of ambition for mitigation under the AWG-LCA is not yet well defined, we need to ensure that both work programmes progress in tandem as there are clearly links between the two. One important link between the two is the fact that both the AWG-LCA and the AWG-KP refer to a shared vision in their terms of reference. Logically,

---

<sup>1</sup> At the SBSTA 28 workshop in June 2008, the IPCC provided further explanation of the AR4 Working Group III report (pg. 776): an aggregate emissions reduction for Annex I Parties of 25-40 percent below 1990 by 2020 had a concurrent reduction in non-Annex I Parties' emissions in the range of 15-30 percent below baseline.

<sup>2</sup> To avoid any major overshoot of atmospheric concentrations, the IPCC AR4 states that global emissions will need to peak in the next 10-15 years.

<sup>3</sup> Refers to both the scale of mitigation ambition and future composition of Annex I.

<sup>4</sup> The IPCC AR4 Working Group III report (pg. 776), and elaborated by the IPCC at SBSTA 28, illustrates the type of commitments and action needed from all Parties to ensure atmospheric greenhouse gases are stabilised at specific concentrations.

this shared vision will be common to the two AWGs. Indeed, the shared vision under the AWG-KP refers to the challenge set by the ultimate objective of the Convention.

7. To ensure an equitable effort from each developed country, and in discussion on effort sharing principles and associated ranges of emission reduction targets for individual Annex I Parties, it is necessary to take into consideration the mitigation potential that is available within each country. Given the extra effort and associated costs that countries with limited mitigation potential face in reducing emissions and meeting commitments, New Zealand is encouraged that the AWG-KP has made a clear linkage between national circumstances, mitigation potential and targets for individual Parties. We look forward to further discussion on factors and criteria that could be used to compare the national circumstances and mitigation potential across countries.
8. The concept of “rules before commitments” is an important guide for our work in the AWG-KP. The AWG-KP has not completed its work on the means available to Annex I Parties to reach their emission reduction targets, nor on methodological issues. Further refinement of countries’ mitigation potential, and concluding discussions on effort sharing principles and the associated ranges for emission reduction targets, will be required after the work on means and methodologies is completed. This is of particular relevance for New Zealand, where the estimation and accounting of a large portion of our emissions and removals, and mitigation technologies, are subject to improvements and changes to the future rules. These include proposed improvements to LULUCF rules and changes to CO<sub>2</sub> equivalence metrics.

### National circumstances

9. A description of a country’s national circumstances is a useful starting point for estimating mitigation potential and identifying possible ranges of emission reduction targets. When compared with other developed countries, New Zealand has unique national circumstances in terms of our emissions profile.

