

World will pass crucial 2C global warming limit, experts warn

Carbon pledges from 147 nations to Paris climate summit 'are not enough to stop temperature rise', experts conclude



Under threat: a coral reef in Fiji.

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Pledges by nations to cut carbon emissions will fall far short of those needed to prevent global temperatures rising by more than the crucial 2C by the end of the century. This is the stark conclusion of climate experts who have analysed submissions in the runup to the [Paris climate talks](#) later this year.

A rise of 2C is considered the most the Earth could tolerate without risking catastrophic changes to food production, sea levels, fishing, wildlife, deserts and water reserves. Even if rises are pegged at 2C, scientists say this will still destroy most coral reefs and glaciers and melt significant parts of the Greenland ice cap, bringing major rises in sea levels.

“We have had a global temperature rise of almost 1C since the industrial revolution and have already seen widespread impacts that have had real consequences for people,” said climate expert Professor Chris Field of Stanford University. “We should therefore be striving to limit warming to as far below 2C as possible. However, that will require a level of ambition that we have not yet seen.”

In advance of the COP21 United Nations climate talks to be held in Paris from 30 November to 11 December, every country was asked to submit proposals on cutting use of fossil fuels in order to reduce their emissions of greenhouse gases and so tackle global warming. The deadline for these pledges was 1 October.

A total of 147 nations made submissions, and scientists have since been totting up how these would affect climate change. They have concluded they still fall well short of the amount needed to prevent a 2C warming by 2100, a fact that will be underlined later this week when the Grantham Research Institute releases its analysis of the COP21 submissions. This will show that the world's carbon emissions, currently around 50bn tonnes a year, will still rise over the next 15 years, even if all the national pledges made to the UN are implemented. The institute's figures suggest they will reach 55bn to 60bn by 2030.

To put that figure in context, the world will have to cut emissions to 36bn billion tonnes of carbon to have a 50-50 chance of keeping temperatures below 2C, scientists have calculated. Current pledges will not bring the planet near that reduced output. Developed nations may pledge to make increasing use of renewable energy sources but as more developing nations become industrialised, carbon outputs continue to rise overall. And there is no prospect of nations now changing their carbon pledges before or during the Paris talks.

'It is essential that a legal agreement is made at Paris for countries to ramp up their actions'
Lord Stern, economist

The world is therefore falling well short of its carbon target – though there are some grounds for relative optimism. A study of COP21 pledges by Climate Action Tracker, (CAT) an independent scientific group of European climate experts, indicates that if all pledges are implemented, then global temperatures will rise by 2.7C. The group revealed that this is a significant improvement on the warming it predicted last year. “Our December update included pledges and informal announcements by China, the US and the EU, and we estimated an average global warming level of 3.1C,” said CAT member Dr Louise Jeffery of the Potsdam Institute for Climate Impact Research. “The biggest contributing factors to the change in our temperature estimate have been China and India.”

These nations had been on track to become major carbon emitters but this year issued pledges that have raised hopes they will greatly curtail their outputs, increasing some negotiators' hopes for Paris.

This point was backed by climate economist Lord Stern: “We can already see that the pledges by national governments will mean emissions after 2020 will fall far short of cuts needed to have a reasonable chance of avoiding global warming of more than 2C. It is essential, therefore, that a legal agreement is agreed at the COP21 talks in order to create a process after Paris through which countries will review their efforts and find ways to ramp up their actions on reducing emissions.”

A major stumbling block facing negotiators at Paris will be finance. Developed nations – who are responsible for most carbon emissions – have to find ways to pay developing nations so that they can adopt renewable energy technologies and find ways to cope with changes in their environments. Given that this will cost hundreds of billions of dollars, there is considerable room for political fallout. Nevertheless, Field remained optimistic: “The climate change problem is one that can be solved. We have the technologies, the resources – we just need to make the

commitment.”