

SUBMISSION TO ZERO CARBON BILL – MINISTRY FOR ENVIRONMENT
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Submission – this bill is unsupported due to it not contending honestly with the state of climate science and hypotheses of the models, as taken in context and with regard to their certainty levels. It is a clear overreaction based on herd mentality post Paris summit, that fails to scrutinise the science at source – with legislators depending too greatly on reviews by think tanks like IPCC, and uneducated extreme teenage lobby groups like vision zero. Appendix one shows leading experts in discussion of their climate models ‘lack of clothes’.

False claims were noticed as being presented in the Ministries consultation materials

1) we are experiencing dire weather events due to anthropogenic contribution

Response – there is weak evidence and counter evidence for this claim by MP James Shaw in the discussion document preface. Extreme weather claims have been exposed globally as resulting from professional misconduct eg NOAA violated the Data Quality Act by citing July 2012 hottest US month on record, but eventually admitted July 1996 was once interested scientists pressured them to correct their record tampering. The draft AR5 was candid; No significant observed trends in global tropical cyclone frequency... does not support AR4 conclusions regarding global increasing trends in droughts... there is currently no clear and widespread evidence for observed changes in

flooding”. NIWA has been demonstrated in NZ to be part of the institutional trend for misrepresenting climate related matters, its alarmist claims of a worrying spike in sea level rise and temperatures are rebutted by primary local data painstakingly collated by physicist NZ Jason Mamford (see appendix 2).

2) there will also be co--benefits from reducing emissions in terms of limiting the damage of climate change and ocean acidification as a small part of a global effort.

This assumption based on weak speculative theoretical evidence fails to consider negative health and ecological impacts as seen in real world cases. The Green entrepreneur driven alternative energy agenda is damaging to environment, economy and health, of which examples from country experience abound eg <http://www.dailymail.co.uk/debate/article-5760051/CHRISTOPHER-BOOKER-political-class-obsession-global-warming-rotting-brains.html>

3) Alarmist long term forecasts of emissions levels (supposed to conflate to being spit - roasted by warming), as projected either without action or as projected with action (based on 3 different policy scenarios all constituting major economic restructuring) are not connected by the existing body of evidence to a realistic risk of excessive warming over 2 degrees - as is widely agreed to pose adjustment problems. See body of this submission which shows the estimated odds of non beneficial level warming above 2 degrees are slim, and constantly being downgraded as the science advances.

4) Working papers for this consultation/bill make the science fiction claim that ‘There is an almost linear relationship between CO2 and warming’.

Response - Per IPCC themselves; ‘In climate research and modelling, we should recognize that we are dealing with a coupled non-linear chaotic system, and therefore that long-term prediction of future climate states is not possible.’ 3AR (Section 14.2.2.2, p. 774).

Per climate expert Judith Curry - Many processes in the atmosphere and oceans are nonlinear, which means that there is no simple proportional relation between cause and effect. The nonlinear dynamics of the atmosphere and oceans are described by the Navier-Stokes equations. NASA has accordingly made very clear in its communications that climate models are incapable of predicting outcomes because essential data is missing.

The consultation and bill is premised on poor issue analyses by the IPCC rather than dealing in primary sources. But it is not highly trusted, for example the American Physicists Society recently wrote to the IPCC as follows;

“A factor-of-three uncertainty in the global surface temperature response to increased atmospheric CO2 as expressed by ECS has persisted through the last three decades of research despite the significant intellectual effort that has been devoted to climate science.

- What gives rise to the large uncertainties in this fundamental parameter of the climate system?
- How is the IPCC’s expression of increasing confidence in the detection/ attribution/ projection of anthropogenic influences consistent with this persistent uncertainty?”

IPCC policy writer summaries often contain bias to worst scenario however unlikely, and overstatements, and miss highlighting important matters such as the AR5 WGI statement that “The best observational evidence indicates our climate is considerably less sensitive to greenhouse gases than climate scientists had previously thought.” This has led to a skewed understanding among policy leaders, in particular as regards evidence quality and certainty regarding worst scenarios.

The IPCC cries Wolf not Labrador - its modelling in context

If the warming since 1950 was caused by humans, what caused the warming during the period 1910 – 1945? The period 1910-1945 comprises about 40% of the warming since 1900, but is associated with only 10% of the carbon dioxide increase since 1900. Clearly, human emissions of greenhouse gases played little role in causing this early warming. The mid-century period of slight cooling from 1945 to 1975 – referred to as the ‘grand hiatus’, also has not been satisfactorily explained.

Sea levels have been rising for 21000 years straight. There are times when CO₂ and temp move in the same direction and many times when they move in opposite directions. CO₂ was higher during 3 previous ice ages and reached similar levels to today just a few thousand years ago (Kouwenbeerg et al) – and much earlier it exceeded 1000ppm without adverse effects on species (Haworth 2005).

