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US answer to global warming: smoke and giant space mirrors

Washington urges scientists to develop ways to reflect sunlight as 'insurance'

David Adam, environment correspondent
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Smog above Phoenix, Arizona US report suggests reflective dust could reduce warming. Photograph: Deirdre Hamill/AP

The US government wants the world's scientists to develop technology to block sunlight as a last-ditch way to halt global warming, the Guardian has learned. It says research into techniques such as giant mirrors in space or reflective dust pumped into the atmosphere would be "important insurance" against rising emissions, and has lobbied for such a strategy to be recommended by a major UN report on climate change, the first part of which will be published on Friday.

The US has also attempted to steer the UN report, prepared by the Intergovernmental Panel on Climate Change (IPCC), away from conclusions that would support a new worldwide climate treaty based on binding targets to reduce emissions - as sought by Tony Blair. It has demanded a draft of the report be changed to emphasise the benefits of voluntary agreements and to include criticisms of the Kyoto Protocol, the existing treaty which the US administration opposes.

The final IPCC report, written by experts from across the world, will underpin international negotiations to devise a new emissions treaty to succeed Kyoto, the first phase of which expires in 2012. World governments were given a draft of the report last year and invited to comment.

The US response, a copy of which has been obtained by the Guardian, says the idea of interfering with sunlight should be included in the summary for policymakers, the prominent chapter at the front of each IPCC report. It says: "Modifying solar radiance may be an important strategy if mitigation of emissions fails. Doing the R&D to estimate the consequences of applying such a strategy is important insurance that should be taken out. This is a very important possibility that should be considered."

Scientists have previously estimated that reflecting less than 1% of sunlight back into space could compensate for the warming generated by all greenhouse gases emitted since the industrial revolution. Possible techniques include putting a giant screen into orbit, thousands of tiny, shiny balloons, or microscopic sulphate droplets pumped into the high atmosphere to mimic the cooling effects of a volcanic eruption. The IPCC draft said such ideas were "speculative, uncosted and with potential unknown side-effects".

The US submission is based on the views of dozens of government officials and is accompanied by a letter signed by Harlan Watson, senior climate negotiator at the US state department. It complains the IPCC draft report is "Kyoto-centric" and it wants to include the work of economists who have reported "the degree to which the Kyoto framework is found wanting". It takes issue with a statement that "one weakness of the [Kyoto] protocol, however, is its non-ratification by some significant greenhouse gas emitters" and asks: "Is this the only weakness worth mentioning? Are there others?"

It also insists the wording on the ineffectiveness of voluntary agreements be altered to include "a number of them have had significant impacts" and complains that overall "the report tends to overstate or focus on the negative effects of climate change." It also wants more emphasis on responsibilities of the developing world.

The IPCC report is made up of three sections. The first, on the science of climate change, will be launched on Friday. Sections on the impact and mitigation of climate change - in which the US wants to include references to the sun-blocking technology - will follow later this year.

The likely contents of the report have been an open secret since the Bush administration posted its draft copy on the internet in April. Next week's science report will say there is a 90% chance that human activity is warming the planet, and that global average temperatures will rise another 1.5C to 5.8C this century depending on emissions. The US response shows it accepts these statements, but it disagrees with a more tentative conclusion that rising temperatures have made hurricanes more powerful.

• See the US document [here](#)

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