

# Nuclear power crucial for UN climate goal: top scientist

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A top climate scientist says nuclear power must become a core part of the global energy mix, alongside renewables, in order to rapidly draw down the greenhouse gases that drive global warming

Capping global warming at two degrees Celsius, the UN goal, would require a massive scaling up of nuclear power, a top climate scientist said Thursday.

But even if humanity meets the target (3.6 degrees Fahrenheit), we are unlikely to avoid catastrophic climate impacts, mainly from rising oceans, James Hansen said.

One of the most influential climate scientists over the last three decades, Hansen's testimony before the US Congress in 1988 that warming had begun made headlines around the world.

"Two degrees is definitely very dangerous," Hansen told AFP on the margins of fraught United Nations negotiations in Paris for a deal to keep Earth liveable and help vulnerable countries cope with climate impacts.

"Two degrees Celsius warming above pre-industrial levels would put us at least at the temperature of the last inter-glacial period—sea level was six to nine metres (20-30 feet) higher then," he said.

"Half of the major cities in the world are on coastlines," he added.

"If we let ice sheets become unstable, the world may become ungovernable because the economic consequences would become so great."

The Greenland and West Antarctic ice sheets together contain enough frozen water to raise sea levels 13 metres (43 feet).

Hansen ran NASA's Goddard Institute for Space Studies in Maryland, a major centre for climate science, from 1981 to 2013.

As he became more alarmed by the dimensions of the climate problem, he stepped outside the usual confines of scientific research and began to lobby for policies he thought could help beat back the threat.



Atmospheric physicist and Columbia University Earth Institute adjunct professor James Hansen testifies before the Senate Foreign Relations Committee on March 13, 2014 in Washington, DC

## **Carbon tax**

For nearly a decade, he has called for a tax on carbon imposed close to the source of production, suggesting that the proceeds be redistributed to consumers based on how much greenhouse gases they emitted.

Carbon markets in which companies buy and sell pollution credits under a quota system have proven inadequate, Hansen said.

"Cap and trade doesn't work," he said. "If you do that, we are going to keep right on burning fossil fuels."

Science has calculated that at least 60 percent of unexploited oil, gas and coal reserves must stay in the ground to prevent Earth from overheating.

Hansen said Thursday that nuclear power—controversial because of safety fears—must become a core part of the global energy mix, alongside renewables, in order to rapidly draw down the greenhouse gases that drive global warming.

"All you have to do is look at emissions from China, India and the rapidly developing countries. It is almost entirely coal," the most carbon-intensive of all fossil fuels, he said.

"The solution of the climate problem has to be carbon-free electricity. And you simply are not going to get there in China and India without the help of nuclear."



Lyndon Pishagua Chinchuga, a representative of the indigenous peoples of the

Peruvian Amazon, walk past a stand at COP 21, the United Nations conference on climate change, at Le Bourget on December 3, 2015 More than 150 world leaders are meeting under heightened security, for the 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change COP21/CMP11) from November 30 to December 11.

Currently, 80 percent of energy production and consumption is generated by fossil fuels.

Solar and wind energy is expanding rapidly, and attracting investment, but renewables still account for less than five percent of the energy mix—not counting nuclear.

The sector is constrained by high costs, lack of storage capacity, and incompatibility with the existing electricity grid.

On current trends, Earth is on track to warm by about 4 C (7.2 F), which would yield an deadly maelstrom of mass migration and misery fuelled by extreme heat, superstorms and coastal flooding.



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Carbon-cutting pledges from more 180 nations to bolster the sought-after Paris agreement, put us on track for a 3 C world.

When asked if he had experienced a Eureka moment when he realised the enormity of the challenge facing humanity, Hansen paused.

"Yes," he finally said. "I was writing a [scientific] paper in 1981, and I was looking at some bar graphs for oil, gas and coal. 'Oops,' I thought, 'we can't burn all these'."

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