

From: [REDACTED]
6 February 2022

Observations on the Carbon Budget Technical Report, October 2021

Greetings

In response to the Minister's request for a public response to the Carbon Budget Technical Report, I am pleased to address bullet points three and four, which call for input to the technical report, and observations as the reviewer may wish to make. The effort in preparing the report and offering it for public consultation is appreciated.

I have perused the report and commented on statements that I think need further clarification and, at times, correction. I have also indicated where I would like an explanation of material cited or calculations to support a claim.

Opening General Observations

Budget figures are expressed in GHG emissions, MtCO_{2eq}. They are always precise; no confidence limits or probability expressed in their accounting. Considering the diversity and nonuniformity of GHG sources, could you outline the calculation procedure involved and reasons for your reliance in these numbers. High hip waders are required to tackle the EPA's tome on the subject. It is noted that the proposed carbon budgets were calculated using data from the latest EPA inventories and projections and are consistent with best practice on international reporting. However, such sweeping statements to confer consensus do not necessarily confer credibility in modelling results.

I note that the provenance of figures derived by the IPCC are equally confounding.

In consideration of the fact that Ireland's emissions are a miniscule fraction (<0.1%) of global emissions, and, therefore, of no discernable impact on climate, it is perplexing to see such frenetic activity on our government's part in striving for emission reductions; all at great cost and with no guarantee of success in reducing our emissions.

In order to provide some credibility to the government's reduction process, can you describe the atmospheric measurement protocol that supports what must be a factoring process, to confirm purported emission reductions. Notwithstanding your statements on our emissions reductions, CO₂ levels continue to increase.

On page 5, you note that failing to act on climate change would have grave consequences. Now, is this not what the UNIPCC has been saying, all the way back to the early nineties. The most recent warning is that we are at code RED according to Mr. Guterres. That is Mr. Guterres' rendition of what AR6 says, since the alarmist rhetoric must be sustained. The underlying AR6 reporting makes no reference to a code RED situation.

Since the oil crisis of 1973, the European Commission, with the support of the European Parliament, has done its utmost to promote what were then called alternative energies. Despite this, wind and solar energy only accounted for 2.9% of the EU's primary energy demand in 2019, after €1,000 billion of spending to promote those "renewable" energy sources since 2000.

Specific Questions and Observations per page number

Page 7

Biodiversity

Indeed, it is imperative that biodiversity is protected while climate mitigation measures are being implemented. In particular, the siting of wind farms is a contentious issue for a number of reasons; noise, large land area required, disruption due to proximity to dwellings, destruction of bird and animal life. These factors have led to a reduction of onshore windfarm developments in Germany and USA. Ireland needs to be equally alert to this form of unreliable energy production and, hopefully, the regulatory bodies will take note.

Two windfarms in western Norway are harming reindeer herders from the Sami people by encroaching on their pastures, the country's supreme court has ruled. 151 turbines on the Fosen peninsula may well be torn down. The turbines, whose construction was completed in 2020, form part of the largest onshore windfarm in Europe. The judge declared they violated the international covenant on civil and political rights.

At present, I see great flocks of migratory birds flying south along the east coast. East coast wind farm proposal, with their proximity to shore, are a serious threat to these birds. Wind farms are an apex destructor of bird life. The EPA should be cognisant of this fact and halt any wind farm developments in areas where wild life can be affected.

Scientific Advice including in Relation to Biogenic Methane

There is lively interest in methane and reducing its emission to the atmosphere. However, as one of the Core Measures identified for inclusion in Action Plan 2021 (page 28 of the long report) is to create new biomethane business opportunities, i.e. A3 under agriculture. Biomethane production from anaerobic digestion is not a hermetically sealed process and will produce both CO₂ and methane emissions. Please explain this contradiction in this proposal.

Also, the descriptive under the above heading is more qualitative than quantity revealing. Currently, methane content in the atmosphere is posted as 1.9ppm; could you, therefore, give a quantitative measure of how much CO₂ will increase, if the methane content is increased to 3.8ppm and show the projected temperature rise as a result. This is important to know, since we hear the doubling atmospheric methane will produce a massive rise in CO₂ levels and global temperature.

A recent publication, 'Interpreting Contemporary Trends in Atmospheric Methane', has this to say: 'explanations for the increases and stabilization of methane over the period 1982-2000 and 2000-2007, have invoked changes in tropical wetlands,

livestock, fossil fuels, biomass burning, and the methane sink. Contradictions in these hypotheses arise because our current observational network cannot unambiguously link recent methane variations to specific sources'. Perhaps, such uncertainty in the methane burden in the atmosphere should dampen the government's hyperbolic response that seeks to penalise the agricultural sector over its methane emissions.

The potential impact on agriculture and land management is severely threatened by the IPCC and our government's headlong rush to adjust our emissions, while the long term impact is not elucidated in this document.