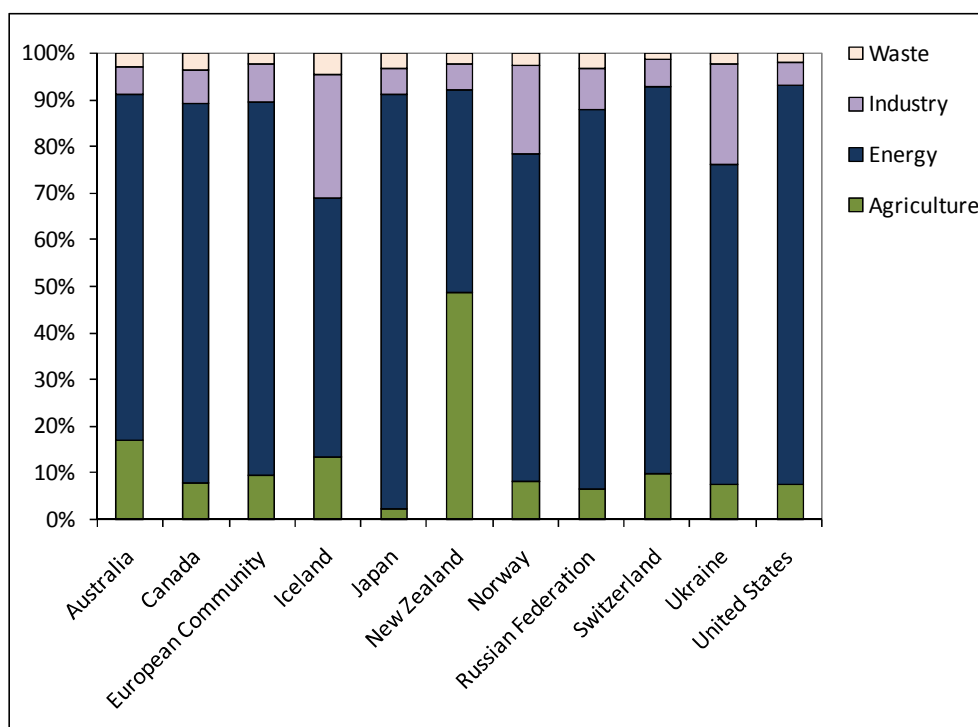


Figure 1: 2005 GHG emission profiles for Annex I Parties<sup>5</sup>

<sup>5</sup> Data sourced from 2007 submissions from Parties on their 2005 inventory. Note that this data excludes solvents and other product use and any other reported memo items. [http://unfccc.int/ghg\\_data/ghg\\_data\\_unfccc/time\\_series\\_annex\\_i/items/3814.php](http://unfccc.int/ghg_data/ghg_data_unfccc/time_series_annex_i/items/3814.php)

10. As Figure 1 illustrates, relative to other Annex I Parties New Zealand has a considerably higher proportion of emissions from the agriculture sector and a much lower share from energy and industry related emissions.
11. At a more disaggregated level, Figure 2 shows that New Zealand has a relatively small share of energy emissions from electricity generation, and that the emissions from agriculture are primarily from enteric fermentation and soils.

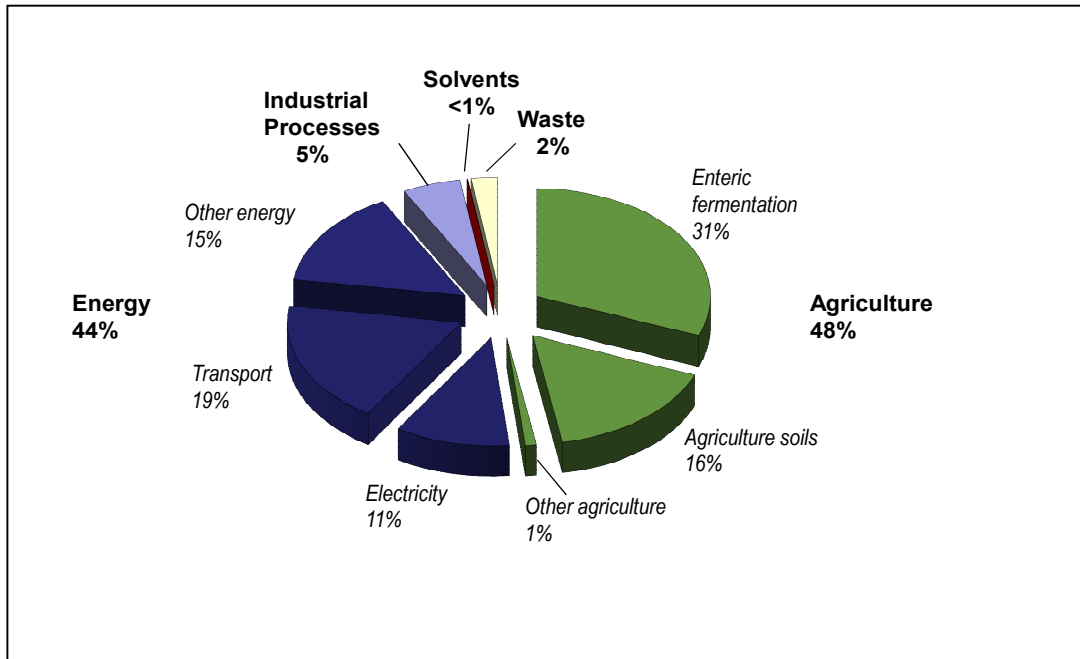


Figure 2: New Zealand Greenhouse Gas Emissions by Sector for the year 2006<sup>6</sup>

12. This set of national circumstances has important implications when estimating and comparing the mitigation potential that exists within New Zealand and other Annex I countries, and the associated costs of reducing emissions and meeting specific emission reduction targets.

