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Submission in response to: Reforming the New Zealand Emissions Trading Scheme: Proposed Settings

Engineers for Social Responsibility Inc. (ESR) 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 in matters that relate to engineering, or that can be addressed using engineering approaches. Given the urgency of the issue, for some time now the organization has been particularly focused on how to respond to the climate crisis by reducing emissions and concentrations of greenhouse gases in the atmosphere.

The key authors of this report are all members of ESR with strong experience and qualifications in engineering, and a broad knowledge in relation to global heating, what is causing it and how it can be addressed.

GENERAL

The key authors of this report are Peter Whitmore and Thomas Neitzert. Peter Whitmore holds a PhD in chemical engineering, has experience working in glass manufacturing and metal processing industries, later ran his own business and has more recently been involved in climate change-related issues. Thomas Neitzert is a professor emeritus of mechanical engineering at Auckland University of Technology and has a background of leadership positions in industry as well as academia in New Zealand and overseas.

It has now become very clear that we are facing an extreme crisis and potential catastrophe from global heating, primarily caused by emissions of CO₂ from our burning of fossil fuels. Addressing this requires really urgent and effective action.

New Zealand's response to this has so far been exceedingly weak, but we have the knowledge and resources to proceed a lot faster and more effectively, perhaps even becoming an example to the rest of the world.

Without significant changes, we do not believe that the proposals, as laid out in the consultation document, are going to be nearly strong enough to give the outcomes we urgently need. We therefore sincerely hope that the consultation process results in significant changes and improvements that will finally allow us to start making rapid reductions to our emissions.

While this consultation is about retaining and reforming the emissions trading scheme (ETS), an approach which we understand the government is currently strongly committed to, a simple carbon tax would have far lower administration and compliance costs and would give far clearer price signals to businesses and other affected entities as to what actions were appropriate.

The current ETS, which operates based on market forces, has got us to the undesirable state we are in. We propose that our future not depend on a market and auctions, but rather on setting emissions prices that are sufficient to drive the change that is so urgently needed.

Having expressed our clear preference for a simple carbon tax, we would nevertheless like to answer the questions raised in the consultation document as follows.

RESPONSES TO SPECIFIC QUESTIONS IN THE CONSULTATION DOCUMENT

Some key points have been made in response to these questions. Sometimes these relate to more than one question, but for brevity, they are mainly only covered once.

Q1. Do you agree with the proposal to set a provisional emissions budget of 354 Mt CO₂-e for the 2020-25 period? If not why not?

The emphasis seems to be on aiming for a linear reduction in emissions. The provisional budget in the proposal holds emissions steady for two years and then from 2022 to 2025 reduces them linearly, as the first part of a linear path to our 2050 target. The plan is that this provisional budget will be put in place until the Climate Change Commission is operational and can review it.

Based on the information currently available, aiming for linear reductions in emissions is not an appropriate or an economically or morally defensible way of proceeding. There is an extremely strong case for making more rapid reductions in emissions that are the easiest and least expensive to address, or are causing the most damage. This will reduce the overall damage that our emissions are causing more quickly than a linear approach, and will then give us more time to focus on the more challenging reductions that remain.

For example, the recent IPCC report (Special Report on Global Warming of 1.5 °C, October 2018) concludes that to retain a possibility of holding global warming to a maximum 1.5 °C above pre-industrial levels, global coal emissions need to fall by around 68% below 2010 levels by 2030. Achieving this requires much faster action than a linear reduction because there was no significant reduction in our emissions from solid fuels between 2010 and 2017, the latest inventory figures available (MfE, New Zealand's Greenhouse Gas Inventory, 1990-2017).

More recent research is showing that the earth is warming more quickly than previously thought. See, for example, Marlowe Hood (Society of Environmental Journalists, 17 Sept 2019). It is therefore likely that the next IPCC report will conclude that even faster reductions in emissions are needed.

Also, while the need to rapidly reduce emissions had become very clear by around 1990, New Zealand took no significant action to achieve that until the ETS came into effect in 2010. However, the emissions charge at that time was low, two tonnes of CO₂ for one \$25 unit, and charges were further reduced by the wide availability of very low-priced international Kyoto units, which were accepted up until mid-2015. The result was that during this period, when we should have been aiming to reduce our emissions, our net emissions actually increased by 65% between 1990 and 2017. Because of this, we now need to be very seriously in catch-up mode.

Further to the above, under the current proposal, the plans for how the ETS will be operated are getting quite complicated, with targets for emissions reductions being set and what may be the appropriate number of units to achieve this being made available for purchase or auctioned off.

What businesses need in order to plan their moves to reduce emissions are clear price signals, both for now and for the coming years. This could be achieved by just selling NZUs at a given price in the current year, with the expected prices in future years also disclosed.

