



At COP26, fair sharing of a carbon budget will be the key to success.

By Bronwyn Kelly

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In November 2021 more than 190 countries will meet in Glasgow to profess their commitment to limiting global heating to 1.5° Celsius above pre-industrial levels. The meeting is called COP26 – the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC).



As parties to a landmark Agreement they made under the UNFCCC in Paris in 2015, each country is obliged before or at COP26 to “[come forward with ambitious 2030 emissions reductions targets](#) (Nationally Determined Contributions or NDCs) that align with reaching net zero by the middle of the century”.

The intention is to ensure the world can meet the primary objective of the [Paris Agreement](#), which is to "hold the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change".

COP26 organisers are assuming that if all countries offer commitments to reduce their annual carbon emissions by at least 50% by 2030 (or sooner) and also pledge to reach net zero by 2050, then it will still be possible, at least with a medium level of confidence, to limit global heating to 1.5°C. They have an appropriately strong sense of how important this is.

[They acknowledge that](#) with 2°C of heating “a third of the world’s population would be regularly exposed to severe heat, leading to health problems and more heat-related deaths, almost all warm water coral reefs would be destroyed, and the Arctic sea ice would melt entirely at least one summer per decade, with devastating impacts on the wildlife and communities they support.”

They also confirm that with 2°C of heating “we cannot rule out the possibility that irreversible loss of ice sheets in Greenland and the Antarctic could be triggered, leading to several metres of sea level rise over centuries to come.”

And they state that “at 1.5°C, the impacts would be serious, but less severe.” Hence the focus at COP26 on doing everything possible to stop the heating.

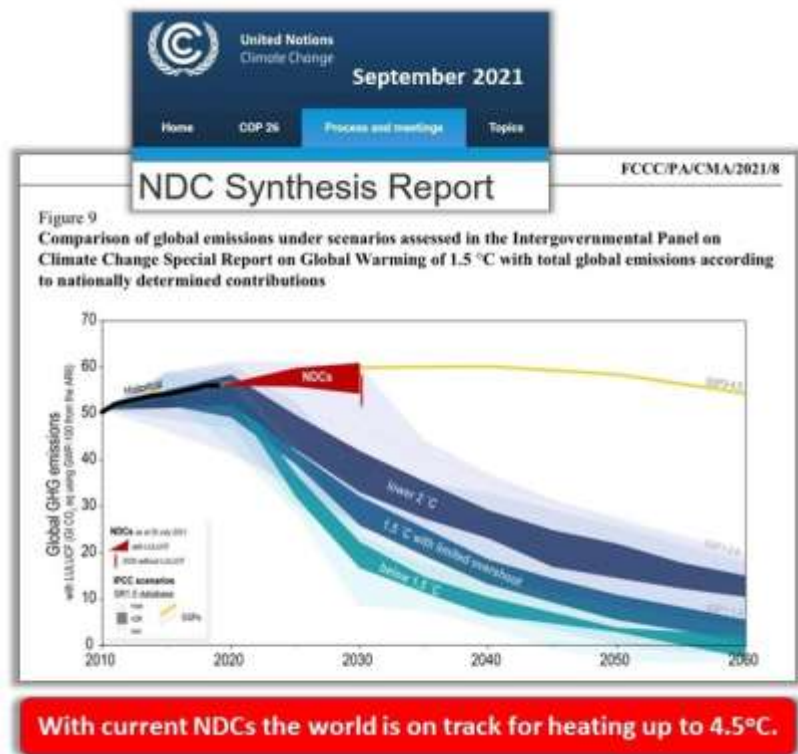
It is too late to stop the world heating by up to 1.5°C. Scientists gave that up long ago. But there is some hope that we can stop it there, although it is fading fast. By some accounts, including those from

our own Climate Council, we are out of time already for limiting heating to 1.5°C. The [Climate Council expects](#) that the best we might achieve is to limit heating to 1.8°C.

However, COP26 organisers will have difficulty negotiating to cap heating at 1.5°C or even 2°C because the Paris Agreement itself does not have a negotiating mechanism that the parties can use to ensure they can work together to stop the heating.

