esr zero carbon submission 180717

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Engineers for Social Responsibility Inc. is an independent group of engineers who consider that being knowledgeable in the field of technology means that they also have a special obligation to the public at large. This includes raising the awareness of the engineering profession to the consequences of its activities and explaining and discussing the ramifications of developments in engineering and engineering works to the public.

Submission on the Zero Carbon Bill

This submission is in two parts:

(i) A review and presentation of recommendations on specific areas related to this Bill.
(ii) Answers to questions re specific proposals, as laid out in the MFE Discussion Document, June 2018 (*Our Climate Your Say: Consultation on the Zero Carbon Bill*.)

General

The Zero Carbon Bill is a critically important piece of legislation for New Zealand. Even though the importance of controlling global warming has become increasingly clear and more widely understood over the past 30 years, to date we have not set meaningful targets to significantly reduce emissions and we have not had any mechanisms in place that seem to have had any significant effect on driving reductions in emissions. Hence our net emissions have just continued to increase through most of this period.

It is really important that a workable form of this Bill, that will allow us to seriously address climate change, comes into law reasonably promptly.

Role of the Climate Change Commission

To be effective, the Commission will need to be open to new opportunities and to taking steps that may be considered fairly radical, including driving reasonably rapid reductions in emissions during the initial period that the legislation is in place. Hence commissioners need to not have vested interests that work against this.

Besides the items outlined in the Discussion Document, there are strong arguments for the Commission to also advise the government on the following:

1. What approaches should be used to allow targets to be met. (See later.)
2. How revenue from carbon charges can be re-distributed to the population in an appropriate and equitable manner. (See later.)

Advisory panel

Because of the very wide range of information and knowledge required, it is recommended that the Commission be backed up by an advisory panel. This panel could then provide the Commission with more detailed information on developments in climate science, how fast change should be (rapid change in earlier years makes sense in reducing overall costs and damage), if, how and when targets need to be reviewed, figures for the cost of damage from emissions, estimates of emissions charges needed to meet targets, ways of achieving emissions reductions and how to re-distribute revenue from emissions charges.

Adaptation Group

The UK Commission has an adaptation subcommittee. However, there is an argument for this to be a separate group that works with the both the government and Climate Change Commission, as needed, advising on possible ways of adapting to change.

It would also work with local councils, other local bodies, businesses and the agricultural sector to assist in appropriate adaptation being made in a timely and, where possible, also in a cost-effective manner.

Emissions Targets

1. The Discussion Document is still quoting targets in which net emissions in future years are compared with gross emissions in base years (e.g. P 21). We need to immediately stop using this confusing and highly misleading way of presenting targets. (See for example, final report by previous Parliamentary Commissioner for the Environment, Dr J Wright, *Stepping stones to Paris and beyond*, 2017.)

2. When expressed in consistent net-net terms, the targets our government has recently set are appallingly feeble.
   - 5% below 1990 levels by 2020 on a consistent net-net basis is 78% *above* 1990 levels by 2020.
   - 30% below 2005 levels by 2030 on a consistent net-net basis is 7% *above* 2005 levels by 2030.
   - 50% below 1990 levels by 2050 on a consistent net-net basis is 6% below 1990 levels by 2050.

3. The second target above is our target submitted under the Paris Agreement. Under this agreement we are not actually undertaking to make any reduction in our emissions between 2005 and 2030 when measured in a consistent net-net manner. We are actually undertaking to increase our net emissions by 7% over this period. The Commission needs to urgently review and drastically improve this target if the government has not already done so prior to the Commission becoming established.

4. It will provide greater clarity and send a strong signal on where we need to go, if the government specifically includes the zero net emissions by 2050 target within the proposed legislation. The Climate Change Commission can then later recommend that this be amended, if needed

5. It is really important that we do not hide our fossil fuel emissions behind tree plantings and other steps that reduce emissions on a net basis. Hence the Commission may also need to track emission changes measured on a gross-gross basis. Fossil fuel emissions need to be rapidly reduced, regardless of how many trees are planted.