We therefore recommend that the planned reforms to the ETS be adjusted so that: (i) emissions reductions are not postponed until 2022; (ii) far more rapid reductions are

budgeted for; (iii) the system is changed so that clear price signals can be set for emissions costs for the current and next several years.

Q2. Do you support the decisions made regarding the technical volume adjustment decisions?

The need to consider these adjustments largely arises because of the complexity of trying to drive emissions reductions with an emissions trading scheme. A carbon tax would be simpler, more effective and would have much lower administration and compliance costs.

Q3. Are there any other adjustments that need to be considered?

As per Q2 above.

Q4. Do you agree with the proposal to address the NZ ETS unit stockpile by reducing the annual volume of NZUs available for auction? If not, why not?

Our understanding is that there are currently sufficient “banked” units to cover all emissions for around 4 years. This is not surprising because when international units were being accepted a few years ago, the price of units went as low as around 15 cents, which also pushed down the market price of New Zealand units.

If these banked units continue to be accepted, it is going to make it extremely difficult, and quite likely impossible, to set appropriate carbon prices and meet appropriate carbon budgets in the coming period.

We therefore recommend that these older banked units be no longer accepted (except when being held by forestry operations to allow re-payment when trees are felled) but can be sold back to the government for \$25 each (the current government unit price), or a lower price if a lower price was originally paid for them or they date back to the period when one unit covered 2 tonnes of emissions.

Q5. Do you agree with 27 million NZUs being removed from auction volume between 2020-25? If not, why not?

If you follow the suggestion under Q4, then this does not have to be considered.

Q6. Do you agree with the steps and calculations taken to reach the proposed annual auction volumes?

As covered earlier, we strongly believe that the price of NZ units should be the primary driver for reducing emissions. Controlling the volume of NZ units made available can be treated as a backup procedure, if required.

Q7. Do you support the proposal to auction 80 million NZU's over the 2021-25 period plus 2 million NZUs for auctioning trial in 2020? If no, why not? Please include your views on the process for adjusting auction volumes.

As covered above.

Q8. Do you agree with the proposal to set an auction reserve price floor at \$20 for the period 2020-25? If not, why not?

Regarding the pricing of emissions units in general, the consultation report considers the cost to businesses of reducing emissions, but seems to take no account of the cost of the damage the emissions are causing, often referred to as the social cost of carbon (SCC). This is an extraordinary omission. It is the cost of the damage the emissions are causing that needs to be the economic driver for change. As long as emission charges are below the damage cost, we are subsidising the destruction that emissions are currently causing to our planet.

The IPCC in its recent report (Special Report on Global Warming of 1.5 °C, October 2018, chapter 2, p 151) says that “the SCC literature has identified a range of factors, assumptions and value judgements that support SCC values above \$100 tCO₂-1” This is equivalent to above around NZ\$155 tCO₂-e.

The IPCC further says that in order to achieve the reductions in emissions that are required to meet the goals of the Paris Agreement, by 2030 overall global emissions will need to be reduced by around 45% and coal emissions by around 68% below 2010 levels. To achieve this, they conclude that carbon prices will need to be in the range of US\$135 (approx. NZ\$210) to US\$5,500 (approx. NZ\$8,500) by that date.

There is now growing evidence from several studies that the earth is warming more quickly than the available data showed when the 2018 IPCC report was published. See, for example, Marlowe Hood (Society of environmental journalists, 17 Sept 2019). Hence, we can reasonably expect that by 2030 the carbon price range required to meet the Paris Agreement will be significantly higher than given in the IPCC 2018 report.

The New Zealand Productivity Commission in its recent report (Low Emissions Economy, August 2018, chapter 5, p 125) states that “the Commission recommends a system in which emissions are priced at the level that reflects their harm”.

It is very clear from all this information that we need to increase our emissions charges rapidly to over NZ\$155, with further plans for them to be over, and possibly well over, NZ\$210 by 2030. Sweden, for example, already has a carbon tax at a level of around NZ\$195.

We therefore very strongly recommend that the current proposed plans for setting targets and budgets be revised to allow emissions charges to rise rapidly to a level that reflects the damage that the emissions are causing.

For example, with an increase in emissions charges of \$25 per annum it would take us over 5 years for charges to reach a level of \$150 – still below the possible damage cost as given by the IPCC. Given New Zealand’s almost complete lack of effective action to date to reduce its emissions, a faster increase in emissions charges than this would be appropriate.

Continuing at the \$25 per annum rate of increase would, by 2030, take us to the lower end of the price range of NZ\$210 to NZ\$8,500 that IPCC says will be necessary by that date to meet the goals of the Paris Agreement but, as covered above, by that time this price range will almost certainly have been revised upwards.