The Late Ordovician Period was also an Ice Age while at the same time CO₂ concentrations then were nearly 12 times higher than today-- 4400 ppm. According to greenhouse theory, Earth should have been exceedingly hot then. Clearly other factors greatly influence climate and the IPCC’s projections of 21st century climate change in assuming that CO₂ is the control knob on global climate go up against a considerable body of real world evidence putting the theoretical models in the ‘grey literature’ zone.

Concern of scientists about anthropogenic contributions to warming decrease as scientific literacy and technical reasoning capacity increases (SCT prediction versus actual impact of scientific literacy and numeracy on risk perceptions -Kahan et al. Nature Climate Change) and views on if GW is serious issue are more correlated to if an expert is left leaning than to degree of expertise per a study of meteorologists opinions. Only the Meteorologist Society has queried experts about whether climate change is worrying and the real opinion on that is evenly split at yay/nay of 52%/48% and level of climate expertise is not predictive of which side a climate expert takes.

Per atmospheric physicist Richard Lindzen - Here are two important statements that are completely agreed on by the IPCC.

1. A doubling of CO₂, by itself, contributes only about 1C to greenhouse warming. All models project more warming, because, within models, there are positive feedbacks from water vapor and clouds, and these feedbacks are considered by the IPCC to be uncertain.

2. If one assumes all warming over the past century is due to anthropogenic greenhouse forcing, then the derived sensitivity of the climate to a doubling of CO₂ is less than 1C. The higher sensitivity of existing models is made consistent with observed warming by invoking unknown additional negative forcings from aerosols and solar variability as arbitrary adjustments.

Given the above, the notion that an alarming scope of warming with business as usual is ‘settled science’ is an obvious deception.

Model Uncertainties – are they fit for purpose of projections or shamanistic divining rods (see Append 1)?

A comparison of nearly all of the most sophisticated climate models with actual measurements of current climate conditions found the models in error by about 100 percent in cloud cover, 50 percent in precipitation, and 30 percent in temperature change. Even the best models give temperature change results differing from each other by a factor of two or more. (T.P. Barnett, “Comparison of Near Surface Air Temperature Variability in 11 Coupled Global Climate Models,” Journal of Climate 12, 511-515 (1999).

The IPCC First Assessment Report in 1990 predicted a temperature rise of 1C above then current levels by 2025 (Policymakers' Summary, xi). but HADCrut4 came in at only a jot over 0.3C rise between 1990 to 2013. The uncertainty range in the Policymakers' Summary was stated as 0.2 - 0.5C per decade. The warming of 0.3C that we've seen in the more than two decades since FAR (so <0.15C per decade) falls below the lowest uncertainty band.

Whether or not human caused global warming is dangerous or not depends critically on whether the ECS value is closer to 1.5oC or 4.5oC.

But uncertainty about values of ECS has been increasing. The bottom of the ‘likely’ range has been lowered from 2 to 1.5oC in the AR5.

Several papers and expert statements more recent than AR5 point to climate sensitivity around 1.5 and low upper bounds eg Nicholas Lewis, Judith Curry, Bjorn Stevens.

AR5 prefers theory to empiric evidence in citing no best estimate, stating the reticence is due to the substantial discrepancy between observation-based estimates of ECS (lower), versus estimates from climate models (higher). . The top of the IPCC range of temp will only be reached if sensitivity to carbon dioxide is high (very doubtful) ... given the clusters of forecasts are around 2 degrees or less.

The IPCC could not reveal its current best estimate in AR5, instead preferring to reduce the low end of its "likely" range because the bulk of their model projections for climate change have a climate sensitivity of 3.2c (Walter Paul). This means that if the IPCC publicly conceded that the real value of their latest best estimate is south of 2.0c they'd invalidate the climate models that are their Emperors clothing.

More on discrepancies in ECS among different climate models, and between models and observations

Uncertainties about the future rate of this carbon related climate change rise, stem largely from the "feedback" effects on water vapour and clouds, which are topics of current research not yet incorporated to models cited by the IPCC. When expert scientists do adjust models accordingly, the feedbacks become small or negative, undermining the whole premise of the panic (Hugh Kendrick).

Many of the climate model simulations used for the AR5 (CMIP5) are using values of aerosol forcing that are now known to be far too high. Climate model simulations that are re-assessed and re-calibrated to account for smaller values of aerosol forcing can be used to clarify the upper bound of ECS. In a presentation at the Workshop, IPCC lead author Bjorn Stevens argued for an upper bound to ECS of 3.5 degrees C based on analyses of climate models.

