

EU's CO₂ goal may be ecological suicide

THERE ARE some lines you don't want to cross. For our planet's climate system, the Rubicon we dare not step over is that global average temperatures would exceed two degrees C above pre-industrial levels.

However, since the planet has already warmed in recent decades by around 0.8 degrees, with more in the pipeline, we have precious little wiggle room remaining.

The stakes could hardly be higher. Breach that two-degree threshold and we have entered what Dr James Hansen, director of the Nasa Goddard Institute, calls a different world, a world quite unlike any in human history. Those two degrees, according to the World Wildlife Fund, will trigger "a major collapse of the natural environment". And since we also depend utterly on this environment, it is clear that a world beyond two degrees is unlikely to be capable of supporting an abundant or prosperous humanity.

That's why the numbers matter. Carbon dioxide (CO₂), a potent greenhouse gas, has a crucial role in regulating temperature. Right now, there are 385 parts per million (ppm) of atmospheric CO₂. This is the highest it has been in at least a million years, and it's rising fast, at the rate of about 2.5ppm every year.

The European Union's stated aim is to prevent CO₂ levels exceeding 550ppm. This target may be politically acceptable, but it's mostly likely ecological suicide. Two years ago, Hansen warned that anything beyond 450ppm would tip us into an irreversible climatic collapse. This is not good news, given that we are bang on track to hit that figure in 20 years.

It gets worse. Just last month, Hansen and eight colleagues published a dramatic reappraisal

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of the threat of rising atmospheric CO₂. The scientists examined direct physical evidence from ocean floor core samples.

They found that the last time there was 450ppm of CO₂ in the atmosphere – some 35 million years ago – it caused the mass melting of ice on the planet, and sea levels were 75 metres higher than today. I was in touch with Dr Hansen recently and he reckons that the safe level is “no higher than 350ppm, at the most”. While he accepts that “temporary overshoot is obviously possible”, sustained CO₂ levels beyond 350ppm will “initiate dynamic climate responses that become out of humanity's control”.

And there's the rub: that is actually lower than the level we are at today. Dr Hansen takes a stronger line than the Intergovernmental Panel on Climate Change regarding the likely risks associated with even current CO₂ levels. “Equilibrium sea level rise for today's 385ppm CO₂ is at least several metres,” he warns.



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The take-home message from the new research is simple: we have to slam on the brakes right now on CO₂ emissions, and then hope for the best.

And “now” doesn't mean in three, five or 10 years' time. He describes Ireland's plan for 3 per cent annual CO₂ cuts as “a good, ambitious target, but there needs to be an overview of what is needed. This must include phasing-out of coal use”.

While the Earth's systems are robust, they are also astonishingly sensitive to what are known as forcings.

Subtle changes, such as the seeming tiny two degree variation in the tilt of the Earth's axis (which occurs every 41,000 years) are sufficient to nudge the planet in or out of an Ice Age.

The reason such relatively minor events have such profound impacts on global climate is what are called positive feedbacks. Over time, these dramatically amplify small shifts. “These natural mechanisms are now overwhelmed by human-made emissions, so greenhouse gases are skyrocketing and ice is melting all over the planet. Humans are now in control of global climate, for better or worse,” says Hansen.

Even if somehow we managed to stop all CO₂ emissions today, the additional heating that nearly 200 years of fossil fuel-burning has injected into the system means temperatures may climb another 1 degree C without any further human assistance.

Every CO₂ cloud has a silver lining, Hansen insists. “We can successfully address the emergency only by stabilising climate close to its present state.” This would also ease the growing pressure on the biosphere.

Minister for the Environment John Gormley is clearly worried by Hansen's new data. “It means we need to be looking well beyond the 30 per cent target the EU aspires to,” he said during a lecture he delivered as part of the Environmental Protection Agency series on climate change in Dublin in April.

The problem, he added, was political as much as climate inertia. “We have a global economic and political system that not only does not respond quickly to this crisis but is in fact working in many ways in the opposite direction.”

He might well have been referring to the new cult of growth, presided over by economists, the 21st century version of high priests.

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