### Mitigation potential

13. The Intergovernmental Panel on Climate Change 4<sup>th</sup> Assessment Report (IPCC AR4) uses the concept of mitigation potential to assess the scale of reductions that could be made, relative to an emission baseline, for any given carbon price. Mitigation potential is therefore best expressed as a net cost per unit of emissions avoided or reduced.
14. To ensure an accurate assessment of the mitigation potential within a country, the UNFCCC technical paper on this issue states that a detailed sectoral analysis that takes into consideration broad national circumstances and specific sector efficiencies is necessary<sup>7</sup>.
15. There are five important national circumstances which are most relevant when estimating the mitigation potential that exists within New Zealand:

- i. nearly 50 percent of domestic emissions from the grazing livestock agriculture sector;

<sup>6</sup> New Zealand 2006 greenhouse gas inventory - <http://www.mfe.govt.nz/publications/climate/nz-greenhouse-gas-inventory-apr08/>

<sup>7</sup> FCCC/TP/2007/1: *Synthesis of information relevant to the determination of the mitigation potential and to the identification of possible ranges.*

- ii. a large proportion of electricity generated from renewable sources;
  - iii. a small industrial sector;
  - iv. a large planted production forestry sector; and
  - v. a low population density, geographically isolated from the rest of the world.
16. Grazing livestock agriculture dominates land use and economic output in New Zealand, and produces nearly 50 percent of domestic emissions - primarily from methane created by enteric fermentation within cattle and sheep and nitrous oxide from fertiliser and animal urine. Unlike other forms of agriculture, where energy efficiency, manure management and methane capture provide cost-effective mitigation potential, there are currently only limited technologies available, or under development, to reduce enteric methane or nitrous oxide emissions. When comparing the mitigation potential that exists in the agriculture sector in New Zealand with the mitigation potential more broadly within other Annex I Parties, it is important that these circumstances are recognised.
17. New Zealand also has an atypical energy sector, when compared to most other Annex I Parties, with about 65 percent of electricity generated from renewable sources and very little heavy industry. The mitigation opportunities that exist within New Zealand through moving to low emission fuels within these sectors are therefore limited. The characteristics of these sectors also have important implications for the cost-effectiveness of mitigation that can be achieved through investments in energy efficiency. While there have been a number of international studies that highlight the importance of energy efficiency, including the IPCC AR4, which states that energy efficiency plays a key role in contributing to emission reductions, the cost-effectiveness in terms of emission reductions is much less in countries with a high share of renewable electricity and a small industrial sector.

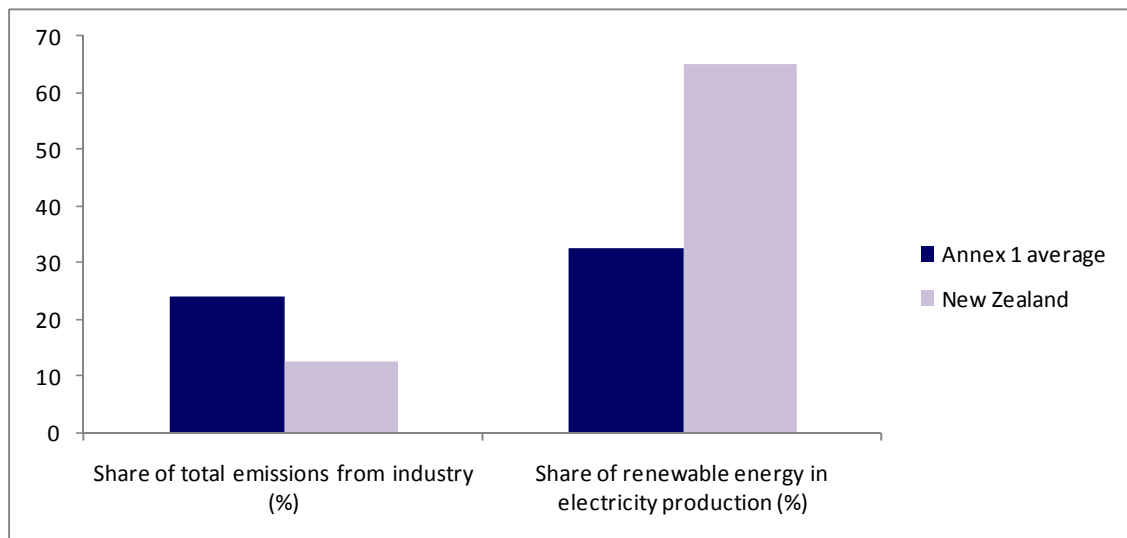


Figure 3: Size of industry and proportion of renewable (2005)<sup>8</sup>

18. The LULUCF sector is of particular relevance to New Zealand's mitigation potential, due to the large proportion of forested and agricultural land in New Zealand. Production forestry in New Zealand contributes over time significant emissions and removals, relative to New Zealand's overall emissions profile. Given the importance of this sector to New Zealand, we are encouraged that the AWG-KP is considering rule changes that will improve the effectiveness of these mitigation opportunities, and remove unnecessary costs. With respect to the emission reduction opportunities that exist within commercial forestry in New Zealand, such as afforestation and biomass

