

# Artificial cooling tricky topic for climate panel

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In this May 10, 2011 file photo, workers cover the glacier with oversized plastic sheets on the peak of Germany's highest mountain Zugspitze (2962 meters) near Garmisch-Partenkirchen, southern Germany. The sheets are meant to keep the glacier from melting during the summer months. It's Plan B in the fight against climate change: cooling the planet by sucking heat-trapping CO<sub>2</sub> from the air or reflecting sunlight back into space. The U.N.'s expert panel on climate change is under pressure from both sides this week in Berlin, Germany, as it considers whether geoengineering should be part of the toolkit that governments use to keep global warming in check. (AP Photo/Matthias Schrader, File)

**It's Plan B in the fight against climate change: cooling the planet by sucking heat-trapping CO<sub>2</sub> from the air or reflecting sunlight back into space.**

Called [geoengineering](#), it's considered mad science by opponents. Supporters say it would be foolish to ignore it, since plan A—slashing carbon emissions from fossil fuels—is moving so slowly.

The U.N.'s [expert panel](#) on [climate change](#) is under pressure from both sides this week as it considers whether geoengineering should be part of the tool-kit that governments use to keep global warming in check.

Russia, in particular, has been pushing the panel to place more emphasis on such techniques in a key document for policymakers being finalized in Berlin this week.

Drafts leaked before the conference only mentioned one of the options, removing CO<sub>2</sub> from the air and storing it underground. Russia, a major oil and gas producer, said the Intergovernmental Panel on Climate Change should also mention solar radiation management, which could include everything from covering open surfaces with reflective materials or placing sun-mirrors in orbit around the Earth.

"It is expedient to give a short description of the approach and mention the major 'pro and contra'," Russia said in comments submitted to the IPCC and seen by The Associated Press.

But even advocates of studying geoengineering express doubts.

"Really at the present moment there is a high level of uncertainty surrounding all of these options," said Steve Rayner, co-director of Oxford University's geoengineering program. Still, he said it's worth continuing to research geoengineering "to get a better sense of whether there's any merit in pursuing these technologies further."



In this July 4, 2005 file photo Marc Olefs, left, and Andrea Fischer, researchers from the Innsbruck University check a field covered with white polyethylene against the backdrop of majestic jagged peaks at Eisgrat (Ice Spine) skiing station on Stubai glacier near the village of Neustift im Stubaital in the alpine Austrian province of Tyrol. It's Plan B in the fight against climate change: cooling the planet by sucking heat-trapping CO<sub>2</sub> from the air or reflecting sunlight back into space. The U.N.'s expert panel on climate change is under pressure from both sides this week in Berlin, Germany, as it considers whether geoengineering should be part of the toolkit that governments use to keep global warming in check. (AP Photo/George Jahn, File)

After discussions among governments and scientists, a mention of geoengineering was added last year to the first of four summaries of the IPCC's authoritative assessment on climate change. They are now working on the third one, which deals specifically with fighting climate change.

The document is important because it will be used as scientific guidance for governments as they negotiate a new global climate pact, set to be adopted in 2015.

Some environmental activists watching the talks in Berlin want the Intergovernmental Panel on Climate Change to scratch references to geoengineering altogether. They worry that such technologies would be ineffective, possibly harmful and delay efforts to shift the world's energy system from oil and coal to low-carbon energy sources like wind and solar power.

"It seems like a dangerous gamble to hold up this technology that may not work," said Jim Thomas, of the Canada-based ETC Group.

However, the IPCC's draft document says that unless emissions are cut much faster than currently projected, measures to scrub CO<sub>2</sub> from the air will have to be deployed to avoid potentially dangerous levels of warming.

The problem is those technologies don't exist yet or are in an experimental stage. No one knows whether they will be successful.

Ideas include spraying clouds with seawater to make them more reflective or pumping aerosols into the air to mimic the cooling effect from major volcanic eruptions.

Each is associated with unknown risks, including potentially shifting weather patterns or damaging the ozone layer that protects the Earth from ultraviolet sunrays.

One technology that is currently being tested at a small scale is called "bio-energy with carbon capture and storage," or BECCS. The idea is to grow crops that absorb CO<sub>2</sub> from the atmosphere then burn them in a

power station to generate energy. The resulting CO<sub>2</sub> emissions are captured at the plant and then stored deep underground. The net effect of that process is that CO<sub>2</sub> is removed from the air.

In a scientific report underlying the summary for policy-makers being discussed in Berlin and obtained by AP, the IPCC notes that BECCS could play a key role in curbing the buildup of CO<sub>2</sub> in the atmosphere, which scientists say is the main reason for [global warming](#). However, it would have to be deployed at a large scale, which would require major investments. There could also be negative impacts if food crops are replaced by bio-crops.

Right now the carbon removed through this technique is only a fraction of the 30 billion tons of CO<sub>2</sub> emitted annually from the combustion of fossil fuels.

"BECCS faces large challenges in financing and currently no such plants have been built and tested at scale," the IPCC says in the draft report.

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