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## Methane cuts could delay climate change by 15 years

28 March 2012 by [Fred Pearce](#)Magazine issue [2858](#). [Subscribe and save](#)For similar stories, visit the [Climate Change](#) Topic Guide

THE world could buy itself 15 years of breathing space for fighting climate change, one of the world's top climate modellers argued on Monday.

Peter Cox at the University of Exeter, UK, was speaking at the Planet Under Pressure meeting in London, where more than 2800 scientists gathered to discuss fears that Earth's life-support systems are under intense stress from human activity.

The trick, he says, is to widen our attack on greenhouse gases from carbon dioxide to include the second most significant greenhouse gas - methane. "Methane is a more important control on global temperature than previously realised. The gas's influence is much greater than its direct effect on the atmosphere," says Cox. Curbing methane, he adds, may now be the only way to prevent dangerous warming.

We release methane in many ways - leaks from gas pipelines and coal mines, from landfills, the guts of livestock and rice paddies. Curbing these emissions would bring a manifold benefit for climate, says Cox.

He has studied the way CO<sub>2</sub> and methane influence plant growth, and says that these feedback mechanisms mean action on methane could have twice the expected punch.

An atmosphere containing less methane but more CO<sub>2</sub> would encourage forests and other vegetation on land to absorb more carbon. This would happen in two ways. First, the extra CO<sub>2</sub> would itself act as a fertiliser for vegetation, so it would grow faster and absorb more CO<sub>2</sub>. Second, less methane would minimise the formation of tropospheric ozone, which damages plant growth.

These mechanisms are well known, but Cox is the first person to calculate their collective impact on the amount of CO<sub>2</sub> that can be released while keeping global warming below 2 °C - the widely accepted threshold for dangerous climate change.

He told the conference that a 40 per cent reduction in human-caused methane emissions would permit the release of an extra 500 gigatonnes of CO<sub>2</sub> - a third more than previously thought - before we exceeded 2 °C



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Slashing methane would be a boom for vegetation – and crops (Image: Claus Meyer/Minden Pictures/FLPA)



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warming. "That is a 15-year breathing space at current CO<sub>2</sub> emission rates," says Cox, who admits there are uncertainties in his calculations.

"It looks extremely unlikely that we can stop global warming at 2 °C just by reducing CO<sub>2</sub> emissions," he told *New Scientist*. "That probably requires peaking emissions by 2020. But drastic action on methane would make the task much more feasible."

Cox says most governments have become fixated on combating CO<sub>2</sub> emissions, and while that remains essential, the benefits of action on other greenhouses gases have been ignored. He stresses that this is not an excuse to burn more coal. "Nothing in the study contradicts the view that stabilising climate will require large reductions in CO<sub>2</sub> emissions, but it does show the unexpectedly large importance of other gases."

Cutting methane emissions is cheaper than cutting CO<sub>2</sub> emissions, and brings other benefits. Besides boosting vegetation, reduced tropospheric ozone will increase growth rates for many crops and cut health risks, such as asthma, from air pollution.

John Reilly, an expert on non-CO<sub>2</sub> greenhouse gases at the Massachusetts Institute of Technology, agrees that a 40 per cent cut in methane emissions is feasible at relatively low costs. It could be done primarily by curbing leaks from gas fields and pipelines, and emissions from coal mines and landfills. But he warned that to limit warming to 2 °C, "we need to accelerate our efforts on everything". Even allowing for a 15-year breathing space, Reilly says, "it's not either CO<sub>2</sub> or methane, it has to be both".

If the good news is that reducing methane emissions can have a better-than-expected effect on curtailing global warming, then the bad news from Cox's calculations is that a continued rise in methane emissions would have a more damaging effect than previously supposed. If you let methane go up a lot, then less carbon can be stored in land sinks, Cox warns. Methane is, in effect, the unseen control on how much CO<sub>2</sub> can be safely put into the atmosphere.

Besides climate change, the conference has flagged up the over-pumping of underground water reserves, soil erosion, acidifying oceans, forest loss and the accumulation of human-made nitrogen in rivers and oceans.

The meeting is expected to call on the United Nations Earth Summit 2012, being held in Rio de Janeiro, Brazil, in June, to back the creation of an equivalent of the UN Security Council to put environmental security at the heart of world diplomacy.



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