

# Legal Pathways to Biden's Climate Goals

By Michael B. Gerrard

**A**chieving President Biden's goal of net-zero greenhouse gas emissions by 2050, with interim targets of being halfway there by 2030 and having entirely clean electricity by 2035, is possible with law and technologies that already exist or can be readily imagined. In the process, many more jobs would be created than lost, and aspects of the environment beyond climate change would be greatly improved. But it is a massive undertaking.

The nature of this task was spelled out in detail in a prescient report, *Pathways to Deep Decarbonization in the United States*, issued in 2014 and 2015 by the Sustainable Development Solutions Network and the Institute of Sustainable Development and International Relations. Much of the same team, led again by Jim Williams, prepared an updated version in 2020 as part of the Zero Carbon Action Project.

Based on the 2014/2015 reports, in late 2015 John Dernbach and I began work on an edited volume that the Environmental Law Institute published in 2019, *Legal Pathways to Deep Decarbonization in the United States*. It analyzed how federal, state, and local law and private governance need to change for the United States to achieve goals that are very similar to those that the Biden campaign would announce a year later.

Five pillars underlie this effort.

*Electricity decarbonization.* In generating electricity, we need to eliminate all use of coal and almost all use of gas unless it is coupled with carbon capture and sequestration, or comes from biological sources. This will require a massive program

to build new solar (both utility-scale and rooftop) and wind (both on-shore and offshore) facilities, as well as more geothermal, hydropower, and other non-fossil technologies. The existing nuclear fleet needs to keep running as long as it can operate safely. A comparably massive program of new transmission lines is needed to bring the power from these new sources to where it is needed, coupled with storage to fill in the gaps when there is no wind or sun. According to the Zero Carbon Action Project, that will require 3,000 gigawatts of new generation by 2050 — an average of 100 gigawatts a year. (One good-sized nuclear power plant generates about one gigawatt.)

*Energy efficiency.* We need a 40 percent reduction in per capita energy demand. This would mostly come from improvements in the efficiency of appliances, buildings, and all manner of industrial operations.

*Electrification.* Most uses that now rely on fossil fuels need to switch to electricity. The biggest sector here is transport. This means that all new cars and SUVs need to be electric by about 2035, with trucks and buses not far behind (unless hydrogen or other technologies do the job). Electricity needs to be used instead of oil and natural gas to heat buildings and water; all new buildings need to be all-electric, and over time older buildings need to be converted. The added electricity demand that all this will create (even after aggressive energy efficiency programs) is one reason we need so much new generation and transmission.

*Carbon capture and removal.* It is difficult to abate the emissions from certain industrial operations, such as making cement and steel. For these, and for any remaining natural gas power plants, we need to capture the carbon dioxide before it leaves the stack, and either use or sequester it. We also need to remove large amounts of the carbon dioxide that

is already in the atmosphere. Some of this can be achieved by planting more trees and better managing forests. Some can be done through improved agricultural practices, which will also reduce methane emissions. Beyond that, we need various technologies now being developed to draw carbon dioxide from the atmosphere.

*Non-CO<sub>2</sub> pollutants.* Carbon dioxide is not the only pollutant that contributes to climate change. Methane, fluorinated gases, nitrous oxide, and black carbon are also important, and each can be drastically reduced.

All of this will require a great deal of new infrastructure. President Biden's American Jobs Plan, if enacted by Congress, would be an important move in that direction.

Congress has not passed a major new environmental law since 1990. The partisan paralysis since then has been a major obstacle to progress in the fight against climate change (and many other things). There are several items Congress could enact that would greatly assist in meeting the 2050 goals. These include an economy-wide carbon pricing system; a clean electricity standard; stricter command-and-control regulations of air pollution; more subsidies for clean energy; and elimination of subsidies for fossil fuels. None of these would do the whole job, but any would greatly help.

Meanwhile, many states, cities, and corporations are making great efforts. But the federal government must take the lead — both the president (who has stepped up) and Congress (for which we are still waiting).

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