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The Top 10 Most Controversial Ways to Save the Planet

By [Alexis Madrigal](#) Nov. 26, 2007, 10:46am PT [19 Comments](#)

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Remember those old sci-fi movies in which future humans would “[terraform](#)” Mars (or some more distant planet) to make it more like the relative paradise of our blue-green Earth? Well, it turns out we’re already honing those terraforming skills, and they’re aimed at making our own planet more inhabitable.

Here on Earth, terraforming is referred to as geoengineering, and is defined as the intentional, large-scale modification of the global environment, (although it should be noted that many of these projects [are not exactly global in scale](#)). While some startups are working on developing geoengineering technologies, the plans to merely mitigate global warming could still leave “powerful actors and their interests relatively intact,” according to Jay Michaelson in a [seminal paper](#) in the Stanford Environmental Law Review. In other words, the upheaval of the dinosaur energy industry, on which the greentech VC boom is predicated, might be that much tougher if geoengineering takes the place of carbon pricing and startup competition.

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Still, those in the greentech sector should pay attention to the 10 most controversial ways to save the planet, if only because some of these ideas are [gaining steam in Washington](#).

1. [Ocean seeding](#): Causing plankton blooms is all over the news, with two companies, Planktos and Climos, trying to [sell carbon credits from dumping iron into the ocean](#). The idea is simple: plankton eat CO₂, iron grows more plankton, therefore, dumping iron means less CO₂. But traditional environmentalists are up in arms over the practice, citing unintended consequences.
2. [Re-ice the Arctic](#): An ocean current brings warm water up from the tropics towards northern Europe, where it sinks and flows back down to the tropics. This system is called thermohaline circulation, or “the ocean conveyor belt.” Some have speculated that it could stop running because of a warmer Arctic. A University of Alberta scientist has a common-sense fix: charter a fleet of 8,000 barges to re-ice the Arctic with salty ice, thereby cooling the water and keeping the conveyor belt moving.
3. [Sulfur solar shield](#): Advocated (for research) of late by ozone alarm-sounder Paul Crutzen, this strategy would call for a massive injection of sulfur into the upper atmosphere, thereby creating a reflective shield that would keep the Earth cool, not unlike what happens [after a major volcanic eruption](#).
4. [Ocean-cooling pipes](#): Though the idea received a lot of attention after Gaia-hypothesis originator James Lovelock called attention to it, a startup called [Atmocean](#) has been hard at work developing an ocean-cooling pipe prototype for years. It would serve two purposes: cooling the ocean in front of approaching hurricanes, as well as causing plankton blooms that could act as a CO₂ sink.
5. [Cloud seeding](#): Seeding the clouds is a perfect example of a regional geoengineering response to global climate change. Given that increased extreme weather, including droughts, are a major impact of climate change, it seems logical that shooting various things into the clouds to stimulate them into action would be tried as regional precipitation norms are refigured. But, [as Carnegie Institution climatologist Ken Caldeira is quoted as saying](#), “You can’t turn deserts to farmlands by sprinkling silver iodide into clouds.”
6. [Genetically Modified CO₂-Eating Trees](#): While all trees scrub CO₂ from the air and produce the oxygen that we breathe, scientists are looking into genetically modifying trees’ ability to “eat” carbon dioxide. Turn those [supertrees into fuel biomass](#), and they might be on to something, although GM trees turn up the familiar concerns about [gene spread and agribusiness](#).
7. [Fake Plastic CO₂-Eating Trees](#): Modeled on trees’ ability to suck in CO₂, these machines would pump air “through a chamber containing sodium hydroxide, which reacts with the CO₂ to form sodium carbonate.” After a few more reactions, there’d be pure CO₂, which could be injected into the ground like a regular old carbon storage system.
8. [Space mirrors](#): By some estimates, reflecting a [mere 1 percent](#) of sunlight back into space instead of allowing that energy to be absorbed into the atmosphere would offset all of the greenhouse gases generated since the industrial revolution. The obvious solution? Space mirrors. The problem is that they’d have to be huge and there would have to be a lot of them, and given that launch costs are in the thousands of dollars per pound, we might as well just make a [space solar power station](#) out of them.
9. [Reflective space mesh](#): Proposed by [Edward Teller, the father of the hydrogen bomb](#), this reflective mesh would be placed out in space, about a million miles between the sun and the Earth. Using the

same theoretical model as the space mirrors (simplified: less sunlight = cooler earth), the mesh could be a less expensive strategy, although probably not as cheap as the sulfur solar shield.

10. [Glacier Blankets](#): At a cost of a mere \$12 million per square mile, we could blanket glaciers with a special material designed to protect high-value Alps skiing territory. The material is basically a fancy Patagonia shirt: “On top is polyester to reflect ultraviolet light, and on the bottom is polypropylene, a polymer used in military clothing and auto parts, to block heat.” The Greenland ice sheet is 650,000 square miles or so, so this method looks like it will cost too many trillions of dollars to ever make sense.

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7



1.

Jsry [Tuesday, November 27 2007](#)

Nice post...

I'd have to question the application of the term "geoengineering" to some of these. For example, both "CO2 eating trees" and "Plankton Seeding" are both easily done on a small scale, or are already being done on a small scale for other reasons. We're already re-planting forests, including trees that are bred for fast growth. We're already seeding the oceans with certain nutrients to grow fish, seaweed, etc, which is operationally the same as iron seeding. I looked at the CLimos and Planktos websites and see only small-scale experimental work proposed. Further both of these techniques have major biological benefits to the ecosystem beyond their planet-saving qualities — the squirrels would be happy to have more trees, and the fish would be happy to eat more plankton. Assuming they are done with caution and care, they could be a big net gain for the ecosystem.