Q9. Do you agree with the proposal to increase the fixed price option to \$35 for obligations arising from activities over 2020?

See comments above.

Q10. Do you agree with the proposal to set the price ceiling trigger of the cost containment reserve at \$50 for the 2020-25 period? If not, why, not?

No, this is far too low for the latter part of this period. Please see earlier comments.

Q11. Do you agree with the proposed annual cost containment reserve volumes to be released if the price ceiling trigger is hit? If not, why not?

If unit prices are being moved fairly rapidly up to the emissions damage cost, we doubt that this will be necessary, but it could be a backup procedure.

Q12. Do you agree with the proposed approach for release of NZ ETS settings information? If not, why not?

If we move to a system in which future expected prices are made clear, then the release of the NZ ETS settings would probably no longer be relevant.

OTHER POINTS IN RELATION TO THE CONSULTATION

P1. A carbon tax as an alternative to the ETS

We understand that the EU and some other countries were previously in favour of a carbon tax, but at the 1997 Kyoto Protocol meetings were pressured by the US to consider emissions trading schemes, which they did. This is apparently a primary reason why emissions trading schemes became widely used. The US then pulled out of the Kyoto agreement.

As previously noted, a simple carbon tax would have far lower administration and compliance costs and would give far clearer price signals to businesses and other affected entities as to what actions were appropriate. We therefore recommend that MfE makes a case for a simple carbon tax that can then be passed on to the government and to the Climate Change Commission for consideration. It would be a useful backup if the currently proposed ETS reforms turn out to be problematic.

P2. Problems with our Paris Target

While we understand that this consultation does not include consideration of long-term emission reduction targets, our Paris target does require attention. Although the target to reduce our emissions to 30% below 2005 levels by 2030 looks reasonable, it is actually expressed in a non-consistent way by comparing gross emissions in the base year with net emissions in the target year. When expressed in a consistent way, comparing net emissions in the base year with net emissions in the target year, based on recent data we are actually undertaking to increase our emissions to 7% *above* 2005 levels by 2030.

This appallingly weak target has now been made clear for some time, for example, by the previous Parliamentary Commissioner for the Environment, Dr Jan Wright, in her final report (Stepping stones to Paris and beyond, July 2017), but is still not being made clear in government-related documents, for example, on P17 of the document related to this consultation.

While MfE may not have the authority to change targets, or perhaps even to suggest new ones, we believe it is imperative that MfE makes it totally clear to the public what our Paris target actually is when expressed in a consistent net-net basis.

P3. Analysis of effect of emissions charges

In order to gain a better understanding of what pricing is needed to drive change, we recommend that MfE assembles or develops estimates of carbon charges that are needed so that emissions-producing activities, such as those below, become no longer economic.

- @ Use of coal for electricity generation.
- @ Use of coal for process heat.
- @ Use of coal for other purposes.
- @ Use of gas for electricity generation.
- @ Use of gas for process heat.
- @ Use of gas for domestic heating and cooking.
- @ Use of petrol and diesel for powering motor vehicles

P4. Units issued from here on

We understand that the current plan is for units to have an unlimited life. Under this scenario, because unit prices can be expected to keep rising over time, businesses will have an incentive to buy and hold more units than they currently need so that they can use them when unit prices have risen. This will undercut the effectiveness of the ETS and complicate its operation, because it will reduce the incentive for businesses to take action to reduce their emissions, and at the same time will make it unclear how many new units need to be made available by the government over the coming period. It will also reduce the revenue the government receives from sales of emissions units.

We therefore recommend that units have a life of one year, and if unused during this period can be sold back to the government for the price originally paid for them.

P5. Free units

Some trade exposed industries currently receive 90% of their units free, and some others receive 60% free. The consultation document (p 42) mentions cutting the number of these units by 1% per annum.

We recommend a far more effective approach under which the supply of free units is rapidly phased out, and instead the government offers these businesses financial assistance to move away from fossil fuel use, and possibly also ongoing subsidies, if necessary, to allow their products to compete on the international market.

P6. International units

We have already seen the disastrous effect accepting international units can have on our attempts to reduce our own emissions. It is good that the government has decided to not currently accept such units, but it is potentially very problematic that it wants to keep this option open for possible future use.

Our objective needs to be to reduce our own emissions, not to downgrade our ability to do so by accepting international units which may, or may not, be strongly related to reducing emissions in other countries.

Once we have found ways of effectively reducing our own emissions, then it would make a lot of sense for New Zealand to assist other countries, but we can do this in other ways than messing with reducing our own emissions by accepting foreign units.