Maximising employment, the attractiveness of the State for investment and long-term competitiveness of the economy

Contrary to the opinion expressed under this heading, a new report by Wood Mackenzie, states that the energy switch risks cutting \$75tn from global GDP. Factors such as job losses, mixed tax revenues from carbon intensive sectors, and initial inefficiency of new technologies will contribute to the decreased GDP figures. All this is required to prevent catastrophic climate change, it says. The take from Mackenzie must be that the immediate catastrophe is the economic damage, not climate damage.

Climate Justice

The international dimension of climate justice plays poorly with the environmental damage and child labour that is conducted in Africa, South America, Inner Mongolia and elsewhere, where rare earth metals and battery materials are mined to support the net zero transition. How does this report square up to this charge of environmental and human neglect?

You state that it is the Council's view that the Paris Agreement represents the only international agreement on a fair approach to common, but differentiated responsibilities and respective capabilities. While the Council frets about our paltry emissions, the Paris Agreement sanctioned the uncontrolled growth of coal power generation in China and India, both of whom failed to attend COP 26. That the Irish Government should make a contribution to this Agreement is an effort to common sense and kowtows to the UN's diktats.

Page 10

Introduction

Your introduction rings the IPCC's alarmist bell and does not justify serious comment.

Page 12

Benefits of climate action

A little research on the 'Lancet Countdown' reveals it to be a partnership of 35 academic institutions and UN agencies, established by the *Lancet* group of medical journals and supported by Wellcome Trust to track progress on the health impacts of climate change.

I am not registered with the website to access the latest edition, but have access to the 2019 edition. This pedigree must, therefore, set the scene for what we can expect or, not to expect, in the findings.

One must question the extent to which the Council has critically examined the data presented; I wonder how is the reader to judge the 'burdens of mortality' or disease posed by climate sensitive diseases and events relative to other health threats. It is easy to conflate, as Countdown has done, estimates of increasing exposure, demographic vulnerability and increased suitability of disease transmission with actual health effects.

Indeed, as I research the content of Countdown, my conclusion must be that it promotes an exaggerated and misleading account of climate sensitive phenomena and it does not serve the Council's case for the climate action that it is proposing to the Irish people.

One must ask the obvious question; how does a 1°C increase in temperature wreak such havoc on the health of people. Surely cold is a bitter threat to health and life! I would appreciate it, if you could address the question: to what extent has the Council sought to verify, in an unbiased and medically informed manner, the content of the Countdown that it so generously quotes from?

As a rejoinder to the above, I am pleased to inform in a study published in the peer-reviewed medical journal, *The Lancet* in 2015, researchers examined health data from 384 locations in 13 countries, accounting for more than 74 million deaths—a huge sample size from which to draw sound conclusions—and found cold weather directly or indirectly killed 1,700 percent more people than hot weather. In case you are wondering, more people die from cold than from warm or hot temperatures. Climate is not cited as a cause for anything throughout the report, while nowadays it is the cause of everything.

Page 16

Where we are now

While our emissions have fallen as suggested, CO₂ emissions continued to rise, according to the NOAA.

Ireland's greenhouse gases emissions including Land Use, Land Use Change and Forestry (LULUCF) totalled 68.3Mt CO_{2eq}.

Could you provide, please, a sample calculation that supports this figure. This might give some confidence to the use of such precise measures of CO₂ that appear throughout the report.

While Ireland is busy preparing all these carbon budgets, to what extent are the figures verified and accepted by the EU or any other interested authority?

Page 32

Assessment of the Impacts of Carbon Budgets

Key inputs include include primary energy resource availability and costs, the technical and cost evolution of new mitigation options, maximum feasible uptake rates of new technologies and, crucially, climate policy targets, technological parameters including transformation efficiency, availability factor, capacity factor and emissions factor.

Based on these input requirements, one has to challenge the value of the model outputs, since none of these inputs is known with any degree of certainty; of course, certainty doesn't enter into the reckoning. In fact, some of the technological models may not even be technically/and/or commercially viable.

The urgency being assigned and constraints applied to achieving certain reductions by 2025 and 2030 can be counter productive and give meaningless output.

The following excerpt from a recent publication sums up the concerns surrounding modelling of complex scenarios, when, in fact, the model itself has no means of verification of its suitability to perform the assigned task. Other governments had been applied this model, but that doesn't necessarily confer validity of purpose. How does one lay claim to the output as a way forward.

