Submission on "Accelerating renewable energy and energy efficiency"

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I am Distinguished Professor in the School of Fundamental Sciences, Massey University, and a Fellow of the Royal Society Te Apārangi since 2002. For several years I have been working on climate change solutions at home, at my workplace, in my region, and nationally. I write on ecological issues including climate change at planetaryecology.org and at the Royal Society's sciblogs.co.nz.

In general I support the discussion document and the measures that are proposed. In this submission I will only comment on areas that I believe have been overlooked.

1. The introduction notes that there is an emissions gap in our 2030 target that needs extra work to close. I would add that the 2030 target is weak and was adopted against the wishes of nearly all of the 15,000 or so public submitters. The use of gross-net accounting is a particular flaw. The target is not consistent with the Paris Agreement, the Zero Carbon Bill, or our separate pledge, made in various government documents, to limit global warming to 1.5°C. This requires halving fossil fuel burning by 2032, i.e. a reduction of 30% over 2017–2025. Stronger measures than those discussed in the document will be needed to achieve that.

2. Official emissions figures are only available to 2017, but there has been little progress since then. Transport emissions are likely up by +0.9 Mt CO_2. Electricity emissions changes were +0.75 Mt in 2017, –0.28 Mt in 2018, and +0.98 Mt in 2019 (my estimates based on the Energy Quarterly). Three large wind farms were announced in 2019, but none of them are from large generators willing to sell into the spot market. (Turitea is backed by Mercury's own hydropower, at Waverley the electricity has been pre-sold, and the smaller Mt Cass is from a new entrant.) Even though the generators are presumably expecting higher carbon prices, we are not quite at the point where they have decided to shut down all baseload thermal power generation. Coal consumption ex-electricity is flat. Emissions from gas ex-electricity climbed 10% in 2018–2019, or +0.56 Mt CO_2. What measures would prompt Genesis to build the 860 MW Castle Hill wind farm, for example, whose consent expires in 2023?

3. It's also relevant to the 2030 target that it takes no account of emissions from international shipping and aviation. These have been subject to separate international processes, but are certainly included in the Paris Agreement and it seems likely that they will enter national carbon accounts before long. For example, the UK CCC has written urging the UK government to do so immediately. New Zealand is particularly exposed to international aviation, where our per capita emissions are amongst the highest in the world. (Only tiny island states are higher.) Furthermore, this sector benefits from a highly favourable tax situation as there is no excise tax on jet fuel, nor is the sector included in the Emissions Trading Scheme. There is no GST on international transport. This favourable status attracts excess investment into this sector and creates a bigger problem for us to deal with in the future. It's clearly a difficult issue for all countries to deal with, but we have to start somewhere. My preferred option would be for New Zealand to cooperate with the European countries who are attempting to get a uniform excise tax on jet fuel enacted across the EU of €0.33/litre. The revenue could be disbursed in grants for zero-emission infrastructure and industry. Demand growth would be dampened and possibilities for true net zero biofuels or synthetic fuels encouraged. To sum up, in terms of the big picture of all energy use in New Zealand, this is a large item that is not currently under consideration. (Here's a presentation on the subject from the recent UK Citizen's Climate Assembly: link.)

4. Regarding section 1, on 'information failures', I would add that large emitters should benchmark their emissions relative to best practice in their industry globally and demonstrate that they are working with their peak body to reduce emissions globally. In addition to the large emitters, the same requirements could extend to sectors that have large numbers of small emitters, perhaps by working through their industry body. We should also consider industries that sell products that use energy. Often these have large numbers of small sellers. I hesitate to mention incandescent light bulbs and resistance heaters, but – too late, I mentioned them. Another example would be the Motor Industry Association, who represent a $6 billion industry that earns little that is productive for our economy and whose activities (for example, by spending $600 million a year advertising high-emission utes and SUVs) lock in high emissions for years to come. They use their size and influence to lobby the government not to restrict their income or activities and, so far, do not accept any responsibility for the damage caused by the use of the products that they are selling. Similar comments apply to fuel retailers, who should be required to post public health-style warnings about the damage caused by the use of their products at every pump.

5. Regarding section 8, on renewable electricity generation. The report quotes the Electricity Authority's comments that the current market has delivered firm capacity. It hasn't delivered cheaper prices – instead they have risen markedly; it hasn't reduced emissions, which are steady; it's not clear if dry year risk is fully avoided; it hasn't developed a plan to eliminate emissions. I can only say, good luck dealing with this important industry. I do have one point to add under Q8.30: the report doesn't consider large-scale (or even small-scale) pumped hydro. The Onslow pumped hydro scheme has the capacity to completely eliminate the seasonal imbalance between hydroelectricity supply and demand, and has other environmental cobenefits as well. On the face of it this seems more likely to provide a better route to 100% renewable electricity than reserve thermal or reserve geothermal capacity. The ICCC has recommended giving it another look. It is unlikely to be built before 2035 in the present structure of the electricity market. If the government were to get directly involved in electricity through a new SOE or other mechanism, this could be the one to go for.

6. Regarding section 9, on community renewable energy, I would add that there is a lack of emissions-lowering investments available in New Zealand. For example, each month about 100 people buy a $75,000 Tesla. Most (although not all) have some kind of environmental benefit in mind. But this is a high cost to eliminate 2 or 3 tonnes of CO_2 per year. Rather, the main benefit of this private investment is to help prepare the way for the total decarbonisation of land transport. And once they have their Tesla, where can these environmentally-minded well-off people put their money next? I'm also thinking of the $364 billion deposited in banks (current and savings accounts, and term deposits) – half by households, and earning very little interest. A lot of it is lent out to home mortgages. An investment in energy efficiency, solar hot water, etc. would pay a better return. Home solar PV would pay a better return, even if it is not the best investment for New Zealand as a whole. The minority of the population who would like to put their money towards helping New Zealand become more sustainable have few options. But in theory they are exactly the people who should be paving the way for others.

Thank you for the opportunity to submit on this important area.

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