

Moral Haze
Clouds Geoengineering

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Will researching geoengineering ease pressure on governments to reduce national greenhouse gas emissions? The suspicion that it will explains why many people feel nervous about the whole climate engineering enterprise.

To counter this fear, geoengineering researchers and supporters frequently say that more information is always a good thing, and each inquiry recommends more research funding.

But is more knowledge always a good thing? After all, almost all climate scientists frowned on geoengineering research, even on public discussion of it, for many years. Nobel Laureate Paul Crutzen received hefty criticism from fellow scientists for his landmark intervention in 2006 calling for serious research into Plan B (climate engineering) because Plan A (cutting global emissions) had been “grossly unsuccessful.”

The critics feared that by merely researching Plan B, governments would be let off the hook, but they lost the argument. Although the concern about “moral hazard” remains just as high, there is no way to squeeze the research genie back in the bottle.

Even if an extensive research program proves that geoengineering is an inferior

substitute for cutting emissions, its availability as an option may result in its implementation all the same. Contemporary politics is only too well-practised at using spin to make poor policies appear desirable or at least necessary.

While geoengineering researchers acknowledge the problem, they tend to be vague and dismissive about the likelihood of moral hazard. They talk as if it is only of theoretical concern. The 2009 Royal Society report, dominated by geoengineering researchers, treated it as an uncertain effect that may even work the opposite way, and referred to some distinctly unpersuasive focus-group results suggesting that individuals may *increase* their efforts to cut their emissions if governments invested more in geoengineering.

In practice, any realistic assessment of how the world works, including the politics of climate change, must conclude that geoengineering research is virtually certain to reduce mitigation incentives. We can see this even now, before major research programs have begun.

Already, people close to the fossil fuel industry have begun to talk of geoengineering as a *substitute* for carbon abatement. They are being backed by

some economists, the authors of the 2009 study published by the Copenhagen Consensus Center, who readily conclude that geoengineering should be pursued as Plan A if that's what their "cost curves" indicate.

The popular book *Superfreakonomics*, by Steven D. Levitt and Stephen J. Dubner, argues that the prospect of solar radiation management makes mitigation unnecessary: economics renders moral concerns redundant: "For anyone who loves cheap and simple solutions, things don't get much better. ... So once you eliminate the moralism and the angst, the task of reversing global warming boils down to a straightforward engineering problem: how to get thirty-four gallons per minute of sulfur dioxide into the stratosphere?"

Conservative think-tanks, like the American Enterprise Institute which has for years denied the existence of human-induced global warming, are now backing geoengineering. Republican presidential candidate and former House Speaker Newt Gingrich has declared: "Geoengineering holds forth the promise of addressing global warming concerns for just a few billion dollars a year. Instead of penalising ordinary Americans, we would have an option to address global warming by rewarding scientific invention... Bring on the American ingenuity."

For these advocates, the moral hazard problem evaporates because there is nothing wrong with reducing abatement incentives if a cheaper means of responding to climate change is available.

Faith in techno-fixes that provide a way to avoid emission-cutting is stronger in the United States; scientists and policy-makers in Europe take a more cautious and nuanced approach.

Ethicist Stephen Gardiner has suggested a quite different reason for not worrying about the disincentive effects of geoengineering research. He suggests that since the Copenhagen failure in 2009, the prospects for substantial emission-abatement policies in the foreseeable future are so low that the availability of a substitute could not drive them any lower.

Against this argument, in some parts of the world — notably the European Union and China — substantial efforts are being made to reduce emissions and accelerate the development of alternative energy technologies. The Australian Government's carbon tax was barely passed by its parliament, and California has just implemented an emissions-trading scheme. These efforts rely on a level of political resolve that could easily be weakened.

But let's look to the future. As the consequences of a warming globe become more apparent over the next decades, a readily available, seemingly effective alternative to emission-cutting could determine the kind of action taken. Politicians will be tempted to seize upon any apparently plausible method that will get them off the hook.

For the moment, and for the most part, governments and energy companies are keeping geoengineering research at arm's length, precisely because they fear being

accused of evading their responsibilities. But the day cannot be far off when it becomes respectable to support geoengineering research. At that point, it will be almost impossible to stop.

History backs up this disturbing prospect. The case of carbon capture and storage (CCS) suggests that in practice, geoengineering is tailor-made for moral hazard.

The hazards of CCS

Soon after the 1997 Kyoto agreement, Australia and the United States announced they would not ratify the treaty. Instead, they began promoting the benefits of CCS, a technology that promised to extract carbon dioxide from the smoke-stacks of coal-fired power plants, pipe it to suitable geological formations and bury it permanently. Burning coal would be rendered safe, so there was no need to invite “economic ruin” with policies mandating emission reduction.

Quickly branded “clean coal” the promise of the new technology was increasingly relied on by the world coal industry to weaken policy commitments and spruce up its image. The World Coal Association argued that “failure to widely deploy CCS will seriously hamper international efforts to address climate change”.