The current negotiating mechanism relies on the willingness of the parties to volunteer pledges of percentage reductions in their annual emissions. This voluntary pledging approach was successful in encouraging countries into the Paris Agreement in 2015; but it is not well suited to delivering actual emissions reductions and certainly is not supplying enough NDCs to achieve the temperature targets.

In the six years since the Paris Agreement was struck, the mechanism has delivered such paltry NDCs that, as at September 2021, [the UNFCCC has concluded that](#), “The total global GHG emission level in 2030, taking into account implementation of all the latest NDCs, is expected to be 16.3 per cent above the 2010 level.” On every reckoning this leaves the world with a significant failure in the ambition necessary to stop the heating. The NDCs on offer so far are entirely insufficient for all temperature aims of the Paris Agreement and this negotiating system has outlived its usefulness.



The system of pledging intended percentage reductions of emissions can no longer function to stop global heating because it does not oblige each country to reach net zero before too much carbon is emitted in total. It is the total emitted that matters, not the date by which we reach net zero. As such, the world needs a new basis for negotiations in the Paris Agreement, one that can enable them to plan the speed with which they will need to reduce their emissions and reach net zero before the world emits too much CO₂ and other greenhouse gases and locks in runaway heating.

This means a new basis for negotiations under the Paris Agreement is required, one based on the scientific fact that there is a finite limit to the total amount of greenhouse gases that can be emitted to the atmosphere if the temperature aims of the Paris Agreement are to be met. The world needs to set itself up to accept a carbon budget and find a way to fairly share what remains of it. And that new negotiating basis is needed now, at COP26, because the reality is that the world has about a decade left before catastrophic heating is locked in and we are simply chewing up the remaining budget too quickly.

COP26 organisers are pushing hard now with calls for more ambitious NDCs than have been forthcoming from the parties to date. Their implicit, if not explicit, expectation is that pledges of 50% reductions in emissions by 2030 or much sooner will meet the necessary level of “ambition”. They are

also likely to celebrate COP26 as a success if all nations, in addition to pledging 50% reductions by 2030, commit to reaching net zero by 2050.

But if the parties in negotiations content themselves with that, then it is game over for the 1.5°C target and even the 2°C target. 50% by 2030 and net zero by 2050 will lock in way too much in tonnes of emissions. To limit the heating all countries need to reach net zero **before** they exceed the global tonnage budget.

But what should the budget be? And when should the world reach net zero if we want to limit heating to 1.5°C or 2°C?

Let's do the maths on carbon budgets and their efficacy in meeting the temperature targets: If - as the COP26 organisers would currently prefer - the world reaches net zero by 2050, and if all countries pledge reductions of 50% in their current annual emissions by 2030, will we meet the temperature targets of the Paris Agreement? The answer is No. Here's why:

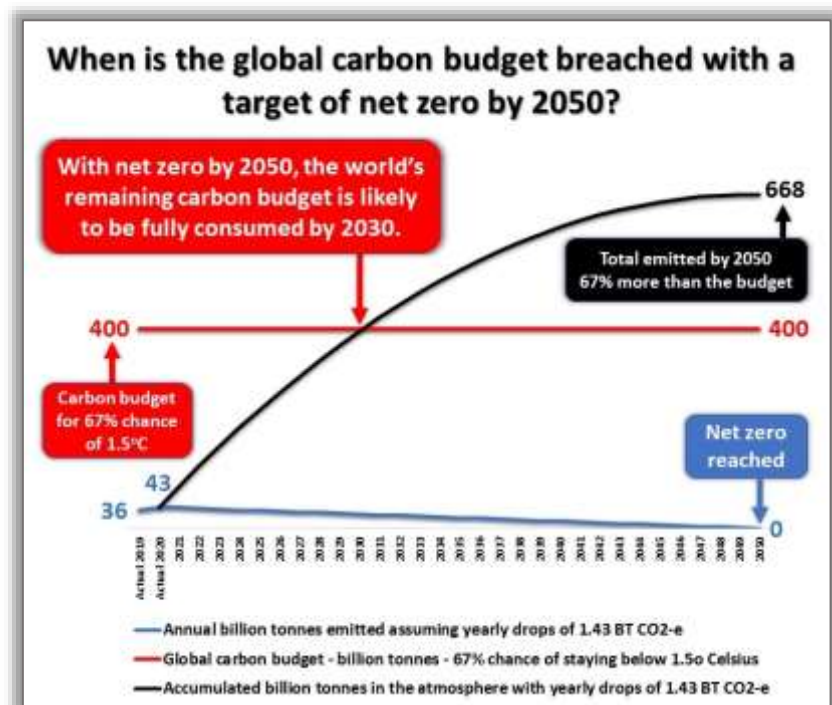
The [Intergovernmental Panel on Climate Change](#) says the world can emit no more than another **400 billion tonnes of CO₂** if we want a **67% chance of limiting global heating to 1.5°C**.