Approaches to meet targets

There are a range of different steps that could be taken to assist in reducing emissions and meeting targets. The Climate Commission should advise the government on which of these it considers should be used. For example:

- Compared to the NZ ETS, a simple carbon charge would be less expensive to operate, easier to administer and comply with, and would make it simpler to re-distribute income received to the population.
- If done correctly, following the German model and giving electricity generated from renewable resources priority access to the grid over electricity generated from fossil fuels, possibly also with a feed-in tariff arrangement, would very likely see New Zealand move to close to 100% renewable electricity within around 5 years, with stations like Huntly retired to backup status. This is far faster than the government's current target of 100% renewable by 2035.
- The ripple control system, which used to be able to reduce peak electricity demand by turning off almost all electric hot water systems in the country, has been allowed to run down since the reforms in the electricity market of the late 1990's. Taking the necessary steps to reinstate it would help facilitate the move to 100% renewable electricity.
- The move to 100% renewable electricity can also be assisted by providing incentives or introducing requirements related to installation of domestic solar water heaters and photovoltaic panels, and to building new dwellings in which passive solar will provide a significant part the heating requirements.
- A date of say 2025 could be set for the complete phase-out of all use of coal for basic heating and steam generation. Coal users would then be required to move to other fuels prior to this date.
- Controls over the ratio of numbers of various types of vehicles imported (standard fossil fuel powered, hybrid, fully electric), together with other incentives to make electric vehicles a more attractive option, could result in a quite rapid reduction in transport-related emissions. For example, in Norway around one third of new vehicles sold are now electric. This is very much higher than in New Zealand.
- People in cities, e.g. Auckland, spend a lot of time and money commuting by car because public transport services are not adequate. This urgently needs to be addressed. For example, extending Auckland's train system to serve the North Shore, Mangere and the airport, and the Pakuranga/ Botany/ Howick area would likely result in a major reduction in vehicle use and emissions generation.
- Back in the past there were rules that required trains, rather than trucks, to be used for carrying freight over certain longer routes. This sort of approach could lead to significant reductions in emissions. Better train services between major centres would also provide people with an alternative to air travel.
- Emissions directly related to domestic energy use can be reduced by providing incentives or introducing requirements to move away from the use of fossil fuels for heating and cooking.
- Agricultural emissions can be reduced in a number of ways. For example, move to breeds of cattle that produce less methane, fence off streams/ wet areas and create hard stand areas for cattle to reduce nitrous oxide generation, move to more organic farming methods and plant steeper areas with tree crops or native bush. Significant reductions in agricultural emissions could be achieved quite rapidly by requiring farmers to take some of these steps within a given timeframe.
- The large number of animals currently being raised in New Zealand's agricultural sector, many as a source of meat, also makes a significant contribution to our country's total emissions. We need to have a scientifically based debate regarding what is the most efficient and healthy way to produce protein for human consumption, and the negative health effects of the current high animal protein-based diet.

Carbon charges

The current approach to controlling emissions centres on placing a charge on them. The whole field of how carbon charges are applied, and what these charges should be, requires a lot more attention. The Climate Change Commission needs to be able to advise the government on this.

1. Replacing the NZ ETS with a simple carbon tax would result in a system that was much less complicated, had lower compliance and administrative costs, was more transparent both to users and to the public, and made it simpler to re-distribute to the public revenue received from charges. (See later.)

2. The approach that is currently planned for controlling emissions under the NZ ETS, as inferred from the Discussion Document, is that a fixed number of emissions units will be made available over a given period. A more effective way of meeting targets is likely to be by placing a specific charge on emissions during a specific time period. Under this approach:
    - Businesses will not be able to buy emissions units when prices are low, "bank" them, and then use them when unit prices increase.
    - The charges that are estimated to be required to achieve targets can be specifically set. This gives more clarity to businesses compared to the current fluctuating prices for units available through carbon markets.
    - Charges can also be adjusted to reflect the cost of the damage emissions are creating, the so called social cost of carbon. Two recent papers have placed this at around NZ$300 a tonne of CO2-e (See, for example, F Moore and D Diaz, Nature Climate Change, 5, 127-131, 2015.). When emissions charges are lower than the damage figure, then emitters are being subsidised for the damage they are causing.
    - The problem is avoided of how to handle the situation where all units allocated for use in a specified time period are used up prior to the end of this time period.

3. The free emissions units currently made available to trade exposed businesses will need to be phased out. Some of these businesses currently receive enough of these units to cover a large part of their total emissions. This drastically reduces their incentive to take action on reducing them.

4. Reasonably rapid changes in emissions during the early period makes sense because these first reductions are the easiest to make, and overall costs are reduced. However, to achieve this, carbon charges are going to have to rise reasonably rapidly to significant levels – higher than is suggested by Vivid's modelling of $76 to $100 per tonne CO2-e over the 2018 to 2050, as quoted on P28 of the Discussion Document.

   For example, leading climate scientist, James Hansen, who previously held a leading role with NASA, has said that to avoid possible irreversible changes in the earth's temperature, coal emissions need to be completely phased out in the developed world by 2025 and in the developing world by 2030. Our understanding is that to provide the financial incentive to achieve this, carbon charges will need to rise reasonably rapidly to at least $100 a tonne and the number of free emissions units currently made available to trade exposed businesses using coal will need to be rapidly reduced towards zero.