The promise of CCS has been used repeatedly by both governments and industry as a justification for building new coal-fired power plants. In the United Kingdom, then Prime Minister Gordon Brown declared that we must have it “if we are to have any chance of meeting our global goals.” US President Barack

Obama’s public endorsement of “clean coal” was featured in PR videos made by the coal lobby.

German Chancellor Angela Merkel backed industry plans to build dozens of new coal-fired power plants, expecting that at some point they would be able to capture the carbon dioxide and send it to subterranean burial sites. In Australia, the world’s biggest coal exporter and the nation most dependent on coal for electricity, then Prime Minister Kevin Rudd declared CCS “critical” to generating jobs and bringing down greenhouse gas emissions.

Economists also relied on a technology that was known to be very expensive and unlikely to reduce emissions substantially for at least 15-20 years. The Stern report called CCS “crucial”. Jeffrey Sachs, Director of the Earth Institute, repeated the widely-held opinion that there is no way China will stop building coal-fired power plants, so the technology “had better work or we’re in such a big mess we’re not going to get out of it.”

The International Energy Agency has also promoted CCS enthusiastically. Torrents of public funding flowed into research. The Obama Administration’s 2009 stimulus bill allocated US\$ 3.4 billion and the US Department of Energy announced it would provide US\$ 2.4 billion to accelerate the deployment of CCS technology.

In the same month, the Australian Government announced it would commit US\$ 2.4 billion to an industrial-scale demonstration project. The high hopes invested in CCS provoked the conservative business magazine *The Economist* to

comment in 2009 that “the idea that clean coal ... will save the world from global warming has become something of an article of faith among policy-makers”.

It is easy to foresee this same story unfolding in the geoengineering case, which also seems to allow governments to avoid difficult decisions and declare that new technology will save us from a warming globe.

Yet from the outset, impartial experts argued that the promise of CCS was exaggerated. Even its supporters conceded that the technology, if it worked, would have no impact on global emissions until at least the 2030s, well beyond the time scientists say deep emission cuts must begin. The most damning assessment was made in 2009 by the *Economist* in an editorial titled “The illusion of clean coal:”

The world’s leaders are counting on a fix for climate change that is at best uncertain and at worst unworkable. ... CCS is not just a potential waste of money. It might also create a false sense of security about climate change, while depriving potentially cheaper methods of cutting emissions of cash and attention — all for the sake of placating the coal lobby.

The *Economist* was echoing the warnings of critics who had identified one of the major risks associated with pursuit of CCS as the way in which it would undermine global mitigation efforts by giving national governments an excuse to do nothing in the hope that coal plants could be rendered safe. Greenpeace’s description of CCS as “a smokescreen for building new

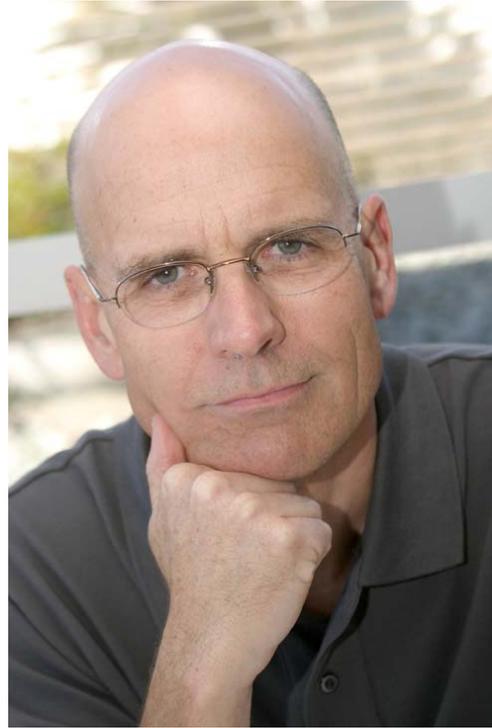
coal-fired power stations” turned out to be correct.

Despite the hype, the hopes and the public investment, the promise of CCS is now collapsing. Its leading experts are expressing disappointment at the failure of governments and the coal industry to follow through on their commitments.

In October 2011, a £1 billion CCS project in Longannet, Scotland, was cancelled due to lack of commercial viability. The Prime Minister said the project “isn’t working.” In November 2010 Shell’s Barendrecht carbon-capture project in the Netherlands was cancelled due to local opposition. A month later ZeroGen, a huge project identified by the Australian government as a “flagship” carbon capture project, was shelved because of cost blow-outs and technical difficulties. The *New York Times* commented: “Australia’s experience with CCS mirrors technical, financial and political hurdles experienced in the United States.”

There could be no more vivid illustration of moral hazard; yet it is into this political and business environment that geoengineering arrives as the next great white hope. It is presented as a solution to the same global warming problem, to the same politicians, the same reluctant industry, the same public prone to wishful thinking, and the same largely uncritical media. The hype surrounding CCS probably cost the Earth a decade in lost abatement time. Will the promise of geoengineering cost us another decade?

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