So, if annual emissions are reduced in a straight line to reach net zero by 2050, how many tonnes of CO₂ does the world emit before we reach net zero? **Answer: 668 billion tonnes – 268 billion tonnes or 67% more than the budget.**

And with that particular straight line of emissions reductions theoretically enabling the world to reach net zero by 2050, when does the world blow the 400 billion tonne carbon budget and lock in heating above 1.5°C? **Answer: 2030.**

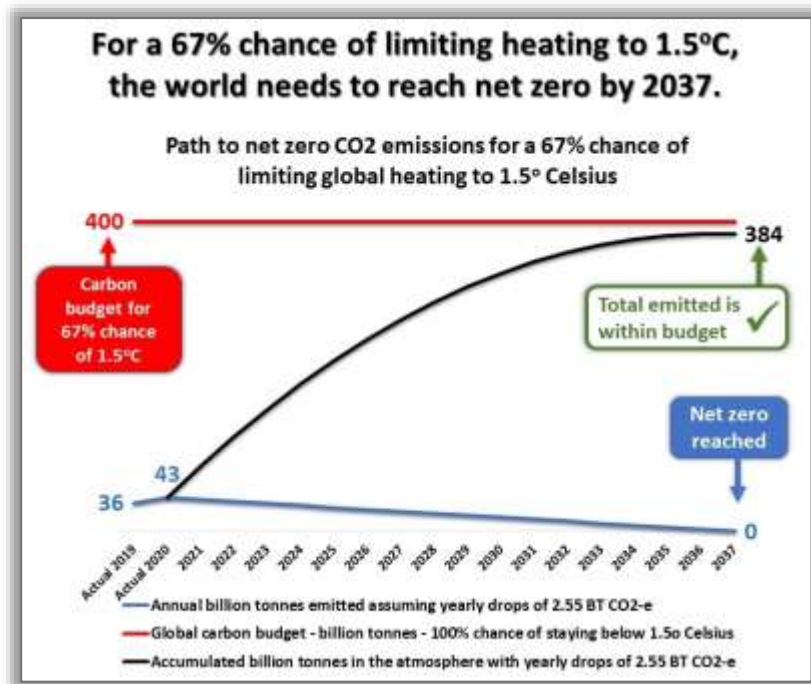
Conclusion? Net zero by 2050 is too little too late and the request from COP26 organisers for 50% reductions by 2030 is nowhere near enough to meet the temperature targets.

So let's do the maths again, this time to calculate the time for reaching net zero without blowing the 400 billion tonne budget: For a 67% chance of limiting heating to 1.5°C, and assuming emissions are to be reduced in a straight line year-on-year to zero, when does the world need to reach net zero without blowing the carbon budget? **Answer: 2037.**