<sup>8</sup> Information contained within UNFCCC Technical Paper - *Synthesis of information relevant to the determination of the mitigation potential and to the identification of possible ranges of emission reduction objectives of Annex I Parties* (FCCC/TP/2007/1)

grown specifically for biofuels, it is important to note that the availability of land is increasingly under pressure from competing land uses, such as food production, which increases the price of land and thereby reduce the cost-effectiveness of these mitigation options. The current LULUCF rules also cause significant barriers to the cost effectiveness of mitigation options.

19. New Zealand has a relatively low population density compared to most Annex I Parties. This means there is a correspondingly limited number of cost-effective opportunities to significantly reduce domestic transport emissions, through initiatives such as public transport campaigns, compared to high density populations. However, beyond 2020, new technologies that are commercially viable, such as electric vehicles and second generation bio-fuels may enable New Zealand, along with other Annex I Parties, to make substantial reductions in transport sector emissions.
20. New Zealand is geographically isolated compared to most Annex I Parties, with a high reliance on international aviation and maritime for trade and tourism. The International Maritime Organization and the International Civil Aviation Organization are leading work within their respective sectors. New Zealand supports the work these organizations are doing. This work is part of the global approach to reducing greenhouse gas emissions.

### **Current and future domestic policies**

21. The New Zealand Government is committed to enabling the potential mitigation opportunities that exist domestically to be realised. The Government has recently passed legislation that introduces a domestic emissions trading scheme (ETS) which will cover all sectors and all gases within the economy by 2013. The ETS will encourage the whole economy to undertake cost-effective emission reductions, and help realise the full scope of mitigation opportunities that are available domestically. The legislation also recognises that some mitigation opportunities may not be realised by simply pricing carbon, and it therefore establishes a number of funds to provide information to consumers about mitigation opportunities that may exist, address and remove barriers to cost-effective options, and provide incentives for firms to invest in mitigation measures.
22. The New Zealand Government has also continued to support regulatory measures to enhance mitigation, including standards on household appliances, a bio-fuel sales obligation, enhanced building codes and improvements to resource management legislation. The Government has also initiated a plan to make six of the key government agencies carbon neutral by 2012. Finally, there is continued investigation of new policies to further encourage cost-effective domestic mitigation.
23. While there may be limited mitigation potential currently, the Government is committed to increasing this in the future, and has therefore invested in a large number of research and development and demonstration (RD&D) projects. These include programmes within the New Zealand Energy Efficiency and Conservation Strategy (NZECS) to enhance efficiency within energy intensive businesses, and funds for development of marine energy set up under the New Zealand Energy Strategy (NZES). The government has also invested, along with industry, into the research and development of possible technologies to reduce emissions from the pastoral agriculture sector through the Pastoral Greenhouse Gas Research Consortium. Furthermore, the New Zealand established Livestock Emissions and Abatement Research Network (LEARN), is providing a forum for exchanging information on the research and development of technologies to reduce emissions from pastoral agriculture as well as providing capacity building opportunities for scientists and other experts from developing countries.

**Possible ranges of emission reduction targets by individual Annex I Parties through their domestic and international efforts**

24. New Zealand is committed to taking on its fair share of the global effort to reduce emissions so as to avoid dangerous human interference with the climate system. To ensure the future emission reduction commitments by New Zealand accurately reflects a fair share of international effort, an assessment of the costs we would face in meeting our emission reduction commitments is essential.
25. When assessing (or comparing across different countries) the costs of meeting a particular range of emission reduction targets for individual Parties, one of the most important factors to consider is the mitigation potential that is available within each country. A country with large amounts of cost-effective domestic mitigation potential will be able to meet a future target at less cost than a country with limited potential, all else being equal. This relationship between mitigation potential and the costs that countries face in meeting a particular target can be illustrated using a domestic mitigation cost curve.

