Submission to Department of Premier and Cabinet regarding proposed amendments to the Climate Change (State Action) Act 2008.

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It is pleasing that the Government is proposing much more ambitious emissions reduction targets than those currently embodied in the Act. The previous "60% reductions by 2050" has long been recognised as nowhere near adequate to address what is an extreme global emergency. If seriously stringent action to reduce emissions of greenhouse gases is not taken in the next decade (and probably in the next 4 to 5 years) by almost all members of the global population we are looking at a massive disruption to the liveability of the planet.

Hence, the proposal to legislate for "net zero emissions by 2030" - which exceeds the ambitions of almost all other world governments – is most welcome.

What must be of concern to people though (and to climate scientists in particular, they being the ones most able to assess the reality or otherwise of the progress being made globally) is whether there is sufficient sincerity and determination amongst governments, business leaders, farmers, etc. to keep doing the job properly. For all sectors to take serious action – which is certainly going to compel them to stop doing some of the things they are so used to doing (quite unpalatable to many) – and to keep monitoring the situation on a continuous basis so that emissions do keep going down rather than slipping upwards.

In the case of governments (the Tasmanian government included) there is going to be a need to take steps to "force" operators to do the right thing against their long-ingrained tendencies – whether that "forcing" be of the stick or carrot kind. In the latter category (obviously more publicly acceptable) are things like financial support for an electric vehicle charging network, stamp duty exemptions for purchase of EVs, subsidies to cattle graziers for seaweed supplements to reduce enteric fermentation methane emissions etc. etc. The Tasmanian government is to be congratulated that some of these things are in place and more are proposed. But use of the "stick" (by way of licence conditions, some sort of tax or carbon price, or even making some activities illegal) is likely to be necessary too if "we" are really serious about addressing the climate emergency. The Government must realise this and demonstrate determination to carry the job through properly.

If there is any sort of thinking that writing a few words into an Act of Parliament is a sufficient step, then that mindset must be overcome immediately.

The other thing which is incumbent on governments is to ensure that the methods used to account for greenhouse gas emissions (and any sort of drawdown) are actually based on proper physics – that is, what effect are our activities *really* having on the CO2-e concentration in the atmosphere. There must not be reliance on any dodgy accounting procedures in any sector.

I have to say that I do have some concerns with the way in which emissions are calculated, particularly in the Land Use, Land Use Change, and Forestry (LULUCF) sector. I have read the "2021 Update of Tasmania's Emissions Pathway Review – technical report" by Point Advisory and Indufor, and some of the material from links therein. And I must say that my misgivings are not allayed, but only strengthened.

I am reminded of the situation at the UNFCC Kyoto conference in 1997 (which was supposed to establish a protocol whereby State Parties would reduce greenhouse gas emissions). The Australian government was willing to sign up because they were actually allowed to *increase* their emission levels (over all sectors combined) by 8% in the 2008 to 2012 period. This special situation was entirely because in the base year Australia's land clearing activity was at an all-time high, and it had since dropped off. Because of a recognisably "bad" activity in an earlier year, entirely artificial credits were now accumulating which allowed even higher GHG emissions to occur.

To make this matter even worse, more recent Australian governments have even suggested carrying over unspent Kyoto credits to later periods. A proposal not welcome to scientists nor to other world governments either.

Tasmania must not allow any assessment of net GHG emissions at any time in the future to be falsified by any such strange accounting procedures. It is the actual physics which ameliorates or worsens the climate crisis.

Please see more below.

LULUCF

The Minister in his forward to the Government Response to the Independent Review of the Act likes to point out that "In 2013 Tasmania was the first Australian jurisdiction to achieve net zero greenhouse gas emissions, and we have achieved our commitment of net zero emissions consistently since 2015".

Furthermore, this is supposedly a "globally significant achievement" which "highlights Tasmania's competitive strengths". We have apparently effortlessly achieved the position of being a "leader" and a role model for the rest of the developed world.

But the Minister does admit that (apart from our historic adoption of hydroelectricity as the main stationary energy source) the net-zero status results from "the significant carbon sink of our managed forest estate". Hence, it is imperative that this component is assessed honestly, and if there is any "accidental", or "marginally dishonest" component to it that we don't use LULUCF as an excuse to be lazy in taking action to reduce emissions in other sectors.