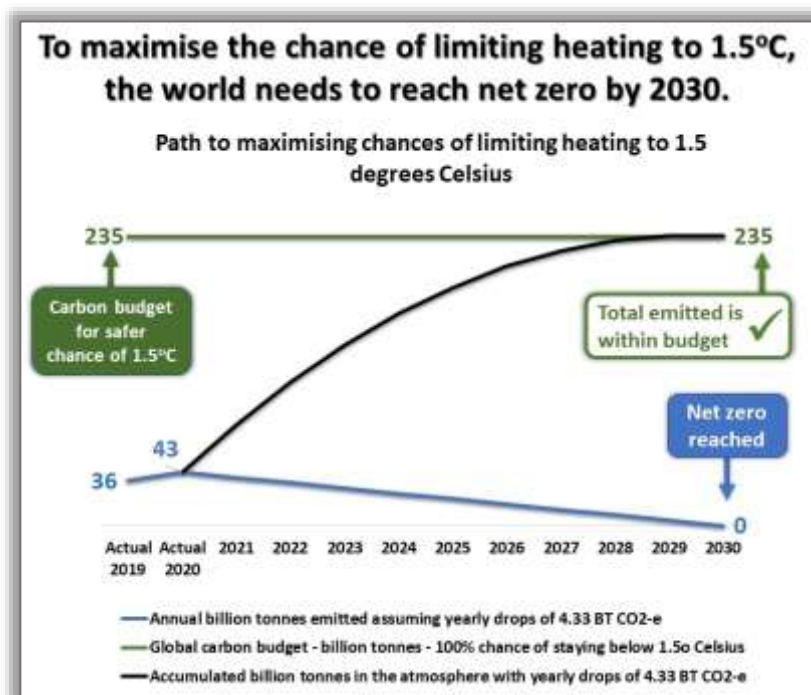
And what reduction on 2020 emissions do we need by 2030? **Answer: a minimum of 60%, not 50% as COP26 has called for.**

But unfortunately, what this doesn't take account of is the fact that the 400 billion tonne budget is only for CO₂ and excludes other greenhouse gases like methane. It also excludes a contingency amount for carbon that may be released if Earth system feedbacks such as melting permafrost add more CO₂ to the atmosphere. So, a 400 billion tonne budget doesn't offer a reasonable degree of safety.



It would be a far safer bet that we might keep temperature rises close to 1.5°C if we adopted a global carbon budget between 200 and 250 billion tonnes, say 235 billion tonnes. This would strike a balance between what is physically achievable in tonnage reductions in this decade, politically negotiable in policy terms, and reasonably safe in temperature terms.

So doing the maths again for a safer budget: If we reduce annual emissions in a straight line, how soon do we need to reach net zero to avoid blowing the safer carbon budget of 235 billion tonnes? **Answer: 2030.**



To meet this the world needs to reduce emissions by just over 4.3 billion tonnes a year, year-on-year. If we assumed that Australia's fair share of this was about 1.5% (our share of total global emissions in 2019) this would require Australia to reduce its emissions by around 55 million tonnes a year from the end of 2020 compared to the amount we emitted in 2019. It's physically and economically doable. What Australia can't afford is to fail on this.

If the world had started reducing emissions a year ago, it may well have been possible to extend the time to reach net zero out to the year 2033. But instead of reducing annual emissions reported for

2019, the reported load increased in 2020 (Covid-19 notwithstanding), shaving off the time left for reaching net zero. Every year we delay will bring forward the time for reaching net zero.

While we might still exceed the 1.5°C limit with the safer global emissions budget of 235 billion tonnes, it is by no means too late to aim for something very close to it and work in full cooperation to share that remaining budget fairly. We can achieve some amazing things in a decade, if we start with an agreement at COP26 whereby we fairly share the remaining safe global carbon budget. But Australia and the world must start the reductions now. Failure would cost us much more than striving for net zero by 2030. As [researchers at Melbourne University have shown](#), the cost to Australia if the world fails to stop global heating is a minimum of \$584 billion by 2030; but the cost to our economy to solve it by 2030 is a mere \$36 billion.

Australians can urge the government to lead the world at COP26 to stop global heating by adopting a new basis for negotiations where we acknowledge a limit to total emissions and work out how to share it fairly with all other nations. [Sign the petition demanding that Australia lead the world at COP26 to stop global heating by moving a Motion to share a safe global carbon budget.](#)



Dr Bronwyn Kelly is the Founder of [Australian Community Futures Planning](#), author of [By 2050: Planning a better future for our children in 21st century democratic Australia](#), and creator of the videocasts [The State of Australia in 2020](#), [What is National Integrated Planning & Reporting](#), and [Snapshots from Australia Together](#).

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