P7. Agriculture

While reducing emissions from burning fossil fuels is our most urgent issue, the agricultural sector accounts for around 48% of our emissions (MfE, NZ Greenhouse Gas Inventory, 2017). There are already well understood ways to reduce these. We consider the best way to get moving faster regarding agricultural emissions is as covered under "other steps". This will give farmers a better understanding of what emissions they are making and how to reduce them.

P8. Effect of emissions charges on the population

The consultation document (Table 12, P66) shows very small changes in household spending resulting from emissions pricing, for example at an emissions price of \$100 tCO₂, a 1.3% increase for low income households (quintile 1) and a 0.5% increase for high income households (quintile 5). In keeping with this, there seems to be no discussion about how to compensate people for rising prices caused by emissions charges.

In order to reduce emissions, emissions charges are going to need to be high enough that the prices of some goods and services change significantly and, as a consequence, people make changes to the goods and services they purchase, the sorts of vehicles they drive, how they travel to work, where they go on holiday and how they get there, and other matters. Despite these changes, we can still expect that higher emissions charges will raise the overall cost of living.

In order to offset the effect of increasing prices, leading US climate scientist, James Hansen, and others, have suggested that a citizen's dividend be introduced, paid monthly to every resident in the country, with a half payment for up to 2 children per family who are under 18 years old. We understand that steps in this direction have already been taken by Canada and Switzerland.

We recommend that it also be planned to introduce the citizen's dividend approach in New Zealand. Without some way of redistributing revenue, the higher carbon charges we need to reduce emissions and to meet our international commitment are likely to become politically very difficult or impossible to introduce.

P9. Other steps

As the discussion document points out, there are also other approaches to reducing emissions besides using the ETS. Some of these approaches could result in reasonably rapid and effective changes.

We therefore recommend that MfE investigate some of these and makes the necessary recommendations to the government and the Climate Change Commission.

For example:

@ Bring in controls on the average fuel efficiency and/ or weight of imported vehicles. The size of vehicles on our roads has increased over the years. This sort of control would start reducing it again and improving fuel efficiency, as well as giving importers an incentive to bring in more electric vehicles.

@ Change the way the electricity market works so that energy from renewable sources gets priority in entering the market over energy generated using fossil fuels. Also, change how the market works so that consumers pay a price that reflects the average price received by electricity suppliers, rather than the price of the highest priced supplier in the market.

@ Improve our public transport system in our cities. For example, in Sydney around five times as many people per capita travel by suburban train each day than in Auckland. Changes like this would have a massive effect on private vehicle use in our cities.

@ Improve both passenger and freight systems between major cities, including re-introducing the earlier rule that certain types of freight must be sent by train between certain cities, rather than by road. This would reduce our current high reliance on air

travel, and also reduce the emissions and congestion caused by trucks on our inter-city roads.

@ Increase the incentive for people to purchase electric vehicles. Transport currently accounts for around 40% of our non-agricultural emissions. In Norway, over 30% of new vehicles being registered are now electric. We are way behind that figure.

@ Introduce further incentives or requirements for farmers to: reduce the need for fertilisers by moving to more regenerative farming practices; move to breeds of cattle with lower methane production; continue fencing off streams and wet areas that cannot be effectively drained; provide hard stands for cattle where appropriate; fence off steep eroding areas and plant in native bush or forest crops.

CONCLUDING COMMENTS

The economic literature makes it quite clear that market-based instruments to control emissions can set a price or a quantity, but not both at once. The emphasis in these proposals is to control the quantity of emissions, but it all potentially gets very messy and unpredictable because there are also proposed price floors and ceilings that, if breached, can result in changes in the quantities of emissions units being made available.

The above means that we do not effectively have a cap-and-trade scheme because there is provision to release additional emissions units in certain circumstances. Also, we understand that there are sufficient existing “banked” units to cover all New Zealand’s emissions for around four years. The present proposal, to keep accepting these units, makes an effective cap-and-trade scheme impossible and presents a lot of uncertainty about what is actually going to happen.

Further to the above, the reduction in emissions that would be achieved under the proposed provisional budget, spanning the period from 2020 to 2025, is way too low for New Zealand to play its part in meeting the aims of the Paris Agreement, to limit global warming to under 1.5 °C.

What we need to drive change are clear price signals for the current period and for the coming several years. This will give businesses and other entities a very clear view of the changes they will need to make, which they can then plan ahead to accomplish.

The ETS with its proposed changes will provide neither price certainty nor quantity certainty. A simple carbon tax would have much lower administration and compliance costs, and would give the clear price signals that we very urgently need to start driving the major reduction in emissions that is needed to protect the world’s climate and to prevent possible catastrophe.

OTHER

Currency conversions based on US\$1.00 = NZ\$1.55, as at mid-February 2020.

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On behalf of the National Committee of Engineers for Social Responsibility Inc.
