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OPINION | COMMENTARY

## *The Climate Needs Nuclear Power*

If governors are serious about global warming, they'll preserve this vital source of clean energy.

By James Hansen and Michael Shellenberger

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The Diablo Canyon nuclear-power plant in San Luis Obispo, Calif. PHOTO: CORBIS VIA GETTY IMAGES

Many

environmentalists have changed their minds about nuclear energy over the past decade. While the share of energy produced by solar and wind has grown rapidly, nuclear remains America's largest source of clean, zero-emissions electricity. Anyone seriously interested in preventing dangerous levels of global warming should be advocating nuclear power.

But two-thirds of U.S. nuclear plants in the U.S. are at risk of being closed prematurely and replaced by natural-gas generation, which is currently cheaper in many states. If that happens, carbon emissions could increase by an amount equivalent to adding 47 million new cars to the road.

Ideally, the federal government would solve this problem, but between Republican skepticism of climate change and Democratic opposition to nuclear energy, that's unlikely to happen before many nuclear-plant operators must decide whether to shut down. Thus the job of keeping these beleaguered nuclear plants open falls to state governments.

Lawmakers in Ohio and Pennsylvania are considering proposals to keep their nuclear plants operating. Ohio is at risk of losing two plants that produce 90% of its clean energy. Pennsylvania's five nuclear plants produce nearly as much electricity as do all of America's solar panels and farms. Nuclear accounts for 93% of the Keystone State's clean, zero-emissions electricity. If Pennsylvania and Ohio's nuclear plants close and are replaced by facilities that burn natural gas, it would be like adding 13.5 million new cars to the roads.

Nuclear plants can be saved through modest subsidies similar to the ones extended by lawmakers in Connecticut, Illinois, New Jersey and New York between 2016 and 2018. Those subsidies have been smaller than the federal subsidy that wind-energy generators have

received for 27 years. In 2017 New York energy regulators gave nuclear power generators a subsidy of \$17.34 per megawatt-hour. They also subsidized wind generators at \$23 per megawatt-hour on top of the federal subsidy of \$22 per megawatt-hour.

The fossil-fuel lobby's objections to nuclear power are understandable. The American Petroleum Institute wants to replace Ohio's and Pennsylvania's nuclear plants with natural-gas plants because its members stand to benefit. But why do groups that claim to be concerned about the climate oppose nuclear power?

Some Democratic lawmakers in Pennsylvania and environmental groups such as the Natural Resources Defense Council are urging state legislators not to subsidize nuclear without increasing subsidies for solar and wind. While combining subsidies for nuclear with subsidies for wind and solar worked to get legislation passed in New York and Illinois in 2016, such an approach risks backfiring in Ohio and Pennsylvania, where state lawmakers are more fiscally conservative and tend to be skeptical of renewables.

Saving nuclear plants won't be free, but keeping them open will keep electricity prices lower than if natural gas is allowed to dominate. Both Ohio and Pennsylvania still produce large amounts of electricity from coal, which is being replaced by natural gas. If both coal and nuclear plants are replaced by gas, ratepayers will be vulnerable to future price increases at the hands of monopolistic gas generators.

New York and California, meanwhile, are moving ahead with plans to close two nuclear plants. In the Empire State, Westchester County's Indian Point will close in 2021 and, on the West Coast, San Luis Obispo's Diablo Canyon will go offline in 2025. California is already set to miss its 2030 target of a 40% reduction in emissions below 1990 levels. If Diablo Canyon closes and half of its output is replaced by natural gas, there's no way they'll get there.

It is notable that while three natural-gas plants are being built to succeed Indian Point, local opposition to the construction of solar and wind farms has kept them from being built at anywhere near the rate necessary to replace the nuclear facility's output.

We've been here before. Environmentalists promised that solar and wind would replace output from California's San Onofre Generating Station, which closed in 2013, and the Vermont Yankee Nuclear Plant, which shut down the following year. Instead, they were replaced mostly by natural gas, and emissions rose in both states. At the rate Vermont is building new wind farms, it would take 474 years to match the electricity generation it lost from closing Vermont Yankee.

The problem isn't only that nuclear plants generate far more electricity. It's that solar and wind generate it only sporadically, which means they must be backed up by other sources of power 100% of the time. There is great hype about batteries, and using dams as pumped storage. But those solutions remain extremely expensive, which is why whenever nuclear plants close anywhere in the world, they are usually replaced by coal or natural-gas plants—not solar, not wind and not batteries.

It doesn't have to be this way. The governors of California, New York, Ohio and Pennsylvania can take actions to keep their nuclear plants operating. Governors in those states have in recent years urged more action out of Washington to address climate change. They'll have far more credibility and influence if they first take action in their home states.

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