The Government, perhaps, does realise that this claim of net zero already is somewhat "suss". Otherwise, why feel the need to legislate for a goal of net zero by 2030? If we have already got it, surely we can easily keep it? But no, we are not going to get away with this sort of claim for ever. If the rest of the world has to put in serious efforts to reduce emissions in all sectors of the economy, then Tasmania has to do the same. It is good that the Government does realise this and is actually proposing some concrete steps in the right direction.

But, p-l-e-a-s-e stop putting that stuff about being "net zero since 2013" and accordingly being a "world leader in climate effort" out there up front. It is dishonest and only going to make people complacent and much less likely to do the hard work actually needed to solve the climate crisis.

Tasmania's forests

Tasmania is one of those lucky places in the world blessed with extensive stands of forest. In this it stands alongside countries such as Canada, Brazil, Democratic Republic of the Congo, Costa Rica, Indonesia and Russia.

The "luck" is not so much Tasmania's, even though many of us do greatly enjoy recreational trips into forested areas, and historically our forests have provided much valuable timber product and much employment for Tasmanians.

No, in the climate change sense, the "luck" belongs to the whole world. We are all lucky that *anywhere* in the world there still exist large areas of land capable of drawing down large amounts of carbon dioxide, having thus delayed the onset of the day when climate change became of crisis proportions. And these forests (provided that we don't continue to destroy them) continue to make our job of keeping down the atmospheric carbon dioxide concentration easier. Some of the jurisdictions I mention above have appalling policies towards retention of forested areas, and they must be urged in the most stringent terms to improve them.

Tasmania clearly (in my view) cannot claim the drawdown ability of these forests as its own, simply because they happen to grow on our island. Climate change is a truly global problem, and atmospheric CO2 concentration is not localised or dependent on where on the surface of the planet the forests are situated.

So, as far as I can ascertain, international LULUCF accounting does not allow a country (or a State within a country) to claim the annual carbon sequestration of every piece of forest within its boundaries. To allow such a thing would be as ridiculous as allowing us to claim the drawdown ability of the ocean areas which happen to lie within our 3 nautical mile state waters limit. It would also be most unfair to other countries which happened not to have remaining forests or coastal waters. Their need to undertake GHG emissions reductions in all sectors would be disproportionate through no fault of their own.

Thus, the operative word in the Minister's forward about the forest estate is "managed". It is Tasmania's "managed forest estate" which applies to LULUCF. Apart from, of course, grasslands and wetlands etc, but these are minor compared with forestry in the State context.

The "managed forest estate" means all places, public or private, where forest operations have occurred. Figure 2 in the Government's response paper states that in 2019 the total GHG emissions from all non-LULUCF sectors (electricity generation, transport, direct combustion, agriculture, industrial processes and product use, and waste) were 8.36 Mt Co2-e. This is supposedly counteracted by a negative 10.04 Mt CO2-e from LULUCF, making us net negative.

LULUCF in any year includes contributions (up or down) from forest harvesting, sequestration by regrowth on previously harvested land, and plantation sequestration on previously unforested land. In 1990, LULUCF made a positive contribution to emissions of over 10 Mt, and in 1991 this even rose to above 15 Mt, much greater than emissions from all other sectors. And so it is imperative that accounting in this sector is as rigorous as possible, and that all assumptions are genuinely justified.

Forest harvesting (at least, clearfell) seems straightforward. If a coupe of mixed-age native forest is annually sequestering say 100 kt CO2, and it is removed, that removal of a prior sink is completely equivalent to some positive emission of 100 kt elsewhere. The sequestering ability of a piece of

forest is relevant – if it was largely senescent, or extremely young, or a failed plantation put in the wrong place, then the resulting equivalent emission will be less than in the case of Tasmania's healthy mixed-age native forests. There was a lot of this clear falling of native forest going on in 1990 and 1991 (and right up to around 2007), but until quite recently I was not aware that the equivalent emissions actually exceeded all other Tasmanian sectors combined.

It is good (and obviously essential for achieving our climate goals) that such forestry operations are greatly reduced, and is essential that they do not build up again.

It is some worry to me that in table 2 of the PointAdvisory technical report (which breaks down the 2018 LULUCF category into subcategories) "forest land remaining forest land" accounts for minus 9.49 Mt (more on this below), but "harvested native forests" is simply listed as n/a, i.e. zero. Does this mean that there was no native forest harvesting at all? Obviously not. What it probably means, as I have recently discovered, that on a per-hectare basis a "forest" still remains a "forest" provided it is not cleared by more than 70%, according to Australian government standards. Perhaps this is a driver behind modern forest practices such as clump harvesting, seed tree retention, advanced growth retention etc. To avoid having to admit to removing a carbon sink. Not that these practices are not far superior to the old clearfall, they obviously *are* from a biodiversity and a landscape perspective. Some States' land clearing accounting standards are better than the Commonwealth's, and I hope Tasmania's is one of them. But why this zero?

