

Nasa scientist: climate change is a moral issue on a par with slavery

Prof Jim Hansen to use lecture at Edinburgh International Science Festival to call for worldwide tax on all carbon emissions

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Prof Jim Hansen: 'We're handing future generations a climate system which is potentially out of their control'.
Photograph: Melanie Patterson/AP

Averting the worst consequences of human-induced climate change is a "great moral issue" on a par with slavery, according to the leading Nasa climate scientist Prof Jim Hansen.

He argues that storing up expensive and destructive consequences for society in future is an "injustice of one generation to others".

Hansen, who will next Tuesday be awarded the prestigious Edinburgh Medal for his contribution to science, will also in his acceptance speech call for a worldwide tax on all

carbon emissions.

In his lecture, Hansen will argue that the challenge facing future generations from climate change is so urgent that a flat-rate global tax is needed to force immediate cuts in fossil fuel use. Ahead of receiving the award – which has previously been given to Sir David Attenborough, the ecologist James Lovelock, and the economist Amartya Sen – Hansen told the Guardian that the latest climate models had shown the planet was on the brink of an emergency. He said humanity faces repeated natural disasters from extreme weather events which would affect large areas of the planet.

"The situation we're creating for young people and future generations is that we're handing them a climate system which is potentially out of their control," he said. "We're in an emergency: you can see what's on the horizon over the next few decades with the effects it will have on ecosystems, sea level and species extinction."

Now 70, Hansen is regarded as one of the most influential figures in climate science; the creator of one of the first global climate models, his pioneering role in warning about global warming is frequently cited by climate campaigners such as former US vice president Al Gore and in earlier science prizes, including the \$1m Dan David prize. He has been arrested more than once for his role in protests against coal energy.

Hansen will argue in his lecture that current generations have an over-riding moral duty to their children and grandchildren to take immediate action. Describing this as an issue of inter-generational justice on a par with ending slavery, Hansen said: "Our parents didn't know that they were causing a problem for future generations but we can only pretend we don't know because the science is now crystal clear.

"We understand the carbon cycle: the CO₂ we put in the air will stay in surface reservoirs and won't go back into the solid earth for millennia. What the Earth's history tells us is that there's a limit on how much we can put in the air without guaranteeing disastrous consequences for future generations. We cannot pretend that we did not know."

Hansen said his proposal for a global carbon tax was based on the latest analysis of CO₂ levels in the atmosphere and their impact on global temperatures and weather patterns. He has co-authored a scientific paper with 17 other experts, including climate scientists, biologists and economists, which calls for an immediate 6% annual cut in CO₂ emissions, and a substantial growth in global forest cover, to avoid catastrophic climate change by the end of the century.

The paper, which has passed peer review and is in the final stages of publication by the US journal Proceedings of the National Academy of Sciences, argues that a global levy

on fossil fuels is the strongest tool for forcing energy firms and consumers to switch quickly to zero carbon and green energy sources. In larger countries, that would include nuclear power.

Under this proposal, the carbon levy would increase year on year, with the tax income paid directly back to the public as a dividend, shared equally, rather than put into government coffers. Because the tax would greatly increase the cost of fossil fuel energy, consumers relying on green or low carbon sources of power would benefit the most as this dividend would come on top of cheaper fuel bills. It would promote a dramatic increase in the investment and development of low-carbon energy sources and technologies.

The very rich and most profligate energy users, people with several homes, or private jets and fuel-hungry cars, would also be forced into dramatically changing their energy use. In the new paper, Hansen, director of Nasa's Goddard Institute for Space Studies, and his colleagues warn that failing to cut CO₂ emissions by 6% now will mean that by 2022, the annual cuts would need to reach a more drastic level of 15% a year.

Had similar action been taken in 2005, when the Kyoto protocol on climate change came into force, the CO₂ emission reductions would have been at a more manageable 3% a year. The target was to return CO₂ levels in the atmosphere to 350 parts per million, down from its current level of 392ppm. The paper, the "Scientific case for avoiding dangerous climate change to protect young people and nature", also argues that the challenge is growing because of the accelerating rush to find new, harder-to-reach sources of oil, gas and coal in the deep ocean, the Arctic and from shale gas reserves.

Hansen said current attempts to limit carbon emissions, particularly the European Union's emissions trading mechanism introduced under the Kyoto protocol which restricts how much CO₂ an industry can emit before it has to pay a fee for higher emissions, were "completely ineffectual". Under the global carbon tax proposal, the mechanisms for controlling fossil fuel use would be taken out of the hands of individual states influenced by energy companies, and politicians anxious about winning elections.

"It can't be fixed by individual specific changes; it has to be an across-the-board rising fee on carbon emissions," said Hansen. "We can't simply say that there's a climate problem, and leave it to the politicians. They're so clearly under the influence of the fossil fuel industry that they're coming up with cockamamie solutions which aren't solutions. That is the bottom line."