"There is now ample evidence that an inadequate representation of clouds and moist convection, or more generally the coupling between atmospheric water and circulation, is the main limitation in current representations of the climate system." (What are Climate Models Missing? Stevens and Bony)

The discrepancy between observational and climate model-based estimates of climate sensitivity is substantial and of significant importance to policymakers. As Judith Curry notes some models have been retro-fitted so they correctly model the past, but different models manage to do this by using different variable settings, so they are not validated for predicting the future. More importantly Equilibrium Climate Sensitivity, and the level of uncertainty in its value, is a key input into the economic models that drive cost-benefit analyses and estimates of the social cost of carbon.

In spite of the IPCC AR5 assessment (where a 'best value' was not given) and this recent research on climate sensitivity, economists calculating the social cost of carbon and the impacts of emissions reductions on climate continue to use the 'best value' of ECS = 3oC determined by the 2007 IPCC AR4 Report. This is a concern because current evidence points to that 'best value' being outdated and twice its likely correct value. Models depended on are still not reliable & lack validation, such as is the norm for engineering and most hard science. The true value therefore may not be 3 degrees as in 2007 or 1.5 degrees as per best evidence today, but it may even be zero.

Recommend reference

<https://judithcurry.com/2016/11/12/climate-models-for-lawyers/>

Appendix 1

A recent debate in the American Physicist Society Climate Change position workshop included these statements;

DR. SANTER: I would say two things, Steve. One thing is that, as I tried to show and as discussed in the IPCC hiatus box, it's clear that there are some systematic errors in the forcing over the last 15 years. We underestimated the cooling associated with post-Pinatubo

volcanic aerosols. We underestimated the cooling associated with the broad solar minimum in the last solar cycle. We probably underestimated systematically some of the cooling associated with stratospheric ozone.

DR. KOONIN: But if the model tells you that you got the response to the forcing wrong by 30 percent, you should use that same 30-percent factor when you project out a century.

DR. COLLINS: Yes. And one of the reasons we are not doing that is that we are not using the models as projection tools.

DR. KOONIN: What are you using them as?

DR. COLLINS: Well, we took exactly the same models that got the forcing wrong and which got sort of the projections wrong up to 2100.

DR. KOONIN: So, why do we even show centennial-scale projections?

DR. COLLINS: Well, I mean, it is part of the assessment process.

And the uncertainty, I think there is a point not to get confused about what the driving uncertainties there are. By the year 2100, it's not --

DR. KOONIN: If you calibrated the model against historical data, discovered you needed .7 to be applied to the greenhouse gas, you should keep that same .7 when you run it forward, no?

DR. COLLINS: No.

DR. KOONIN: You keep all the other parameters. You don't change any of the other parameters.

DR. COLLINS: No, that calibration factor is due to AN ERROR in the boundary condition.

DR. KOONIN: Which boundary?

DR. COLLINS: In the aerosol boundary condition. Beta is accounting for an error in a boundary condition.

DR. KOONIN: You can't untangle the aerosol in greenhouse gases well enough? Is that what you are telling me?

DR. COLLINS: I think that's a large source of uncertainty.

DR. LINDZEN: I think he is saying there is a specific assumption that the aerosol will disappear.

DR. SANTER: Yes. And I think what Bill is saying, and what I agree with, is that it is clear the reason we need to scale down is not only associated with some fundamental model error insensitivity. That's possible, but we know beyond a shadow of the doubt that we got some of the forcing wrong systematically.

So, some of the that downscaling is associated with INCORRECT REPRESENTATION of cooling influences that the real world experienced but that the CMIP5 multimodel archive did not. When I look at that figure, I showed you, the first two-thirds agreement, last two-thirds disagreement, if modelers were really so skilled and so focused on tuning to get a desired result, we would have done a lot better job than that. There is no way, there is no way we would have gotten that fundamental disconnect.

DR. KOONIN: Certainly some modelers are well-focused on tuning and they discovered they need .6, .5, .7 in the greenhouse gas response in order to tune properly. And what bothers me is that they throw away that tuning when they project out a century. That's what I am worried about.

DR. SANTER: Again, to me the real problem as a scientist here is in partitioning forcing error from the response error. It's not easy to do that. I think what you need are experiments where

you systemically explore some of the these forcing uncertainties. And we have not done a good job of that.

DR. CURRY: Thank you. That's very important

DR. SANTER: -- which is large and as I indicated, affects critically the correspondence between models and observations

Appendix 2

- Auckland + 1.55 ± 0.08 mm/year
- Dunedin + 1.36 ± 0.08 mm/year
- Lyttelton + 1.98 ± 0.09 mm/year
- New Plymouth + 1.31 ± 0.28 mm/year.