'Quantitative models used for assessing this unprecedented challenge typically make a large number of arguably optimistic assumptions regarding human behaviour and decision making, as well as future social and political conditions. A majority of long-term decarbonisation studies assume that key actors will make investment decisions in a rational, cost optimal fashion, and that future governments will be able to forge a social consensus that is conducive to taking action in spite of resistance from vested interests. Most studies also assume that a political mandate can be obtained to put in place long-term policies to price externalities and correct the market failures that lead to GHG pollution. Work using these idealised assumptions, sometimes referred to as "first-best" conditions, is often critiqued as overestimating the speed of transitions while simultaneously underestimating their cost.' Many of the points mentioned here are indeed valid. Will future governments be able to forge a social consensus; will the pathways forward be sustainable or superseded by more severe emergencies??

Page 33

Overall, use of fossil fuel falls from 90% of primary energy demand in 2018 to 49-54% in 2030.

Highly unlikely considering that the government needs to provide 2GW of gas for power generation. If wind penetration increases, so will the gas needs, unless there is sufficient fossil fuel reserve to handle the extra wind, which there isn't.

The scenarios see a range of between 600,000 to 1,500,000 battery electric vehicles by 2030 to meet targets along with 130,000 battery EV vans.

This scenario means more electrical power and more fossil fuels. Don't get hooked up on our intermittent energy sources.

Additional biofuel blending will also be necessary.

Where from and at what cost? Already, pump prices for power diesel are 9 cents more expensive than regular diesel, and the presumption here is that is for B12 additive. Blending out to B20 would further increase the pump price.

A lot of the material in this paragraph has little likelihood of being achieved.

The scenarios see approximately 7GW installed capacity of onshore wind in 2030.

This is a cost that will fall squarely on the shoulders of the population, so the DECC asserts. Also, one would hope that the modelling reflects the real cost of

offshore and onshore wind, rather than media misinformation on where real costs lie.

Natural gas remains on the grid as a significant source of electricity in all scenarios.

This statement jars somewhat with the drop to target drop of 49-54% in 2030.

How does one model the dairy or beef herd that the farmer has built up over generations of labour and investment of time and money. This is a real life case and differs from Teagasc and EPA modelling.

It would be informative to say what technologies Teagasc is investigating to mitigate impact of emission reductions on the farming sector. Vague statements are not helpful.

Heat pumps or electrification are also foreseen for space heating in the commercial sector. Emissions from industrial gases and refrigerants are controlled by EU Regulation (No. 51/2014) on Fluorinated Greenhouse Gases, which targets a 67% reduction in emissions from these sources by 2030 compared with 2014 levels.

According to Action Plan – Securing our Future, It is stated: following the example of other EU Member States, we will commit to bringing forward additional measures to reduce F-gas emissions by 80% by 2030 relative to 2014.

Your proposal to increase the use of heat pumps, which use fluorinated gases, is, obviously, at variance with this regulation. They are targeting a reduction and you are targeting an increase.

Page 39

Processing of wood into durable products extends the time over which the carbon absorbed by the trees is taken out of the atmosphere.

This statement can be challenged:

- Wood processing into durable products is energy intensive.
- Harvesting and delivery of wood are themselves energy intensive processes, even before wood processing begins.

Page 47

Economic Analysis

Two statements to note here –

1. about Ireland's contribution to halting global warming by 2050 and,
2. to make it happen will require a major increase in investment in decarbonising the economy.

Well, the first point is, our contribution to global emissions and, therefore warming, is minimal (<0.1%), but the economic cost to addressing it will be fearful. All of this is supported by spurious statements about health, fuel savings from expensive wind/solar employment.

The TIM model is able to provide us with an assessment of the costs involved in the different mitigation scenarios in the energy sector.

No it isn't. Input data on costs for technologies that have not been developed and realistic costs for CCS, and green technologies are not known. The assessment of costs is meaningless under these input uncertainties. The figures you quote, as well as being unrealistic, are shown with a wide range of uncertainty; €3bn-€18bn.

Pages 52/53

Job losses are properly recognized in these pages, while the report, Climate Action Plan 2021- securing our future, has a different play on jobs – an optimistic one.

You assume other jobs will be created in the energy transition. Ireland has 4.1GW of wind energy. Based on this wind investment, please advise the number of full time jobs created in Ireland to date. Figures should be available to form a basis for forward projections on employment from renewables.

Page 55

Attractiveness of the State for Investment and Long-term Competitiveness

What is your evidence you have this claim?

It is just as likely foreign direct investment could be deterred due to high cost energy and infrastructure that our drive for renewables will entail. Business is about returning profit to investors and companies can do so, while paying lip service to climate change and energy transitions.

To date, investment in renewable electricity has, if anything, saved electricity consumers' money (di Cosmo, 2014 and IWEA, 2018) due to savings in fuel costs. This doesn't seem to be the case for Germany, Denmark, Belgium and Ireland; all have the most expensive energy in Europe, notwithstanding their high renewables penetrations. Ireland, amongst those mentioned, has the highest energy cost element, according to Eurostat. If there were to be savings, they would be greatly offset by government subsidies.