5. Carbon charges also need to be phased in for overseas freight and transport.

The economy

The Discussion Document mentions economic growth, as measured by GDP, several times. GDP is not a very good measure of where we want to go. We want a society in which climate change has been brought under control, and in which people live healthy, rewarding lives in a sustainable manner, where there are good education opportunities and fulfilling jobs available. This can be achieved without always having to aim for an increase in GDP.

Redistribution of revenue

Currently no mechanism is in place to redistribute revenue from carbon charges to the general population. The emissions charges needed to drive change at the rate required are going to need to be high enough to lead to significant increases in the costs of some goods and services. To make this workable there needs to be a method for returning funds to the population. Without this, the legislation is unlikely to be politically sustainable.

We recommend that the Climate Change Commission advises the government on this matter, with input also coming from the Advisory Panel.

One suggestion from overseas for recycling the revenue is to introduce a citizen's dividend which is paid regularly to all adults, with a lesser amount to children over a specified age.

Recent literature has shown how income inequality is linked to mental health problems, drug use, physical health and obesity issues, low education levels and illiteracy, teenage births, violence and crime, gaol rates and other problem areas. (See, for example, Wilkinson and Pickett, *The Spirit Level*, 2009.) New Zealand's income inequality has increased dramatically over the past 50 years and is now higher than in many other countries. This could be an excellent opportunity to change direction and move towards a fairer society.

Transparency and accountability

All reports from the Climate Change Commission, the Advisory Panel and the Adaptation Group must be fully accessible by the public.

In conclusion

International agreement was reached in Paris (December 2015) on "holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels". However, the 2 °C figure was not arrived at as a result of scientific study, and there is now increasing scientific evidence that this amount of warming would be extremely dangerous and perhaps catastrophic for mankind and many other living creatures.

It is therefore critically important that, despite possible strong political lobbying and opposition from some vested interests, the Commissioners recommend actions that will allow New Zealand to make an appropriate contribution, and ideally also play a lead role, "to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels". Achieving this will require a quite rapid reduction in our emissions.

It is also critically important that our Members of Parliament have the courage to implement the required climate change policies to achieve this, despite short-term political risks. They have our support, and that of many, many New Zealanders.

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Submissions form

We seek your feedback on the specific proposals in the Zero Carbon Bill.

2050 target

1. What process should the Government use to set a new emissions reduction target in legislation?

   Pick one:

   - **YES** the Government sets a 2050 target in legislation now
   - the Government sets a goal to reach net zero emissions by the second half of the century, and the Climate Change Commission advises on the specific target for the Government to set later.

   Optional comment

   There is an extremely urgent need for action. Reaching net zero emissions after 2050 may well be too late to maintain a liveable planet such as we had in the past.

2. If the Government sets a 2050 target now, which is the best target for New Zealand?

   Pick one:

   - **net zero carbon dioxide:** Reducing net carbon dioxide emissions to zero by 2050
   - **net zero long-lived gases and stabilised short-lived gases:** Long-lived gases to net zero by 2050, while also stabilising short-lived gases
   - **YES net zero emissions:** Net zero emissions across all greenhouse gases by 2050.

   Optional comment

   While the combustion of fossil fuels is the main cause of our problem, there are also well understood ways for reducing agricultural emissions. Hence, as a starting point, and as an example to other nations, the goal of net zero emissions across all greenhouse gases makes very good sense.

   See also leading information in this submission.

3. How should New Zealand meet its targets?

   Pick one:

   - **YES** domestic emissions reductions only (including from new forest planting)
   - domestic emissions reductions (including from new forest planting) and using some emissions reductions from overseas (international carbon units) that have strong environmental safeguards.

Optional comment

We have been down the overseas units route before, and it was a disaster, with units sometimes selling for as little as 15 cents a tonne of CO2. Our primary responsibility is to reduce our own emissions. Accepting international units stops us from achieving this effectively. Also, as in the past, there may well be questions about the degree of validity of overseas units.

None of this means that we cannot help other countries. This can be done in useful ways by sharing our expertise and by providing funding in specific cases, e.g. for some of our Pacific neighbours.

4. Should the Zero Carbon Bill allow the 2050 target to be revised if circumstances change?

   Pick one:

   - **YES** yes
   - no.

Optional comment

This is not so that future governments can weaken our target for short term reasons, but rather because the target may need to be strengthened, depending on how climate change develops, what happens to global emissions and meeting future possible international agreements.

