

## Will State and Local Governments Put the Kibosh on Geoengineering?

Two recent developments indicate that state and local governments may find themselves on the spot when it comes to governing geoengineering field tests. The Alameda, California, city council recently rejected a proposal by the University of Washington to conduct a small-scale geoengineering test from the deck of the U.S.S. *Hornet*, which is docked at a local pier pursuant to a lease agreement with the city. The test, which involved spraying aerosolized saltwater, was proposed in connection with a larger program that studies the potential to reduce climate warming by brightening marine clouds to increase sunlight reflection.

In another development, last April Tennessee enacted a blanket geoengineering ban on the grounds that “the risk to human health and environmental welfare from broad-scale geoengineering is currently not well understood.” Several other

state legislatures, according to NBC News, have considered legislation that would ban or regulate geoengineering in some manner, including Illinois, Kentucky, Minnesota, New Hampshire, Pennsylvania, Rhode Island, and South Dakota.

Geoengineering can take a variety of forms that generally fall into two categories: Carbon dioxide removal and solar radiation management—each of which includes a range of technologies. CDR focuses on reducing warming by removal and long-term sequestration of carbon dioxide using approaches such as direct air capture or reforestation. SRM technologies are measures (which are temporary unless continued ad infinitum) that reflect incoming sunlight to reduce warming, using approaches such as stratospheric aerosol injection and cloud brightening.

From the get-go, the concept of geoengineering was met with concern

from environmental advocacy organizations—many of which remain steadfast in their opposition. Friends of the Earth calls geoengineering “an attempt by those most responsible for climate disruption to continue polluting instead of committing to the necessary actions and funding needed to help those countries and communities that will be most harmed by climate change.” It emphasizes: “The side effects of geoengineering interventions are unknown and untested.”

Other environmental groups, however, are taking a more nuanced approach. NRDC has emphasized that there is “absolutely no substitute for slashing fossil fuel emissions,” but it is nevertheless “prudent to do research into geoengineering.”

Despite growing interest in geoengineering, efforts to develop a national or international governance regime for testing have yet to materialize. For example, in a 2021 report, the National Academy of Sciences emphasizes that there is “currently no coordinated or systematic governance of [solar geoengineering] research.” According to the report: “A U.S. national solar geoengineering research program should operate under robust research governance and support the development or designation of an international governance mechanism.”

For now, however, existing laws—although not designed to address geoengineering—will have to suffice. In a sweeping review of the governance landscape, University of California Davis School of Law Professor Albert Lin has identified numerous federal statutes that in theory could be relied upon to regulate testing and deployment.

In situations in which federal regulators are not engaged or federal laws do not apply, however, states and localities will continue to be left to their own



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devices. This appears particularly likely when it comes to small-scale field tests. According to Lin's analysis, states and local governments also have a range of laws and ordinances on the books that in theory could be used to regulate geoengineering.

Lin identifies both generally applicable laws as well as laws that may apply only to certain geoengineering technologies. Procedural laws include state analogues to the National Environmental Policy Act that impose assessment requirements, and which could be implicated, for example, when a geoengineering project involves approval of new construction. In addition, state analogues to the Weather Modification Reporting Act could require permits or advance notice before testing approaches such as cirrus cloud modification. Lin also identifies substantive laws that could apply in certain circumstances, such as state wildlife laws or state or local emergency authorities.

Some state and local laws also may apply to specific geoengineering technologies. For example, installation of large air capture devices could be governed by zoning regulations or building permits, and genetic modification of crops to increase albedo could be covered by local and state regulations on genetically modified organisms.

Although the type and scope of their available regulatory authorities will vary widely, it appears likely for the time being that state and local governments will play a role in governing geoengineering.

**Agencies can draw on existing authorities to regulate field tests**