These kinds of biologically-based activities are completely different from crazy schemes like stretching a giant blanket over a glacier. I'd like to see the environmental movement be a bit more intelligent about how we classify these techniques, instead of just throwing the label "geoengineering" at them.

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2.

Sanjong Thapa [Wednesday, November 28 2007](#)

how 'bout taking a snow-maker and cover half the planet's crop in freezing white powder?

C'mon! Get real.

'man-made' global warming is the biggest crock of crap that the counter-culture has ever tried to get over on the consumer.

Less Ice = More Food

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3. *Matthew* [Thursday, November 13 2008](#)

This is directed towards the last peice you wrote on about the glacier blankets. Please do not dismiss this idea, yes the Greenland ice sheet is 650,000 square miles but that is not what Dr. Jason Box wants to do. Dr. Jason Box is the man who came up with the idea and has done small scale expirements with these. If you watch the videos and read more into, you will be amazed how well it works. Back to the point, Dr. Box foremost wants to cover the areas where the glacier sheet is melting rapidly, at areas that have “melt lakes” which are bodies of water near the glacier that cause it to melt even faster. He wants to put the blankets around the edges of the greenland ice sheet, which i’ve been googling the measurements for the perimeter for almost an hour but cannot find anything on it, but it would certainly be significantly cheaper. I just think you should consider the idea based on the results they got from the expirement, just check it out.

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4. *sarah* [Friday, January 9 2009](#)

This is all buulshit

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5. *Uncle B* [Wednesday, April 22 2009](#)

SEE: <http://www.sciencedaily.com/releases/2009/04/090416102247.htm>

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Check out my wild assertions, research the web, talk to friends, local schools etc., and move on this! It will save our souls from Nuclear holocaust if it works, and keep the coal mines and their

destructive environmental practices shrinking! Check out Algae derived Bio-Diesel at the same time! With both these super, eco friendly fuels going for us a heavy carbon tax can be a Godsend, getting us off of carcinogenic imported oil forever – Now is your chance America, rise up and win, or fall slowly to Detroit Cities Third World status with your tail between your legs – Your call America!

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6.

[eco-logicaloFriday, August 21 2009](#)

Even though it sounds interesting I'd disagree with number 6. A significant number of such GE trees are known to have been developed to resist insects, such as two poplar species that were commercialised in China. Alerting effects are also detected on the soil. GE trees can affect the bacteria, earthworms and soil respiration. The leaves of GE trees planted along a water source can enter the waterways and we still do not have enough data to foresee its consequences for the aquatic life.

Therefore, Genetic technology should therefore be restricted to indoors, with containment, and should not be mixed with wild life.

For the informative documentary on GE trees “a silent forest” your may follow the link:

<http://ecofuture.net/osquee/2009/08/21/ge-nightmares/>

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7.

[Uncle BTuesday, December 1 2009](#)

At any rate, Americans will not be counted into the equations for change – they are broke, face a dollar falling at breakneck speeds, threatening crash! Yankee Doodle will be lucky to feed his fat ass spam after that Shiite hits the fan! We will trim NASA to the bone, Leave Iraq, limit the Afghanistan involvement and pull back our horns world-wide in face of the Asian Fact: We no longer have a strong enough dollar to command 80% of world resources, and must share with the stronger Yuan and Asian forces abroad! Our Military is totally foreign oil dependent! Goddammit! OPEC holds the tap on our Armed forces – The Oil Embargo of the '70's taught us this lesson! Time to cut down Old Glory in many outposts, and return home to consolidate! The Corporatist Bull Shiite propaganda that makes our false pride possible has run out of lies! We are a poor debtor nation to the world living far beyond our means, and about to face the

comeuppance of a lifetime! We can't even make our own cars, and when we assemble cars most the parts we use come from Asians! Salted American soil in California represents the Treason against America committed by Corporate Power for ROI! Sickening! America! Dead on the road! Even the tools for production melted and sold to Asian interests to make the tools for the factories of our destruction, in Asia! all for a “%”, and ROI in the bankers pockets! We were duped into believing we would all, one day, become millionaires! Do you feel rich today? Do you still hold out hope for that day? We cannot pay for the wild dreams of our great sears and intelligentsia – they have let us down! The think-tanks, the Ivory Towers we paid so dearly to support spew crap like this while we tighten our belts, drink water in place of milk and watch Asians walk away with our jobs! Sprinkle iron on the oceans for salvation! Sprinkle your asses with buckshot, rid the world of your useless carcasses – one mouth less to feed! My back is sore my arches broken down, carrying assholes like these boys on my bent shoulders did it! They need to go out and produce real wealth, not this Bull Shiite! G d please save me from these assholes, I am tired and do not need the aggravation of their mindless prattle today!

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The complex block is a promotional graphic for GigaOm Pro. It features a blue border. At the top, the text "Big Data and PaaS Gain More Momentum" is written in blue. Below this, on the left, is a paragraph of text in black: "The cloud: Public/private wars? Cutthroat PaaS? Find out what happened now!". To the right of this text is a graphic with a green grid pattern and the text "Infrastructure Q2 Wrap-Up" in green. At the bottom left is the GigaOm Pro logo, which consists of a blue square with a white grid pattern followed by the text "GIGAOM PRO" in blue and white.

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