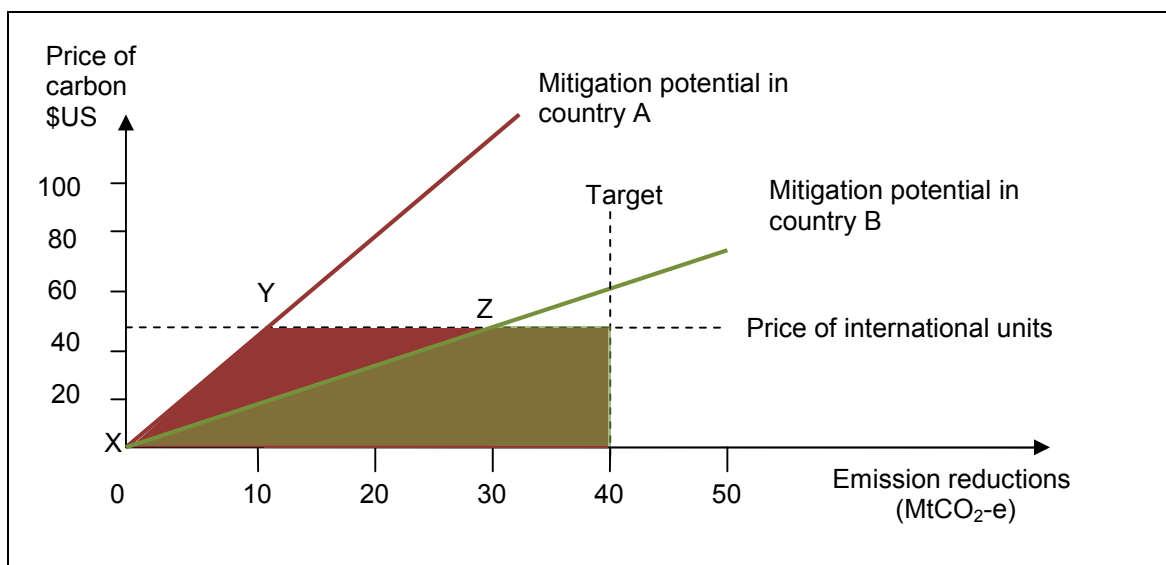


Figure 4: Relationship between mitigation potential and the costs of meeting a target<sup>9</sup>

26. In Figure 4, country A has less domestic mitigation potential compared to country B (i.e. there is a lower quantity of mitigation available at any given carbon price). Assuming that the price of carbon on the international market is US\$50/tonne, and each country has a target which requires them to reduce emissions by 40MT below BAU, the cost that each country faces in meeting the target is equal to the shaded area under each curve but below the international price of carbon. Country A faces considerably greater costs in meeting the commitment<sup>10</sup>, because they need to purchase substantially more international units (at US\$50) compared to country B, which has a larger amount of domestic mitigation opportunities that are available below this international price. Given that both countries face the same costs in using the mitigation potential available through the flexibility mechanisms (i.e. purchasing at the international price) to ensure a more equitable level of effort, country A should receive a target that is less than country B, all else being equal.
27. Taking into consideration domestic mitigation potential when setting individual country targets is therefore fair, as it shares the costs of the mitigation effort relative to the opportunities that exist in each country. Furthermore, it also appropriately avoids penalising countries who have more carbon efficient economic production (as the more

<sup>9</sup> Prices and emission reduction values in the Figure and explanatory paragraph are arbitrary and for illustrative purposes only.

<sup>10</sup> The additional costs that country A faces are equal to the area of triangle XYZ.

carbon efficient a country is the less potential they have to reduce emissions), thereby providing an incentive for countries to continually strive to improve their carbon efficiency.