Emissions budgets

5. The Government proposes that three emissions budgets of five years each (ie, covering the next 15 years) be in place at any given time. Do you agree with this proposal?

   Pick one:

   - **YES** yes
   - no.

Optional comment

1. This is probably a reasonable starting strategy and having budget lengths that do not correspond with electoral cycles probably makes some sense. However, rather than is shown in Figure 2 (page 37) where the budget is flat across each 5 year period, it would give stronger and clearer information on the rate of reduction in emissions needed if annual emissions figures were given for each year within the 5 year budget.

2. The reduction in emission during early years should be far greater than Figure 2 suggests. This will reduce overall costs and also put us in a much stronger position if tighter targets later need to be introduced, e.g. carbon neural by 2040.

See also leading information in this submission.

6. Should the Government be able to alter the last emissions budget (ie, furthest into the future)?

Pick one:

- yes, each incoming Government should have the option to review the third budget in the sequence
- yes, the third emissions budget should be able to be changed, but only when the subsequent budget is set
- no, emissions budgets should not be able to be changed.

Optional comment

NONE OF THE ABOVE. The Climate Change Commission should have the ability to review budgets based on new information and to recommend changes to the government, which the government can then implement. The government should not have the right to alter budgets in other cases, except in exceptional circumstances.

7. Should the Government have the ability to review and adjust the second emissions budget within a specific range under exceptional circumstances?

Pick one:

- **YES** yes
- no.

Optional comment

YES, but only as outlined in the comments re Item 6 above.

8. Do you agree with the considerations we propose that the Government and the Climate Change Commission take into account when advising on and setting budgets?

Pick one:

- yes

- **NO** no.

Optional comment

The considerations listed on P 44 of the Discussion Document make sense. But there are also other very important considerations, for example an understanding of the carbon price required to drive change at sufficient rate; and an understanding of the cost of the damage climate change is causing per unit of CO2-e emitted.

See also leading information in this submission.

Government response

9. Should the Zero Carbon Bill require Governments to set out plans within a certain timeframe to achieve the emissions budgets?

   Pick one:

   - **YES** yes
   - no.

Optional comment

10. What are the most important issues for the Government to consider in setting plans to meet budgets? For example, who do we need to work with, what else needs to be considered?

Comment

Note that in your Discussion Document, e.g. P 21, you are still quoting budgets that compare net emissions in future years with gross emissions in base years. This is a very confusing and misleading way of defining emissions targets. Emissions targets need to be set in a consistent manner – comparing net emissions in future years with net emissions in base years; or possibly, in some cases, comparing gross emissions in future years with gross emissions in base years.

See also leading information in this submission.

Climate Change Commission

11. The Government has proposed that the Climate Change Commission advises on and monitors New Zealand's progress towards its goals. Do you agree with these functions?

    Pick one:

    - **YES** yes
    - no.

    Optional comment

12. What role do you think the Climate Change Commission should have in relation to the New Zealand Emissions Trading Scheme (NZ ETS)?

    Pick one:

    - advising the Government on policy settings in the NZ ETS
    - makes decisions itself, in respect of the number of units available in the NZ ETS.

    Optional comment

    NONE OF THE ABOVE.

    First, the Climate Change Commission might advise the government to move to a simple carbon tax rather than the NZ ETS.

    Second, if the NZ ETS is retained, the Commission should certainly have a role in deciding how it is structured and operates. For example, there are strong arguments that the NZ ETS should be driving change by setting the cost per tonne of CO2-e, rather than by just setting the number of units available

    Third, the Commission should also be advising the government on what other steps need to be taken to achieve climate goals.

    See also leading information in this submission.

13. The Government has proposed that Climate Change Commissioners need to have a range of essential and desirable expertise. Do you agree with the proposed expertise?

    Pick one:

    - **YES** yes
    - no.

Optional comment

They also have to be open to new opportunities that will arise and to understand and accept fairly radical changes may well be needed.

See also leading information in this submission.

Adapting to the impacts of climate change

14. Do you think the Zero Carbon Bill should cover adapting to climate change?

Pick one:

- **YES** yes
- no

Optional comment

See leading information in this submission.

15. The Government has proposed a number of new functions to help us adapt to climate change. Do you agree with the proposed functions?

Pick one:

- **YES** yes
- no.

Optional comment

See also leading information in this submission.

16. Should we explore setting up a targeted adaptation reporting power that could see some organisations share information on their exposure to climate change risks?

Pick one:

- **YES** yes
- no.

Optional comment

See leading information in this submission.

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