What comes next I find even more contentious. Following a clearfall, most of the land has been allowed to regenerate to native forest (with or without seeding), or converted to plantation. These new trees will themselves begin absorbing CO2. The rate at which they do so will be increasing with age. Were they allowed to reach a senescent stage this rate would drop off again, but in most cases this will not yet have occurred. Perhaps I should take on trust that there has been sufficient research that this ongoing sequestration year by year is correctly computed. Clearly it is this that allows the Tasmanian Government and its advisors to assert that by 2019 the emissions of the LULUCF sector have become a negative 10.04 Mt.

BUT are we really justified in claiming all this sequestration as *our own* credit? Yes, we have put some minor effort into maintaining the regrowth, perhaps bulldozing firebreaks and spraying for insect attacks etc, but it is really only because back in the 90s and early 2000s we did so much clearfelling that the land became part of the "managed forest estate". Because we did something "bad" back then, we become beneficiaries of accounting credits now. It is surely Kyoto all over again.

If we had not cleared these forests in the first place, they would probably be absorbing just as much (or a lot more) CO2 annually as their replacements. Why should we be able to claim credits when on balance we haven't done anything useful at all?

It would be more honest to assign these new forests largely back into the non-managed "world's asset" part of our forest estate, and let our push for "net zero by and after 2030" start from our current real base of a positive 8.36 Mt, not some pretend negative 2.8 Mt. This will put us back on a level playing field with the rest of the world. We are all in this climate crisis together and we all have to put in the same sort of amount of real effort.

Yes, we can indeed put in some plantations on new land (e.g. some farmland, cleared many decades ago) and claim them legitimately as drawdown. Just as we might plant seaweed or algae, or sprinkle ground basalt rock on barren hillsides. But all sorts of actions are essential. At the same time we

absolutely must be cutting the positive emissions - by moving to personal electric vehicles, modifying the cement industry etc. etc. The “net” of “net zero” must be an honest one.

Let’s not try to pretend that somehow we are already an outstanding world leader. We just have to face the truth and get on with it.

What actions should Tasmania take?

Yes, some of the Government’s proposed actions are certainly steps in the right direction. Some of these might usefully be enshrined in law via amendment to the existing Act. The details of any of this I’m sorry I don’t have time left to explore.

But just a few ideas:

- anything which encourages private motorists to switch from ICE vehicles to EVs will be useful. Serious efforts should go into proper recycling of all parts of old vehicles as people begin to dispose of them in quantity.

- Goods transport should also be electrified as soon as possible. I mean longer-distance trucks as well as those which ply city routes. And it is really worth considering that a lot of large trucks ply a single route between Devonport and Hobart (Brighton), which is a route also served by a railway line. Some upgrading of the line and financial encouragement so that a lot more of the container loads would go by (electrified) train would reduce emissions significantly, as well as reducing wear-and-tear on the roads (requiring emissions-intensive repairs).

- A twice-daily passenger train between Hobart and Launceston (rebuild Inveresk station!) and Burnie may reduce car use (most important while ICE vehicles remain dominant) and improve road safety too.

- The legislated requirement to supply 137,000 cu metres of high-quality sawlog annually from public forests must be repealed. Given the huge contribution of forest-related LULUCF to our emissions before 2007, maintaining such an aim is completely contrary to the targets of the amended Climate Change (State Action) Act.

- In fact, almost all harvesting of native forest needs to cease, for the same reason. We do need timber, but much may now be obtained from quite young plantations using modern laminated-beam techniques etc. Of course, felling even a plantation is removal of a carbon sink, so keeping the volumes as low as possible and offsetting as much as possible with more new plantings is essential to reach and maintain our net zero target.

- Apparently, seaweed supplements for beef and dairy cattle are extremely effective in reducing methane emissions. Even up to 98% I have heard. This is going to be problematic over much of Australia where beef herds occupy vast ranges, but in Tasmania, especially in dairies where cows visit the same building each day, it should be more than feasible. And we have suitable marine sites to grow it, and an industry already beginning to establish.

- All sectors must do their own bit. Separate legislated targets would help.
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