28. Another important factor to consider when assessing the costs faced by individual countries to reduce emissions is the extent to which their export sector faces the cost of carbon and competes with production from countries that do not face this cost. The more competitiveness-at-risk the exports of a country are, the more financial support that this sector requires to ensure that emissions are not 'leaked' to other countries. The economic cost to a nation is heavily influenced by the extent of any leakage of economic activity. From an environmental viewpoint, it is particularly important if the emissions are leaked to countries that do not have a cap on their emissions, in addition to having less efficient forms of production – thus undermining environmental integrity.
29. The issue of competitiveness, and leakage concerns, is relevant to New Zealand, as our carbon-efficient agricultural sector will be facing a price of carbon under the domestic ETS but will compete with other countries' export products that do not bear a carbon price<sup>11</sup>. Furthermore, these competitors may increasingly be located in countries which do not have a price on carbon. Given the large proportion of emissions from this sector, it could have major economic costs for New Zealand, with an associated dis-benefit to the climate from a global viewpoint<sup>12</sup>.
30. New Zealand recognises that while mitigation potential and related competitiveness effects are important factors to consider when discussing effort sharing principles and associated ranges of emission reduction targets for individual parties, there are other criteria that should be considered, such as GDP per capita, emissions per capita, population growth, and historical emissions<sup>13</sup>. Furthermore, there are some significant challenges with comparing mitigation potential across countries, due to data constraints and varying assumptions, and it will therefore be necessary for Parties to agree on factors and criteria that reflect mitigation potential<sup>14</sup>. New Zealand looks forward to further discussion on this, as well as other relevant criteria that would ensure the ranges of emissions reductions for individual parties reflect an equitable level of effort – based on common but differentiated responsibilities and respective capabilities.
31. Finally, given the potentially large differences between Annex I Parties, in terms of mitigation potential and other relevant criteria, it is to be expected that there will be a large spread in the emission reduction targets for individual Annex I Parties, greater than the corresponding spread in the first commitment period and more on the scale of the EU member states' allocations within its ETS.

### **Scale of emission reductions to be achieved by Annex I Parties in aggregate**

32. New Zealand supports discussion on the scale of a new Annex I aggregate target that represents an equitable contribution, in the context of a global agreement, to what the most recent scientific evidence says is necessary in terms of a global emission reduction effort to avoid dangerous levels of climate change.

---

<sup>11</sup> There are stronger incentives on New Zealand to include agriculture in our ETS than other countries. These incentives are driven by our comparative advantage in undertaking pastoral agricultural production and exacerbate risks of leakage.

<sup>12</sup> This is of particular importance for pastoral agriculture, which relies on the particular physical characteristics of a country that cannot be replicated offshore – unlike an efficient steel mill, which can be located in almost any country.

<sup>13</sup> For further details on the types of criteria that could be used, see New Zealand's June 2007 submission, FCCC/KP/AWG/2007/MISC.1. For a broader view on possible criteria and indicators see a synthesis of all Parties submissions to the UNFCCC, FCCC/TP/2007/1.

<sup>14</sup> Ibid.

33. In this regard, New Zealand recognises the clear relationship between work on the scale of reductions to be achieved by Annex I under the guidance of the AWG-KP, and the work on mitigation commitments and actions taking place under the Ad hoc Working Group on Long term Cooperative Action (AWG-LCA) – including the long-term goal for global emission reductions which makes up part of the shared vision. We need to ensure both work programmes progress in tandem.
34. The recent IPCC AR4 conclusions indicate that to avoid exceeding a stabilisation concentration of 450ppm CO<sub>2</sub>-e, Annex I Parties in aggregate would need to reduce emissions by 25-40 percent below 1990 by 2020. As this is the lowest stabilisation range assessed by the IPCC, New Zealand considers it as a useful indicative range to inform the setting of a new Annex I aggregate target, as part of a broad global effort. New Zealand notes that doubts have been expressed by some commentators as to whether the lowest concentration range assessed by the IPCC is achievable. This makes it all the more important for the Parties who do not have emissions reduction or limitation commitments under the Kyoto Protocol to indicate both their endorsement of a long term global goal and the scale of the action they are able to take.
35. New Zealand's support of a 25-40 percent reduction for Annex I Parties in aggregate is contingent on comparable effort from all developed countries, and action from developing countries that reduces their aggregate emissions in the range of 15-30 percent below baseline<sup>15</sup>. This reduction effort from developing countries should be done in a measurable, reportable and verifiable manner, and be additional to any reductions that result from projects used to meet Annex I Parties' commitments (for example the Clean Development Mechanism).
36. We would not expect that all individual Annex I Party emission reduction targets would fall within an aggregate range of 25-40 percent below 1990 by 2020. As discussed in this submission, commitments for individual Parties should be determined through an assessment of mitigation potential and other criteria, to ensure an equitable effort from all Parties towards an aggregate ambition. And as with the results of the effort sharing that has taken place within the EU, this is likely to lead to a broader range of emission reduction targets for individual Parties.
37. While 25-40 percent below 1990 provides a useful indicative range for where aggregate Annex I emissions need to be by 2020 (as does the 15-30% reduction below baseline for non-Annex I countries), New Zealand considers further discussion and clarification is needed on the relationship between the long-term global emission reduction goal and the necessary commitments and actions that developed and developing country Parties will need to undertake from 2013 to ensure this goal can be met. This will require discussion on how to allocate the effort of developed and developing countries as part of a shared vision – in particular the long-term goal for global emission reductions.
38. Depending on the length of the second commitment period, and the corresponding time frame for action under the Convention, consideration may be needed on whether a process should be established to review the stringency of the commitments and actions required from all countries to ensure they continue to reflect an equitable effort over time.
39. It will also be important to understand how a specific emission reduction target (such as 25-40 percent below 1990 by 2020) would translate into an aggregate Assigned Amount for the second commitment period. New Zealand considers work is also