I think you should omit IWEA as a reference in this regard. It has its own side to support.

Analysis carried out for the Electricity Association of Ireland, as shown in Figure 3-6 suggests that Ireland could have one of the lowest wholesale electricity prices, on an All Island basis, among European countries in 2030, which could give rise to a competitive advantage in this sector while achieving carbon intensity of just over 100g CO₂ eq per kilowatt hour.

It is difficult to reconcile this statement with the high cost of wind energy (padded with subsidies) that is to be a relied-on as our future, enlarged energy source in Ireland.

Page 59

Question: how does one reconcile the proposed CAP21 expenditure of €125bn to 2030 with the variable cost savings of about €9bn stated in the opening paragraph?

The Mackenzie report, mentioned above, confirms the sentiments expressed on this page about high cost exposure on the net zero transition.

The UK net zero emissions target will cost more than 1tn, so Philip Hammond warned in 2019.

One also admits that much of what this report is saying about beneficial effects on economies is no more than speculation. It says, household and businesses will need to make investments. Well, households are already struggling with the current fuel crisis and more households are drifting towards fuel poverty, so such statements are unlikely to receive a warm reception.

Page 72

If the objective of Article 2 of the Paris Agreement is: stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system”, one has to wonder how two of the largest polluters, China and India got a few pass on reducing emissions, and will continue to pollute as they see fit.

As a matter of interest and as the 1.5°C and 2°C keep cropping up, could the Council enlighten me on how these figures were arrived at? They colour the whole climate change scene, so it is critical that their selection has a firm basis in science.

This requires that emissions of long-lived gases must reduce to net zero.

CO₂ and methane are not long-lived gases. Please explain why you think they are and avoid, if you please, citing IPCC as a source. The Bern calculation used by IPCC is not a valid approach to this issue.

Generally on Budgets

The budgets are presented to examine how the emission reductions over the next 9 years are to be accomplished. These estimates are extraordinary in that there is no historical or functional information to guide them, rather guesstimates from computer modelling exercises. The prognosis for the future must be that frequent revisions and updates will be made, as the inadequacies of the work are exposed. The modellers will have done their best, but the input data is suspect, and so, the output must be viewed with caution – to state it mildly. And the Council will be seen to have done its duty.

Page 76

International Expert Input

Who, among the listed experts, will offer a balanced view on climate, i.e. one contrary to the IPCC model?

A few observations on the bullet points:

First Bullet Point

The Paris Agreement is a binding instrument under international law, being in accordance with Article 2 of the 1969 Vienna Convention on the Law of Treaties. Its legally binding nature applies to procedural requirements (eg, Parties 'shall' present NDCs), but not to substantive elements (eg, Parties are not required to meet NDC goals).

The Paris Agreement specifically obliges all parties – developed and developing countries – to 'prepare, communicate and maintain successive nationally determined contributions' (Art. 4.2), but does not establish any substantive obligation to actually implement or even achieve the plans and targets put forward.

In view of this understanding, please explain the nature of the legal agreements mentioned under the first bullet point of the Key Messages.

Second Bullet Point

There is agreement within the IPCC and UN cohorts, but not general agreement across the scientific community represented by hundreds of climate scientists and engineers. Refer to the European Climate Declaration by 500 scientists sent to Guterres in 2019 calling for open debate on a number of climate issues.

Third Bullet Point

Well, of course, this is the IPCC view.

Fourth Bullet Point

As requested above, please show the calculation basis for this statement, based on, say doubling the current methane concentration and show its impact on CO₂ levels.

Sixth Bullet Point

Biomethane is proposed in the Council's documents; ref. Climate Action Plan 2021, page 9. 'As well as developing improved storage, we will also begin to deploy renewable gas such as biomethane'. Biomethane from digesters is produced by microbial action, which is the definition of biogenic.

Page 78

CO₂ with an indeterminate lifetime

The statement originated with the IPCC, see AR5 [1], Chap. 6-Summary and Box 6.1) Application of the Bern Formula by the IPCC is wrong. The average lifetime of CO₂ in the atmosphere has been expertly calculated, by independent sources, at around 4.5 to 5 years.

Page 84

Negative emission technologies are not developed to remove CO₂ directly from the atmosphere, so one wonders why IPCC AR6 even suggests these technologies. Having worked on AR5 technologies sector as an expert reviewer, I am not surprised to see this suggestion being mooted.

In summary, the report recognises that a large number of limitations and uncertainties exist in all sectors of its attention, and exceptional changes are required to reach the transition to net zero by 2050. The shortcomings and constraints to meeting targets are clear from Table 7-1. There is optimism expressed in various technological solutions

throughout the report that are born of poor understanding and uninformed optimism in what they can deliver.

Good Luck!!