---

<sup>15</sup> This latter range was presented by the IPCC at the SBSTA workshop at Bonn in June 2008 as a further explanation of information contained within Box 13.7 of the IPCC AR4 Working Group III report (pg. 776), and gives the concurrent scale of reductions required by non-Annex I Parties if Annex I Parties were to reduce, in aggregate, their emissions by 25-40 percent below 1990 by 2020.

required on the implications of different base years or base periods, and rules combinations, for different lengths of the second commitment period, with a view to deciding the parameters of the second commitment period.

40. Finally, we would like to emphasise that building support domestically for a stringent level of emission reductions by Parties will be less difficult if the full potential of emission reduction opportunities that exist globally are made available. Unnecessarily increasing the costs of meeting international climate change agreements reduces the prospects of the international community achieving its goals in terms of reducing greenhouse gas emissions. Changes to the rules for the second commitment period, in ways that maximise these opportunities, will be of benefit to all Parties, and be consistent with Article 3 of the Convention – that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost.

#### **Topics to be covered and experts to invite to the in-session workshop**

41. New Zealand looks forward to participating in an in-session workshop on the above issues, and welcomes the opportunity to provide input on the topics that could be covered and potential experts that might be invited.
42. The first topic that New Zealand would like to address is how to compare mitigation potential across Parties. As discussed, we believe that mitigation potential is an essential criterion when assessing equitable commitments and it will therefore be important that all Parties agree on the basis for comparison. New Zealand appreciates the work done by the secretariat in preparing the technical paper on this issue<sup>16</sup>, and would like this paper to form the basis of a discussion on which factors and criteria could be used as useful indicators for mitigation potential. New Zealand would also like a broader discussion on other criteria that could be used to differentiate the commitments of individual Parties.
43. There are a number of experts that could contribute to a discussion on suitable factors to assess mitigation potential and other effort sharing criteria. These include experts from the Center for Clean Air Policy, ECOFYS, Pew Center on Global Climate Change, World Resources Institute, the OECD, as well as officials who have been involved with the EU's effort sharing work.
44. The second topic that New Zealand would appreciate discussion on is the relationship between the long-term global emission reduction goal and the necessary commitments and actions that developed and developing country Parties will need to undertake from 2013 to ensure this goal can be met. This will require discussion on how to share the mitigation effort between developed and developing countries and linkages to the shared vision within the AWG-LCA – in particular the long-term goal for global emission reductions. It will also be important to understand how a specific emission reduction target (such as 25-40 percent below 1990 by 2020) would translate into an aggregate Assigned Amount across the second commitment period –under different base years/periods and commitment period lengths and rules combinations.
45. The experts who contributed to the results in the IPCC AR4, in particular those from Working Group I and III would be valuable contributors to this discussion, in particular those who worked on the development of Box 13.7 and the supplementary analysis presented in Bonn (see footnote 15).
46. As a third topic, it would be useful to understand how specific global emission reduction commitments/actions impact on the potential supply and demand of emission

---

<sup>16</sup> *Synthesis of information relevant to the determination of the mitigation potential and to the identification of possible ranges of emission reduction objectives of Annex I Parties* FCCC/TP/2007/1

reductions from 2013 onwards. While New Zealand is wary of options that would prematurely restrict cost-effective supply, and does not support discussions aiming to achieve a specific carbon price, this would be useful information for both Parties and private institutions internationally.

47. Potential experts to invite for this third topic could include academics and officials who are working on some of the world's leading models, for example IMAGE, MESSAGE, MiniCAM and World Scan.
48. Finally, and as discussed in paragraph 39 above, the in-session workshop could helpfully provide for an initial exploration of issues related to the base year, nature and length of the second commitment period.